ONTARIO STROKE NETWORK STROKE DISTINCTION REPORT

Organization: Kingston General Hospital (KGH)

Address: 76 Stuart Street, Kingston, ON, K7L 2V7

Contact Name: Colleen Murphy & Cally Martin

Contact Information:

Colleen Murphy

Email: murphyc2@kgh.kari.net

Phone: 613-549-6666 ext 6306

Cally Martin

Email: martinc@kgh.kari.net

Phone: 613-549-6666 ext 3562

Report completed by:

X Same as above

Focus of accreditation (check all that apply)

X Acute Stroke Services
□ Inpatient Rehabilitation Services Standards
□ Standards for Providing an Integrated System of Services to People with Stroke

Date accreditation process started (dd/mm/yy): 22/11/2010

Date accreditation process completed (dd/mm/yy): 23/11/2012

Date of report (dd/mm/yy): 14/01/2013

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Q1. Why did your organization decide to embark on the Stroke Distinction process?

The KGH stroke team embarked on this process over two years ago with the knowledge that pursuing the award would **help to improve patient care** and would **build team collaboration** and understanding of each member's contribution to excellence in care.

Pursuing this award aligned with two KGH strategic directions:

1. "*We will increase our **focus on complex-acute and specialty care**"*: This was a way of measuring performance as a Regional Stroke Centre against national objective evidence-based standards based on the Canadian Best Practice Recommendations for stroke prevention and care.

2. "*We will transform the patient experience through a **relentless focus on quality**, safety and service*": Quality improvement was at the heart of the process required to achieve the award.

This process also aligned with a key strategic direction of the Stroke Network of Southeastern Ontario: "*To set and monitor regional **expectations for acute stroke unit care**"*. The pursuit of the national award was included in the Regional Stroke Workplan.

Approval was sought before applying for Stroke Distinction from senior leadership, clinical leaders across the organization and the stroke team. The KGH Medicine Program sponsored the pursuit of the award and this process became one of the Medicine Program's *Improvement Tactics* **in support of the KGH strategy** and annual plan. This process was well suited to **learning how to apply a new common continuous improvement methodology** that was being promoted across the Medicine Program using root cause analysis, rapid cycle change and Plan Do Study Act (PDSA) cycles.

In addition to facilitating improvements in the quality of stroke patient care and prevention, the leadership group knew the process would engage staff across the organization in a common change initiative **enhancing team collaboration and staff morale,** highlighting their expertise and what they do well. This process would engage all team members in performing a self-assessment against national standards, using performance indicators to improve quality of care, working on an innovative project, examining methods for improving patient and family education and updating protocols, collaborative care plans and patient care order sets.

Q2. What was the outcome of the accreditation process?

KGH was awarded with Distinction on Dec 14th 2012.

The Stroke Distinction process resulted in

- **Focused improvements in patient outcomes to meet core performance targets** including a 20% increase in stroke unit utilization, a 5% drop in in-hospital stroke mortality, increased dysphagia screening rates and decreased 30 day readmission rates. Increased rates of discharge to rehabilitation were also observed. Interestingly, 100% of the patients admitted to inpatient rehabilitation received stroke unit care.

- **Greater understanding of complications rates.** Two optional indicators were selected (one known to be strong, one needing more attention). These were CT/MRI within 24 hours and stroke complication rates. The complication rates were noted by the team to provide valuable information in relation to interpreting core outcomes. For example, sub-analysis by age and stroke type provided information on those at most risk of various complications.

- **Focused process improvements** were put in place in response to areas of low performance in core indicator data and unmet accreditation standards/protocols (e.g; stroke unit utilization and dysphagia screening rates). The KGH "bed" map was reconfigured to allow for improved patient flow to the acute stroke unit. Implementation of a dysphagia screening protocol was chosen as the required innovative distinction project. The transparent tracking of data as process changes were made led to greater appreciation by leaders and staff of the benefits of evidence-based care processes. Outcomes indicators such as in-hospital mortality and readmission rates were observed to co-vary with stroke unit utilization rates. Pneumonia rates were tracked in relation to dysphagia screening implementation. Stroke protocol, care plans and patient care order sets were revised to remove catheter insertion in order to make improvements in urinary tract infection rates.

- **Improved data quality and focused attention to use of the new CIHI 340 data** was a result of engaging all team members in using the data to track patient outcomes. CIHI DAD and 340 data elements were verified with an independent chart audit by RNs with experience in stroke care revealing areas of discrepancies in data quality. For example, complications were under-reported by 4.5%. Discrepancies became the focus of targeted education for patient record data abstractors who became engaged in this improvement exercise. They were pleased to see how their work was contributing to patient care improvements.

- **Increased awareness of the Canadian Best Practice Recommendations and progressive growth in adoption of the care standards**. This was an outcome of the required accreditation process of engaging staff in a self-assessment to review the 94 acute care standards. Four working groups (data, prevention, emergency and inpatient) were established to review the standards and to identify strengths, gaps and areas of opportunity. The team was **motivated** by noting the many standards that were already met. An action plan was developed in relation to identified gaps and team members were **engaged in voting on their priorities for action**. Many gaps have been resolved as a result of collaborative planning and remaining action plans are in place with timelines and identified champions.

- **Updated Care protocols, Stroke/TIA collaborative care plans and patient care order sets** to reflect the current Canadian Best Practice Recommendations. The review and subsequent updates involved a collaborative effort and standard approval process. Undergoing Stroke Distinction has helped raise awareness of the importance and relevance of using the standardized collaborative care plans, order sets and protocols.

- **Updated patient and family education materials** to reflect the national standards. Current stroke education materials are now more easily accessible to all staff, patients and their families. Reviewing the Stroke Distinction requirements related to patient and

family education helped raise awareness and attention to the importance of documentation as noted below.

- **Increased interprofessional team collaboration within and across teams with increased understanding and appreciation of the role of all team members in stroke prevention and care** (pre-hospital, emergency, critical care, stroke unit/neurosciences care and transition management to rehabilitation and community support). Note: The KGH neurosciences unit had been working on the implementation of an interprofessional collaborative practice model over the past several years and a standardized assessment of collaborative practice using the Queen's "Collaborative Practice Assessment Tool" was performed toward the end of the two year period of the accreditation process. It was interesting to note that the neuroscience unit showed increased performance on all aspect of collaborative practice in the assessment. It is likely that the engagement in the stroke accreditation process contributed to these positive findings.

- **Increased awareness of documentation issues particularly in relation to dysphagia screening, assessment of fall risk and patient and family education.** Although the dysphagia screening tool was successfully implemented much had to be learned about documentation processes in order to adequately capture the screening in chart review. The development of a dysphagia screening form as a documentation tool has improved ease of data abstraction. A random sample chart audit conducted following the data collection period reported for the Accreditation Survey revealed excellent dysphagia screening compliance but the dysphagia screening form was still noted to be in several different places within the patient record. Surveyors noted in their feedback that fall risk was inconsistently recorded and that patient and family education, though performed and charted by individual team members, was not being documented using a systematic consistent team checklist.

Q3. What organizational changes occurred as a result of your participation in Stroke Distinction? (Consider processes, policies/procedures, buy-in, attitude, positive or negative unintended consequences.)

- **See list above. Of particular note:**

- **An increase in team cohesiveness, collaboration, and morale** was observed by clinical leaders, administrators and staff both **within and across teams.** Dedication to the Stroke Distinction process led to an increased appreciation of the excellent care provided by all those associated with stroke care and prevention including those providing support such as switchboard, diagnostics/imaging, patient records and decision support/information management. The recognition of what each team member contributes and the collaboration on a common vision contributed to the increase in morale.

- **Increased awareness and appreciation of the Canadian Best Practice Recommendations** for Stroke Care as a guide for quality improvement.

- **Increased engagement of senior leadership and physicians** in the improvement processes required for excellence in stroke care and prevention.

- **Increased pride in stroke prevention and care and increased engagement and ownership for change and quality improvement.** KGH's Stroke Neurologist and

interprofessional staff involved with the preparation for Stroke Distinction indicated feeling positive and enthusiastic about the experience especially in relation to team collaboration and quality improvement in care and prevention.

- Greater understanding of the **impact of process on care outcomes.**
- **Greater understanding, experience and confidence in conducting innovative projects and in applying PDSA rapid cycle change methodology** to targeted quality improvement.
- **Increased staff awareness of data** available to monitor stroke prevention and care and **how to use** it to make patient care improvements. An associated benefit was greater understanding of the importance of consistent, comprehensive and clear **documentation as a data source**.
- An important positive consequence was that the process assisted KGH to be prepared for **Quality Based Funding.**
- An unintended negative consequence was that the **survey itself was stressful** for staff.

Q4. What do you feel are the key lessons learned?

Use of data

- **Staff becoming engaged** in using data to monitor care and to plan and implement improvement.
- Improved awareness of the **need to routinely communicate** and share outcome data with front-line staff: This is now part of the ongoing action plan. Review of core and optional performance indicators including the required sub-analysis has increased stroke team interest in further examining the data (e.g., length of stay and dysphagia screening in relation to complication rates).
- **Greater collaboration** with Patient Records and Decision Support/Information Management and an increased appreciation of the roles of these staff as members of the improvement team.
- **Continuous improvement in data quality**: An audit of data performed two years ago highlighted data quality issues. The team worked closely with Patient Records and Decision Support/Information Management to provide education and to conduct ongoing independent chart audits to highlight discrepancies and areas that required improved data quality. The stroke team provided education sessions for data abstractors with a written information package related to stroke/TIA data in CIHI NACRS, DAD and 340 data sets. Improvement was noted after education particularly in relation to acute stroke unit admission and tPA administration date/time. There continue to be discrepancies with dysphagia screening, antithrombotic discharge prescription and stroke symptom onset for those patients receiving tPA, necessitating ongoing independent chart audit to ensure data quality. These areas will continue to be monitored and further education will be provided as required. The dysphagia screening form is difficult to locate within the patient record and dysphagia screening documentation is one of the areas of opportunity being brought forward in the ongoing action plan.

- **CIHI 340 data** - Specific fields that required most improvement related to frequent incorrect stroke/TIA data reporting were:
    i. **Diagnosis** was often incorrect and code I64 was selected frequently despite evidence of the type of stroke within the patient record. At times the diagnosis was not stroke/TIA related but appeared in the stroke data that was generated;
    ii. **Time of stroke symptom onset** was often incorrect when examining patients receiving thrombolytic therapy and occasionally inpatient strokes were mixed in with ED presentations;
    iii. **Antithrombotic discharge prescription** was often missed and not reported especially in the NACRS portion of CIHI 340; (Note - sometimes this was because physicians discharged with instructions to take aspirin but this was not clearly documented.)
    iv. **Admission to the acute stroke unit** was frequently not reported and
    v. **Dysphagia screening** was often not captured (This data element was added to the CIHI 340 stroke data as an optional field and continues to be abstracted by KGH Patient Records).
    vi. Other stroke/TIA data was reported incorrectly however not as frequently:
        - **tpA administration times** in CIHI 340 were incorrect;
        - **CT/MRI within 24 hours** in CIHI 340 was not captured.

- **CIHI DAD data -** Specific fields that required improvement were:
    i. **Transfer to inpatient rehabilitation** in DAD was missed and the **disposition code** was occasionally incorrect.
    ii. **Under-reporting of complication rates** – more frequently pneumonia and urinary tract infection rates and occasionally venous thromboembolism. At times pneumonitis was being reported but independent chart audit revealed the complication was actually pneumonia.

Roles and responsibilities

There was voiced learning about others' roles and responsibilities in relation to stroke care across the organization and with external partners (e.g., rehabilitation, community care access centre, community support services, regional stroke team of Southeastern Ontario, patient records, information management/decision support, clinical laboratory services, diagnostic imaging, communication services, emergency medical services, emergency department, critical care, stroke prevention clinic, and the neurosciences inpatient unit including the acute stroke team). The Stroke Distinction process also highlighted the ongoing benefits of collaborative partnerships and resultant quality improvement projects and programs.

Evaluation led to learning

As a result of completing a self-assessment checklist based on the entire set of national standards, staff worked together to determine gaps or opportunities for improvement. Many of the perceived gaps had already been identified through the general accreditation (e.g. staff performance review, weekend coverage by allied health, medication reconciliation process) with corporate action plans in place but staff members were not all aware of these plans. Discussing gaps led to greater awareness of corporate plans. Obtaining feedback throughout the process generated more ideas for action and positive change.

Other related best practices
When reviewing and updating collaborative care plans, patient care order sets and protocols, other associated plans or order sets were identified and a greater awareness of the relevant connections was cultivated (e.g., VTE prophylaxis guideline, diabetes order sets).

Resources currently available
During group preparation meetings, staff brought forward plans, tools and resources that are in place and a comprehensive inventory of stroke care and prevention resources was created (see Appendix F).

Q5. How is your organization planning to sustain the Stroke Distinction momentum?

- **Neuroscience and corporate celebrations** were held to include all those associated with stroke care and the prevention of stroke including senior leadership. The KGH CEO participated and congratulated staff. Walkabouts were conducted to congratulate individual staff that had contributed to the achievement.
- **The on-line Accreditation report** has been examined closely and results shared with all those who attended the celebrations and will continue to be shared with those associated with stroke care and prevention. The team will examine together the areas requiring improvement based on the on-site evaluation and add this to the action plan developed (e.g., clarifying falls prevention strategy; improving documentation issues such as dysphagia screening and patient and family education; examining progress on weekend therapy coverage; and continuing to develop timely performance appraisals process).
- The Stroke Distinction Process will continue to be included in a) the **Medicine Program "Tactics**" for priority improvements and b) the **Regional Stroke Workplan** in alignment with their respective strategic plans. **Performance agreement plans** for KGH and Regional Stroke leaders include the sustaining of priority improvement tactics.
- **Ongoing engagement in Stroke Distinction-related quarterly meetings and Neuroscience Change team meetings to:**
    a. Reflect as a group on the final report and ongoing feedback received
    b. Continue to engage staff in reviewing and interpreting stroke/TIA data
    c. Follow and update the action plan developed
    d. Use the information to contribute to ongoing PDSA cycles for rapid improvement.
    e. Examine areas of opportunity to identify and plan the next innovative project to submit for the next Stroke Distinction survey
    f. Continue to celebrate small wins.

- **Explore and develop a more automated data system** related to the national stroke indicator analysis in order to relieve the time-intensive requirements for preparing the data each time. Continue to monitor and improve **data quality** providing education as needed.

- **Remind staff of the positive experience shared** and **recognize ongoing contributions.** Continue to recognize the excellence that results from active team work.

Q 6a. What aspects of the accreditation program should be improved? (Please list in order of priority.) Q 6b. Provide recommendations on individuals and/or collaborations that could lead/support these changes.

1. **Streamline and automate the data reporting process**.
    a. The surveyors should be able to review the **data portal** in advance instead of the organization duplicating efforts by preparing a separate written data report for the on-site visit.
    b. More time should be allotted (i.e., **6 months**) to prepare for subsequent data reporting entry as CIHI 340 data quality verification is required through chart audit. This may change over time but until this CIHI data set has been in place for several years, consideration should be given to providing the time for data verification.
    c. It would be helpful if national and provincial stroke care indicators and data definitions were **aligned** to reduce confusion as various indicators are monitored.
    d. Developing and providing a **brief training session** on the data definitions in relation to required core and optional performance indicators would be helpful.
    e. A **review of the data requirements** should be undertaken to determine what exactly is necessary in relation to quality of care. The team felt that some of the expectations were somewhat unrealistic and could make this process less accessible. For example:
        i. Percentiles: though percentiles were interesting, the team questioned the relevance of collecting all percentiles (25^{th}, 50^{th}, 75^{th} and 90^{th}) for length of stay and for administration times for tPA for all patients and those receiving tPA less than 1 hour after arrival in ED.
        ii. The inclusion of ED TIA patients in the requirement for dysphagia screening is not required provincially but IS required nationally.
        iii. Risk adjustment was requested for the optional performance indicator of complication rates. This is very challenging for hospitals to obtain. To make an attempt at satisfying this requirement, complication rates were divided out by age, gender and stroke sub-type. Adjusting by stroke severity was not possible.

***Who could lead/support these changes*:**
Accreditation Canada **(AC)** could work together with the Canadian Stroke Network (**CSN**) to streamline the data process. The Ontario Stroke Network (OSN) Stroke Evaluation and Quality Committee submitted input to Accreditation Canada on the issue of aligning data definitions (e.g. the inclusion of TIA patients discharged from the ED in required dysphagia screening) and input was reviewed but the response is not yet clear. It would be helpful if this could be followed up with the Canadian Stroke Network by the **OSN** – perhaps by the Best Practice or Evaluation Champions.

2. **Modify the accreditation survey schedule and provide more information about the survey day expectations within the portal:**
    a. **Allot more time to the tracer visits.** Staff commented that there was not enough time allotted for the tracer visits on the acute stroke unit resulting in some stress to staff. More time would allow the tracer to be more conversational and to provide different team members the opportunity to contribute. It is anticipated that the survey could be less stressful to staff if various members are involved.
    b. **A draft of the survey schedule template could be made available on the portal upon application** and the interview with the surveyor team to prepare for the

accreditation should be scheduled earlier (one month ahead was not enough time). This is recommended to allow the hospital team to organize the required activities (e.g., scheduling people such as the senior executive team and clinical leaders to attend meetings; organizing patient interviews with the SPC; arranging with HR and, in the case of academic health science centres, with the university, to pull employee and physician files for review; preparing an overview of the stroke program and preparing a presentation to the accreditation team). In our case, these requirements were not clear until after our interview with the surveyor team, leaving limited time to deliver.

c. Being aware of the people the surveyors might want to meet with **ahead of time** such as paramedics in the ED would be helpful.
d. Some **flexibility** is required within the schedule (e.g., time for possible observation of a code stroke/acute stroke protocol).

Who could lead/support these changes: AC

3. **A template for the self-assessment checklist** and required action plans related to gaps or areas of opportunities would be helpful to have well in advance.

Who could lead/support these changes**:** AC - templates begun by KGH (Appendices C &D).

4. **A mock accreditation survey** template to help staff feel comfortable with on-site types of questions to expect. The template could help the site to run their own "mock" survey.

Who could lead/support these changes**:** CSN with assistance from sites that have completed the accreditation process.

5. **Provision of a complete, timely and accurate survey report.** The survey report provided on the web portal was not fully accurate. Several errors made it difficult to use it to communicate results to the team. A written report was not received by the time of writing this report (7 weeks post survey) and it is unclear if a report is forthcoming. Our accreditation coordination team copied the information from the portal and created a report that could be distributed to staff. Other than an indication of whether the target was met or not, there was no feedback provided on the indicator analysis making it difficult to understand why the detailed data sub-analysis was required.

Who could lead/support these changes**:** AC.

6. **Examination of the requirements for patient and family education requiring a documentation tool should be considered**. It is inherent that education or information sharing is part of usual day-to-day practice related to stroke care and prevention. Time consideration for all that is required related to completing a documentation tool or an "education checklist" needs more of a "practical" perspective. Staff documentation is already required in standard interprofessional progress notes within the patient record. A separate checklist adds to charting requirements. A place to start might be to consider developing an education documentation tool for patients and families to complete. Another suggestion would be to develop a survey to ask organizations across Canada to share successes in interprofessional use of family and patient education tools and processes.

Who could lead/support these changes**:** The CSN with input from various organizations.

7. **Provision of further introductory materials:**
    a. **Provision of contact names and information of previous accreditation sites** to contact for support throughout the process.
    b. **An introductory PowerPoint** to introduce and summarize the stroke distinction process when a site is considering application. This was prepared by the stroke accreditation coordinator at KGH (Appendix A) and might be a help to others. It would need to be updated as requirements change.
    c. Develop a **readiness checklist and a FAQ document of accumulated questions** by organizations that have undergone the Stroke Distinction process.

***Who could lead/support these changes*:** AC.

Q7. What advice do you have for other Centres considering preparing and applying for Stroke Distinction?

Plan early and involve everyone

- Initiate the Stroke Distinction process early.
- Select a **Stroke Accreditation Coordinator** who is the "constant" throughout the process.
- Determine how the accreditation process is aligned with the organizations **strategic directions** and discuss this with key leaders.
- Once support is obtained from senior leadership, **form a "tactic team",** 4-5 "core" people who help to act as the "glue" and lead the process.
- Deliver an **introductory presentation** to the many stroke stakeholders to provide an overview of the five components of the program (indicators, standards, protocols, innovative project, patient and family education) and to review the required core performance indicator data.
- **Engage the staff in a shared vision** for this process (e.g., for KGH, the team felt it would *improve patient care*.)
- Once the team has committed, **develop a project plan** including a simple Gantt chart/workplan outlining what is to be completed, by whom, with timelines to give the team a sense of what is expected.
- The performance on the core indicators provides insight into the **timing of the actual application to Accreditation Canada** but it is not necessary to wait for all targets to be met before applying. When the team feels ready, and there is senior leadership approval, apply early as you can negotiate the on-site evaluation date. Applying early provides access to the Accreditation Portal including the Data Indicator Portal, a Stroke Distinction accreditation process overview, and various checklists such as protocols and patient and family education that are required prior to the on-site evaluation visit.
- Begin to develop the **self-assessment checklist** on the accreditation standards so that a "draft" of what is in place can be reviewed by workgroups.
- Initiate **regular meetings** to review core performance indicator data, review the workplan/Gantt chart, the self-assessment of standards and the innovative project. Engage the meeting participants in identifying both strengths and gaps in the standards. (It is critical to keep the momentum up by recognizing strengths.)
- Throughout the process, **involve as many stroke stakeholders as possible in the various preparation meetings.** This leads to a collaboration of efforts and appreciation for others'

roles and responsibilities related to stroke. It also stimulates more innovative thinking about possible action plans for continuous improvement.

- Engage all players in discussing the stroke/TIA **best practices** (e.g., temperature management, dysphagia screening and blood pressure management).
- During the meetings, **keep a record** and ensure someone sends meeting notes to the group to maintain communication and engagement.
- When reviewing the best practice standards and developing a self-assessment checklist, to use time efficiently, **divide into working groups** that correlate with the different standard subsections (e.g., data, inpatient, emergency and prevention). Consider cross representation for the various working groups in order to stimulate further learning and awareness. For example, members of the data working group assisted other groups by providing insight into documentation issues. The inpatient group met more frequently due to the associated standards.
- It is important to **bring workgroups together to provide a summary** of their learnings and to share materials, the full self-assessment checklist, strengths and gaps. The self-assessment checklist was found to be a resource that people could refer to throughout the Stroke Distinction process highlighting the best practices.
- After the self-assessment checklist is completed, **examine the high priority standards** and determine if gaps existed in these areas first. 90% or 15 out of 16 of the high criteria priority standards must be met (as noted in Appendix C).
- The group can then be engaged in **voting on top priorities in the remaining gaps** as not all gaps can be tackled at once. The performance indicator data can be used to help inform the priorities chosen.
- **Develop an action plan for the gaps identified**. Engage administrative leaders as well as staff in the action planning as there may be actions in place that not everyone is aware of. Within the action plan, include all that is working well and any progress in relation to the actions to **keep the approach positive**.
- It is critical to **recognize and highlight those engaged in making positive change at every level**.
- **Utilize a common change methodology** (e.g. PDSA cycles are used at KGH. Some of the gaps identified were targeted for PDSA cycles that helped to drive focused and timely “rapid cycle” change and provide small wins to build momentum.)
- **Consider a mock accreditation** review prior to on-site evaluation with some prepared questions to help staff increase their comfort level with the process.
- **Consult with your Accreditation Canada specialist often**. This person helps to make the experience more comfortable.

Develop a communication plan

- The **tactic team** is the small core leadership group, the “glue.”
- This group develops a communication plan.
- Develop and share a thorough **communication list** of individuals, groups, and organizations that require communication about Stroke Distinction.
- Consider the degree of commitment required and **set timelines** for communication accordingly with certain stakeholder individuals and groups.
- Develop **one consistent message of *“must knows”*** that can be used repeatedly in different communication media such as newsletters, team meetings, walkabouts and posters. The tactic group is responsible for developing and imparting a consistent message however,

the communication strategy varies across the organization as each area may have a different means of communicating with staff.

- Meet with **senior leaders first** to determine how best to get the information or messages about Stroke Distinction directly to their staff.
- Organize and conduct **quick meetings** with various groups and individuals over several months using the consistent message. Communication is intensified closer to the on-site survey date.
- **Our message** to staff (Appendix B1) emphasized the timing of the award survey and that evidence-based **Canadian Best Practice Recommendations** for Stroke care help to drive quality care and prevention of stroke. We also wanted to raise awareness that the evidence is translated into everyday practice with various tools such as KGH's stroke/TIA protocols, collaborative care plans and patient care order sets.
- **Our message to leaders** (Appendix B2) outlined the reason for pursuing the award and the components of the distinction process.
- Communication strategies can highlight applicable components related to a particular department or unit with **emphasis on known strengths** (e.g. short door-to-needle time in the ED). This helps to engage staff.
- **Regular short tactic meetings** (a half hour every two weeks) provide the opportunity to check in on the delivery of the communication plan and to revise it as needed.

Work closely with information management/decision support and patient records

Data collection, abstraction, and analysis are time intensive. The process requires preparing two 6-month data periods to submit into a data portal.

- **Set aside time early** in the Stroke Distinction process to begin analyzing core performance indicators.
- **Meet early with members from Information Management/Decision Support together with Patient Records** to review what is required in relation to all the indicators and include these groups in workgroup meetings throughout the entire Stroke Distinction process.
- It is helpful to have a **person with clinical experience** closely connected to the Stroke Distinction data process such as the Accreditation Coordinator to help guide the data collection, data quality, analysis and interpretation to assist with presentation and communication of the data.
- Work with the stroke team to **determine the two optional indicators** to continue to track. Your choice of optional indicators could depend on one optional indicator that meets the required threshold and one that requires improvement.
- **Present data** in a simple one page format with colour coding that assists communication on performance. Adjust the format based on the feedback received.
- **Work to share the data with staff involved** with stroke care and prevention quarterly if possible but at least every 6 months.
- **Check data quality** using an independent chart audit.
- Recognize the **value of the role of the patient record abstractor**, respecting their challenges and working to problem solve for data quality. Include this group as active team members. Spend some time with a patient records data abstractor to gain a better appreciation and understanding of what is required of them.

- **Provide education to assist with data quality**. (We used the slide decks prepared by the Canadian Stroke Network related to CIHI project 340.) – see pages 4,6,7 for more information.
- **Use the data to plan process improvements** (e.g. stroke unit utilization) and track the data as processes are changed. Use the data to inform the action plan.

- Note: Throughout the process, our Decision Support contact person changed four times and this presented a challenge for us. It might have been helpful to work on greater senior leadership buy-in for this work before making this connection. We met with each new person at least twice to thoroughly review the data definitions to ensure accuracy and the capture of the correct data elements.
- Automation of the data analysis is helpful- this is part of our action plan.

Prepare an inventory of show case materials

- Accreditation Canada requests that the documentation that supports any of the accreditation components be organized for quick review by the survey team. We prepared four sets of materials (Appendix E):
    - A binder on general KGH information, Pre-hospital, emergency and inpatient protocols, collaborative care plans, and order sets for TIA and stroke
    - A Stroke Prevention Clinic Binder
    - A box of Patient and Family Education and Staff development materials
    - An Innovative Project Binder (on the dysphagia screening implementation)
- We were also asked to provide the indicator information (Appendix F) and the action plan (Appendix D) that was developed to address identified gaps in the standards.

The process:

- Start early and allow time to prepare and update stroke/TIA related materials. Updates and approvals for forms, order sets and care plans often take time to process.
- Engage staff in preparing an inventory of materials related to
    - Hospital-related materials such as any recent Q-Mentum accreditation reports, organizational chart, strategic plan, annual report, program description.
    - Stroke-related protocols, care plans. patient care order sets
    - Stroke prevention clinic processes
    - Patient family education
    - Staff education and professional development
- Obtain feedback on the materials inventory from many stroke stakeholders.
- Download any electronic copies for the surveyors and prepare hard copies.
- For the patient and staff education materials, various media used can be collected such as videos, written instructions, brochures or binders. We found it best to place all the patient and family education materials in one large indexed box for the surveyors to go through.
- In relation to staff education, include information on best practice workshops provided, conferences and in-services attended by staff.
- We found it helpful to include information regarding on-line programs such as the hospital's learning management system.

Ask questions prior to on-site visit

- Prior to the on-site evaluation, you will be provided with an Accreditation Specialist contact. We suggest working closely with your Accreditation Specialist regarding any questions in relation to your organization preparing for Stroke Distinction.
- Review the draft on-site survey schedule and ask questions ahead of time.
- Have a list of questions ready for the one pre-survey conference call meeting with the Accreditation Specialist and the on-site surveyors.
- A review of the survey schedule (Appendix G) will assist with some pre-planning such as:
  1) Sending invitations early to senior leaders and deciding on a variety of clinical leaders to invite that make the stroke program “tick”;
  2) Preparing a very short 5-7 minute presentation for the day of the evaluation during the senior leaders allotted time (we prepared a briefing note to hand out that corresponded to the verbal presentation (Appendix H);
  3) Preparing an overview of the stroke program (Appendix I);
  4) Working with your human resources department to pull at least 5 employee files and have them ready for the day of the survey (include a variety of staff that are central to the program including a physician’s file if possible);
  5) Advising the inpatient stroke unit that they will have to have a few inpatients including their family members aware that they may be interviewed (we arranged this closer to the survey date and were asked to notify 3-5 patients for the surveyors to pull from);
  6) Ensuring a stroke prevention clinic is scheduled during the visit and notifying the Accreditation Specialist about the scheduled times;
  7) Informing units such as ED and Critical Care about the schedule and notifying again closer to the on-site time so they are aware surveyors will be performing a tracer related to Stroke Distinction and
  8) Notifying and inviting all stroke stakeholders to the debriefing session ahead of time as indicated on the survey schedule. People need to be notified early to have this time in their calendars.

Q8. Which resources at Accreditation Canada did you find most helpful?

We referred often to the following resources:

1. Overview of the Stroke Distinction Services package. We also developed a short one-page communiqué (see Appendix B-2) to attach to this package;
2. Core and Optional Indicator Data Definition package especially the data definitions;
3. The Accreditation specialist assigned to our application was very helpful;
4. Access to the Accreditation Portal in order to view detailed information that is required such as the data indicator requirements;
5. Stroke Distinction Program Recognition Guidelines detailing the requirements that must be met and
6. Stroke Distinction Standards including the high priority stroke standards that are involved (see Appendix C).

Q9. Have you developed any resources that you would be willing to share? If so please describe, attach and/or provide links:

Please refer to all attached Appendices regarding templates, inventory of resources collected, overview of stroke program and other materials or resources that might be helpful when preparing and applying for Stroke Distinction.

Q10. Any other information you'd like to share?

This has been an excellent method for getting the message out about the importance of best practice stroke care and prevention and has engaged many people across the organization including senior leaders and physicians. The success of Stroke Distinction depended largely on relationship building within and amongst teams associated with stroke care and prevention. Much valuable insight and appreciation of the work being done by everyone has been obtained by working together on the process for achieving the Stroke Distinction award. Momentum was built by recognizing strengths. The Stroke Distinction program provides a focused method to demonstrate the organization's commitment to quality, safety, leadership and innovation. The team works with many service providers to develop improvement priorities for stroke care and prevention that are aligned with the organizations strategic plans. The Stroke Distinction program highlighted the significance of external partners' contributions to improving quality care and prevention.

One other learning is that KGH, as part of its plan to develop patient-centred care, has recruited **patient experience advisors** in every program to be actively engaged in priority improvements. We have two neurosciences patient experience advisors. One advisor has been with the program for two years and was actively engaged in two PDSA rapid improvement cycles involving an "Eat UP!"' plan to encourage eating meals sitting up out of bed and a plan to improve access to patient and family education materials. The insight of the patient experience advisor was extremely helpful in this process and it is highly recommended.

Finally, the Stroke Distinction Award recognized and reaffirmed all the great work across the organization including team collaboration, clinical excellence and commitment to leadership in stroke care and prevention. **The Stroke Distinction process assisted KGH to be ready for the Quality Based Funding that will be applied to stroke care across Ontario in 2013-14.**

This is a quote from Dr. Al Jin, KGH Stroke Neurologist and Medical Leader of the Stroke Network of Southeastern Ontario that summarizes the achievement of the Stroke Distinction award:

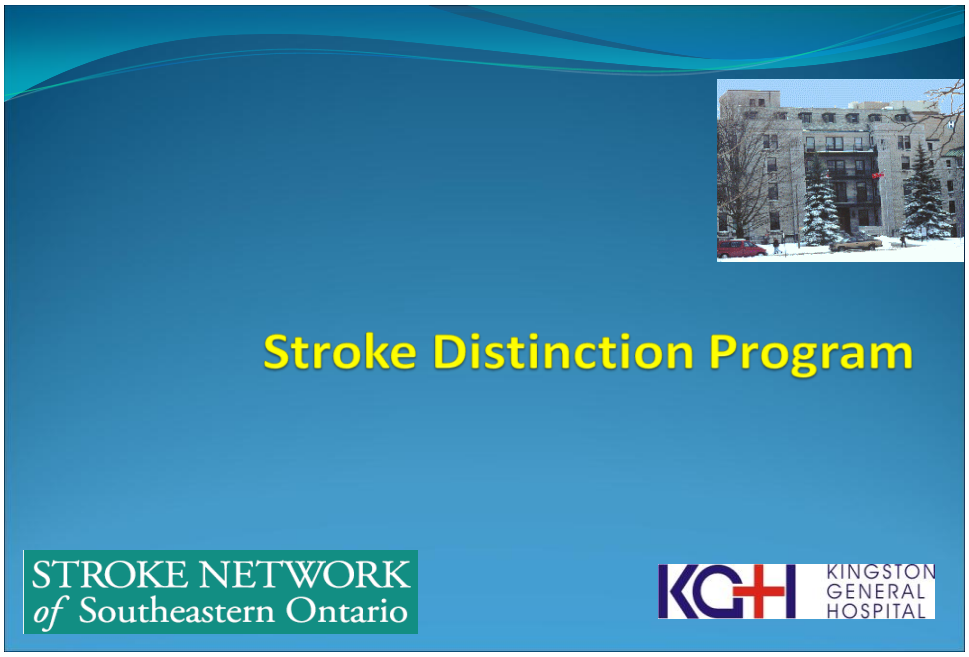
"*It's that team approach and dedication to patient care that creates a positive and lasting impact for our patients and their families"*

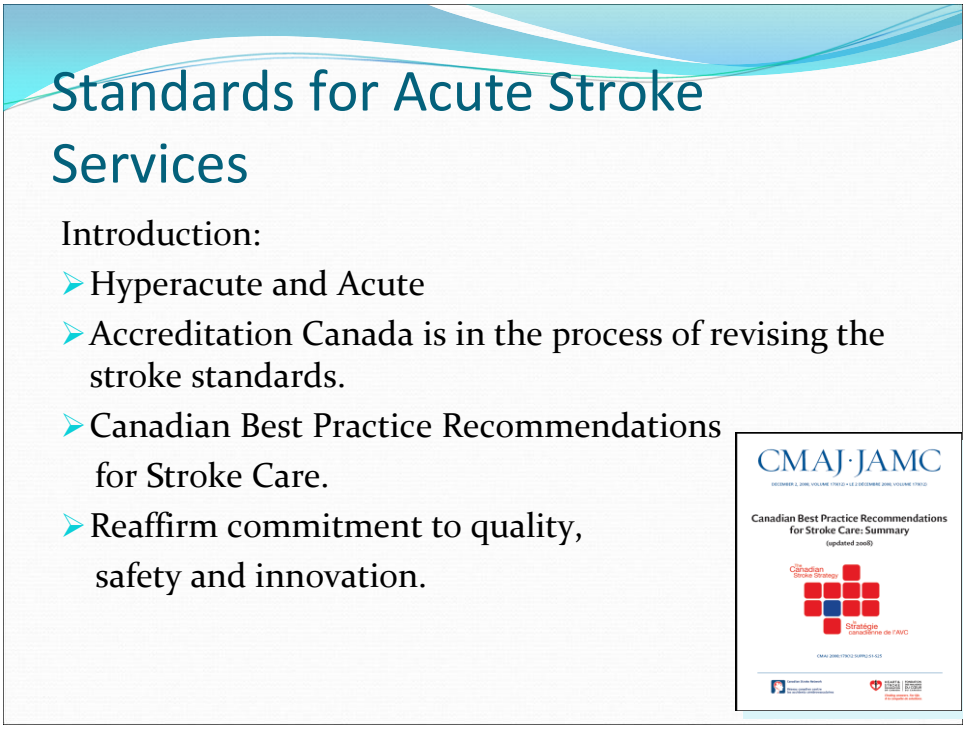
Key "take away" messages

1. The Stroke Distinction process provided a clear focus for making quality improvements that led to improved **patient care outcomes**;
2. All those associated with stroke care and prevention rallied together around a common goal that improved **team collaboration** and the overall **morale and confidence** of the team;
3. Stroke Distinction assisted in raising the **profile** of the stroke program and enhanced senior leadership recognition of the organization as a stroke leader.

Appendix A

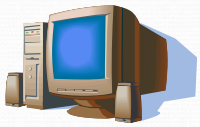
Introduction to the Stroke Distinction Program Presentation 2010





Investing in Comprehensive Acute Stroke Services

The site collects and analyzes information about the need for stroke services:



- Annually collect, track and analyze:
  - # of stroke cases
  - Stroke type
  - Prevalence of major risk factors
  - Demographics

Analyze geographical barriers to stroke services

Team has support from leadership and have the resources:

- **The team has a designated coordinator which can be a group. Team may invest in leadership development.**
- **The team works with others to develop goals that are aligned with the site's strategic and operational plans.**
- **Goals are specific and measurable.**
- **Resources to establish and support stroke unit.**
- **Effective and safe layout of physical space.**
- **Telehealth**
- **Team has access to appropriate equipment and supplies.**

Collaboration with others to coordinate timely access:

- Identifies **external partnerships** with community hospitals, EMS.
- Planning includes patient flow, linkages, expected roles and responsibilities, stroke prevention and patient education across the continuum.
- Have a strategy to raise awareness about signs and symptoms of stroke.
- Establishes **internal partnerships** with ED, Internal Medicine, Diagnostic imaging, Neurovascular Surgery.

Engaging the Team

Interprofessional approach for coordination and delivery:

- Team is interprofessional with defined roles and responsibilities.
- Team provides orientation for new staff and service providers about stroke.
- Team receives ongoing professional development to stay current.
- Uses information from performance evaluations.
- Utilize the Canadian BP Recommendations for assessment and management. The guidelines are a reference standard.

Providing Safe and Appropriate Services

The stroke team works with EMS and ED:

- Provides ongoing education for EMS providers
- Bypass protocols and agreements
- Pre-notification protocols
- Agreed upon triage levels: CTAS 1 and CTAS 2.
- ED initiate acute stroke protocol
- Stroke team responds to ED without delay
- Consults with other community hospitals for rapid transfer from another ED or inpatient unit.

Team provides immediate management:

- **ED triage immediately regardless of mode of arrival.**
- **ED initiate rapid assessment and management.**
- **Gather information from EMS and other community hospitals if applicable.**
- **Follow protocols to undergo neuroimaging immediately.**
- **Blood glucose level is checked.**
- **Criteria to determine eligibility for tPA.**
- **Administer tPA according to guidelines.**
- **Swallowing screen using simple and valid bedside protocol.**
- **Refer to SLP with indications of dysphagia.**

Team provides immediate management cont'd:

- Receive at least 160mg of ASA after intracranial hemorrahge ruled out.
- Rapid access to neurosurgery and vascular surgical services.
- Carotid Imaging ordered and follow up on results.
- Patients referred to SPC if discharged from ED.
- Effective transfer of information to inpatient unit.

Team provides comprehensive inpatient acute stroke services:

- Patients admitted with a stroke or TIA are managed in a dedicated stroke unit.
- Team has a process to identify all stroke patients daily.
- Daily review of stroke patients.
- Assess rehabilitation needs within first 48 hours after admission.
- Continue to monitor blood glucose.
- Assess risk for VTE and implement management strategies.

Helping Patients and Families Live with Stroke

Team provides timely and comprehensive education:

- Team identifies which member is responsible for providing inpatient education.
- Education materials about living with stroke is provided.
- Education and resources provided is appropriate.
- Document patients received education prior to discharge.
- Emotional support is provided.

Team provides comprehensive inpatient acute stroke services:

- **Patients admitted with a stroke or TIA are managed in a dedicated stroke unit.**
- **Team has a process to identify all stroke patients daily.**
- **Daily review of stroke patients.**
- **Assess rehabilitation needs within first 48 hours after admission.**
- **Continue to monitor blood glucose.**
- **Assess risk for VTE and implement management strategies.**

Team initiates secondary stroke prevention strategies:

- Refer patients with TIA or minor stroke to SPC.
- Provide information on lifestyle and risk factor modification.
- Assess for hypertension and manage per CHEP guidelines.
- Assess for elevated lipid levels and manage per Canadian Dyslipidemia Group.

Team initiates secondary stroke prevention strategies cont'd:

- Assess for diabetes and manage per Canadian Diabetes Association guidelines.
- Antiplatelet therapy
- Treat Atrial Fibrillation with Coumadin and address compliance with anticoagulation regime.
- Collaborate with neurosurgery and vascular surgical services to refer and follow-up patients with carotid stenosis who are candidates for possible surgery.

Maintaining Accessible and Efficient Clinical Information Systems

Establishes and uses a system to monitor patient care and management and plan services:

- Maintains a system that collects information including stroke symptoms, risk factors, treatments and interventions and patient disposition across the continuum.
- Linked to decision support tools such as evidence based guidelines and screening tools for stroke.
- Create and share reports about system performance.
- Secure and ensures confidentiality.

Team prepares patients/families for discharge or transfer:

- **Team initiates discharge planning from time of admission.**
- **Formal referral criteria to identify who are ready for inpatient rehabilitation.**
- **Develops a transition and follow-up plan with input from patient/family including info about ongoing recovery, signs of declining health status, follow-up referrals, individual exercise program and contact info.**
- **Help access self-management programs.**
- **Team has a written list of community services.**
- **Effectively transfers pertinent information to primary care providers.**
- **If referred to inpatient rehab, effectively transfers information.**

Monitoring Quality and Achieving Positive Outcomes

Team uses data to monitor quality and achieve positive outcomes:

- Accesses and reviews clinical and service utilization data on a regular basis.
- Monitor standardized process and outcome performance measures.
- Conducts research, clinical trials and assessments to find innovations.
- Monitors patient/family satisfaction and perspective.
- Compares its performance measures results with other sites.
- Team identifies successes and opportunities for improvement.
- Shares evaluation results with staff, patients and families.

Performance Indicator	Definition	Threshold
Stroke/TIA Mortality Rates	30-day all case in-hospital mortality rates	30 day in-hospital mortality of <22% of all stroke /TIA admissions
Proportion of all ischemic stroke patients receiving tPA	N: # of ischemic stroke patients receiving tPA D: # of ischemic stroke patients presenting	7 % of ischemic stroke patients (regardless of time from stroke onset to administration.
Median time from patient arrival in ED to administration of tPA	N: SUM (# of minutes from ED arrival (registration) to administration of tPA)	75% of all tPA patients have DTN time of <60 minutes
Proportion treated on a stroke unit at any time during inhospital stay	N: # of stroke patients admitted to hospital and treated in an acute care stroke unit D: total # of stroke patients admitted to hosp.	75% of stroke patients on acute stroke unit for some part of acute inpatient stay.
Total LOS (Active +ALC)	N: SUM (number of days of acute care) D: # of stroke patients admitted to IP care.	Median acute care length of stay ≤ 14 days.
% of readmissions to acute care for stroke related causes at 90 days	N: # of stroke patients discharged who return and readmit for new stroke within 90 d & 1yr. D: total # of stroke patients discharge within time frame.	≥ 15% of stroke patients admitted to inpatient rehab.
Proportion of ischemic stroke/TIA Rxed with antithrombotic tx on d'c	N: # stroke/TIA d'ced from ED or IP on antiplatelet tx. D: total # of ischemic TIA/stroke d'ced	≥ 90% of all ischemic stroke patients are prescribed ongoing antithrombotics before

Appendix B-1

Stroke Distinction Poster

KINGSTON GENERAL HOSPITAL

KGH Stroke Distinction Accreditation Survey

What's it all about?

KGH has applied to Accreditation Canada for a National Stroke Distinction Award.

The distinction award survey will take place Nov 22 and 23, 2012

This award will help us to recognize and celebrate the good work we are already doing and will help us to identify opportunities for improvement against objective and evidence-based national standards. Preparing for this distinction award has already helped us to improve stroke patient outcomes.

What you need to know!

There are Canadian Best Practice Recommendations for Stroke Care

They can be found at **www.strokebestpractices.ca**

These recommendations are embedded in each of our interprofessional Collaborative Care Plans:

- TIA discharged from the ED
- Ischemic Stroke/TIA
- Hemorrhagic Stroke
- Care in the Stroke Prevention Clinic

Our pre-hospital/emergency Regional Acute Stroke Protocol also follows these recommendations.

Likewise, our process for activating our in-hospital stroke protocol is based on these recommendations.

Did you know?

- You can access the Collaborative Care Plans and protocols on the Clinical Tools section of the KGH intranet?
- The Collaborative Care Plans include guidance on linkages across the continuum of care such as linking to the Stroke Prevention Clinic, rehabilitation services and community care.
- Demonstration of patient and family education and screening for swallowing difficulties are two examples of the stroke distinction award requirements.

If you have questions about stroke care please feel free to contact our Stroke Specialist Case Manager **Darlene Bowman** using vocera or at ext. 2830.

Appendix B-2

Stroke Distinction Communiqué

- Accreditation Canada's Stroke Services Distinction program was developed in partnership with the Canadian Stroke Network
- All organizations across Canada that are accredited under Accreditation Canada's Q-mentum program with a dedicated stroke program/unit can apply
- Follows the same type of tracer methodology as our hospital accreditation but focuses on the Canadian Stroke Best Practice Recommendations
- Members of the KGH Acute Stroke Team in collaboration with the Stroke Network of SEO have enthusiastically agreed to pursue the Stroke Distinction award for Acute Stroke Services which includes Emergency Services
- Approval received from Senior Leadership
- Only two hospitals in Canada have achieved Stroke Distinction: Calgary Foothills and the Toronto Rehabilitation Institute
- York Central, Trillium, Bridgepoint Rehabilitation hospital and KGH are the next four organizations to apply.
- We will be first with plans for on-site visit November 22 and 23, 2012
- The Acute Stroke Team sees many benefits such as national recognition of the team successes including improving quality stroke care and being a leader with impressive low median times of tPA administration and low readmission rates
- The Acute Stroke Team recognized early the process of pursuing ongoing Stroke Distinction as helping to improve stroke quality care such as increased rates of people going to the Stroke Unit and dysphagia screening

5 main components for Stroke Distinction:

1. Standards: based on the Canadian Best Practice Recommendations for Stroke care **(www.strokebestpractices.ca).**
2. Achieving **7 out of 9 Core Performance Indicators** & **2 Optional Performance Indicators** (Appendix C*) collected: 1) Proportion of stroke/TIA patients who receive CT/MRI of brain within 24 hours and; 2) Inpatients with stroke with complications during inpatient stay: pneumonia, VTE, GI bleed, secondary cerebral hemorrhage, pressure ulcers and UTI.
3. **Protocols** in place that are based on the Canadian Best Practice Recommendations for Stroke Care, used by the interprofessional team, shared with other providers and included in the health record if appropriate (order sets). 6 or more out of 11 are to be adopted and implemented.
4. **Innovative project** (s): chose to highlight the **dysphagia program (STAND**). The project has to be evidence-based, add quality, include an evaluation and measures sustainability, communicates findings within and externally about the project and is notable for what can contribute to the delivery of stroke services.
5. **Patient and Family Education:** provide evidence of successful patient and family education such as ensuring education materials are available and education is documented in the interprofessional notes.

Appendix C

Canadian Best Practices Recommendations for Stroke Care Self-Assessment Review			
	Standard	**Current Status**	**Identified Opportunity**
1.0	**The site collects and analyzes information about the need for acute stroke services**		
1.1 *	The site annually collects information about stroke occurrence in the population it serves		
1.2	When planning stroke services the site collects information about the prevalence of major risk factors for stroke in the population it services		
1.3	The site collects demographic information about high-risk and hard-to-reach populations		
1.4	The site uses information about urban and rural populations to analyze geographical barriers to stroke services.		
2.0	**The stroke team uses an interprofessional approach to coordinate and deliver hyperacute and acute stroke services**		
2.1	The stroke team uses an interprofessional approach to coordinate and deliver hyperacute and acute stroke services		
2.2	Team has clearly defined roles and responsibilities for delivering stroke services to the patient, family and caregiver		
2.3	Each team member has credentials		
2.4	Team orients new staff about unique aspects of acute stroke services		
2.5	Team receives ongoing professional development to deliver current evidence based services		
2.6	Team uses information from staff performance evaluations to improve acute stroke services, identify support, training or development needs for team		
2.7	Team has adopted and implemented Canadian Best Practice Recommendations for Stroke Care		

3.0	**The interprofessional team has support from leadership and resources to provide effective services**		
3.1 *****	Interprofessional team has a designated coordinator		
3.2	Team works with staff, service providers, community partners to develop goals and objectives that align with the site's strategic and operational plans		
3.3	Goals and objectives for stroke services are specific and measureable		
3.4	Team has resources to establish and support dedicated stroke units for acute stroke services. A dedicated stroke unit is a geographically discrete area with beds designated for the management of stroke clients who consistently receive services from an interprofessional stroke team. Best practice evidence demonstrates that geographically discrete stroke units improve outcomes.		
3.5	The layout of physical space contributes to effectiveness and safety of stroke services		
3.6	Team uses telehealth to increase access to stroke specialists		
3.7	Team has access to equipment and supplies appropriate to needs of stroke patients and the population it serves		
4.0	**The stroke team collaborates with other services, providers and organizations**		
4.1 *****	The team identifies partnerships with surrounding acute care organizations and EMS to plan acute stroke services within the sites boundaries		
4.2	The stroke team has a strategy to raise awareness in the community about the S&S of stroke and stroke prevention		
4.3	Team establishes internal partnerships with the ED, neurology, critical care, internal medicine, diagnostic labs, imaging and neurovascular surgery dept.		
5.0	**Stroke team coordinates stroke services with Emergency Medical Services and the ED**		
5.1	The team contributes to ongoing education for EMS providers about assessment and management of suspected stroke clients at pick-up site and during transport		

5.2 *****	Team has protocols and memorandums of understanding with EMS providers for direct transport to stroke centres, bypass of smaller centres etc.		
5.3	Team has protocols with EMS providers to receive pre-notification of suspected acute stroke clients in transit		
5.4	EMS personnel, ED and stroke teams use agreed upon triage levels to assign clients with suspected stroke, and use these levels when communicating		
5.5	The ED and stroke team initiate stroke protocols when stroke pre-notification is received from EMS so that suspected stroke clients are received efficiently from EMS.		
5.6	A designated stroke team member is notified when a suspected stroke patient is in transit, or soon as the client arrives at the ED		
5.7	The stroke team responds rapidly to ED requests for evaluation of suspected stroke patient to optimize opportunities for time-sensitive interventions.		
5.8	Stroke team consults with other facilities providing stroke care, to rapidly and efficiently transfer stroke clients to or from another ED to meet the needs of stroke patients.		
6.0	**The stroke team provides immediate hyper-acute management for stroke clients**		
6.1 *****	The ED staff or stroke team conducts triage on each patient with suspected stroke immediately upon arrival to the ED, regardless of how the patient arrives		
6.2 *****	The stroke team and ED personnel have protocols to initiate rapid assessment and management of patient who present with symptoms suggestive of stroke or TIA		
6.3	The stroke team gathers information about vital signs, neurological status, time of symptom onset, deficits and medications		
6.4	The stroke team or ED personnel follow established protocols for patients with suspected acute stroke to undergo brain imaging immediately upon arrival to hospital.		
6.5	Acute stroke team and ED staff check the patients blood glucose level as part of initial blood work and repeats if initial values are abnormal		
6.6 *****	The acute stroke team or ED staff evaluated stroke clients to determine their eligibility for treatment with tPA using current criteria		

6.7 *****	The acute stroke team or ED staff administers tPA in accordance with current guidelines for tPA mode of administration, dosage and infusion time		
6.8 *****	Acute stroke team screens and documents the patients swallowing ability using a valid and reliable bedside testing protocol prior to initiating oral intake of medications, fluids, or food.		
6.9	The team refers patients with features indicating dysphagia or pulmonary aspiration for a full clinical assessment of swallowing ability by a SLP to advise on swallowing ability and consistency of diet and fluids.		
6.10 *****	The acute stroke team administers at least 160mg of ASA to all acute adult stroke clients after brain imaging has ruled out intracranial hemorrhage.		
6.11	The acute stroke team has rapid access to neurosx and vascular surgical services to collaborate on the assessment and management of patients with hemorrhagic stroke, ICH, or other appropriate clinical indications.		
6.12	The acute stroke team orders carotid imaging tests for patients with carotid territory transient ischemic attack or stroke and follows up on results, even if the patient is discharged directly from the ED.		
6.13	The stroke team refers patients who are discharged from the ED with a diagnosis of TIA or minor stroke to the SPC.		
6.14	The team effectively transfers information to inpatient stroke services.		
7.0	**The stroke team provides comprehensive inpatient acute stroke services.**		
7.1	Patients admitted for an acute stroke or TIA are managed on a dedicated acute stroke unit.		
7.2	When patients are not managed on a dedicated stroke unit, there is a process for clustering strokes.		
7.3 *****	The stroke team has a process to identify and list all stroke patients daily, including those on the stroke unit, new in-house admissions since previous rounds, and strokes that occur in patients already admitted within the organization.		
7.4	The stroke team conducts a daily case review of stroke patients to identify and update their case needs.		
7.5 *****	The stroke team assesses the patient's stroke rehabilitation needs within the first 48 hours after admission.		

7.6	The stroke team continues to monitor patients' blood glucose as indicated by patient status.		
7.7	The team assesses stroke patients for their risk of developing VTE and implements appropriate management strategies		
7.8	Stroke team monitors client temperature as part of routine vital signs and implements appropriate measures for increased temperatures.		
7.9	The team mobilizes stroke patients as early and as frequently as possible, starting within 24 hours of stroke symptom onset unless contraindicated.		
7.10	The team assesses stroke patients for urinary incontinence and retention, with or without overflow, fecal incontinence, and constipation, and implements appropriate management strategies for these conditions.		
7.11	The team assesses hydration status upon admission and implements appropriate intervention strategies to maintain adequate hydration.		
7.12	The team screens for nutritional status of stroke patients upon admission using a valid screening tool, and implements appropriate management strategies for patients with nutrition deficits.		
7.13	The team implements and evaluates a falls prevention strategy specific to stroke patients to minimize risk of falls.		
8.0	**The stroke team provides timely and comprehensive education and support to stroke patients and loved ones**		
8.1	The team has identified which team members are responsible for providing inpatient education		
8.2 *****	The team provides education and education materials to patient, families and caregivers about living with stoke and identifying and addressing potential changes in role and lifestyle.		
8.3	The team provides education that promotes self-efficacy through mastering self management skill.		
8.4	The team provides training to family and caregivers to safely care for patients after discharge.		
8.5	The education and resources provided by the team are appropriate to the patient's phase of care or recovery and patient, family, and caregiver readiness and needs.		

8.6	The team formally document that clients receive education prior to discharge		
8.7	The team provides emotional support and counseling to patients, families, and caregivers to help them adjust and cope with the effects of stroke.		
9.0	**The team initiates secondary stroke prevention strategies for acute care patients to help prevent recurrence of stroke.**		
9.1	The team refers patients who have experienced a minor stroke or TIA to stroke prevention clinics		
9.2	The team provides patients, family, and caregivers with information on lifestyle modifications to address vascular risk factors for recurrent stroke.		
9.3	The acute stroke team assesses clients for the presence of hypertension and appropriately manages elevated blood pressure in patients who have had as stroke.		
9.4	The team assesses patients for the presence of elevated lipid levels and appropriately manages elevated levels.		
9.5	The team has established protocols to assess and manage diabetes in patients admitted following a stroke.		
9.6 *****	The team prescribes adult clients with ischemic stroke or transient ischemic attack with Antiplatelet therapy for secondary prevention of recurrent stroke unless there are contraindications, or an indication for anticoagulation.		
9.7	The team treats adult patients with stroke and atrial fibrillation with anticoagulants unless contraindicated		
9.8	The team addresses compliance with the anticoagulation regimen with stroke patients, families, and caregivers in their follow up with patients		
9.9	The acute stroke team collaborates with neurosurgery and vascular surgical services to refer and follow-up with carotid stenosis who are candidates for possible surgical intervention		
10.0	**The stroke team prepares clients and their families for discharge or transfer**		
10.1	The team initiates discharge planning from time of admission		

10.2	The team uses formal referral criteria to identify stroke patients who are ready for inpatient rehabilitation and makes referrals for inpatient rehabilitation services		
10.3	The team develops a transition and follow-up plan with input from the patient, family and caregiver that includes information about ongoing recovery, S&S of declining health status, referrals for follow-up services, an individual prescribed exercise program and contact information for follow-up with the team		
10.4	The team helps patients, families and caregivers access stroke self-management programs		
10.5	The team has a written list of community services and helps clients, families and caregivers access these services upon discharge		
10.6	The team effectively transfers information about diagnosis, tests, interventions, medications, referrals, psychosocial status, and family situation to the client's next care setting or primary care providers		
10.7	When patients are transferred to inpatient rehabilitation services the team effectively transfers information about pre-hospital history, history of onset, update on diagnosis, interventions completed, outstanding tests to be done, current medications and medication changes, family situation, psychosocial status and referrals done or pending		
10.8	Where programs are available, the team assesses clients for early supported discharge according to eligibility criteria		
11.0	**The stroke team establishes and uses a stroke clinical information system to monitor client care and management, and plan acute stroke services**		
11.1	The team maintains a clinical information system that collects information about each stroke client, including stroke symptoms, treatments and interventions and client disposition across the continuum of care		
11.2	The team uses the clinical information system to gather and organize information across the continuum of stroke services		
11.3	The clinical information system is linked to decision support tools such as evidence based guidelines and screening tools for stroke		
11.4	The team uses the clinical information system to obtain information about client risk factors, appropriate stroke management and intervention, and to schedule appointments for clients and families		

11.5	The team uses information from the clinical information system to create reports about stroke system performance and use of decision support tools		
11.6	The team shares reports about stroke system performance and use of decision support tools within the acute service site, and with clients and families, primary care providers, and community-based services.		
11.7	The team has security, back-up, and confidentiality systems in place for the stroke data to meet legislation for protecting privacy and integrity of information.		
12.0	**The acute stroke team uses data to monitor quality and achieve positive outcomes**		
12.1	The team accesses and reviews clinical and service utilization data.		
12.2 *****	The team identifies and monitors standardized process and outcome performance measures for acute stroke services.		
12.3	The team conducts research, clinical trials and assessments of new interventions to find innovations in acute stroke services.		
12.4	The team monitors client and family perspectives on the quality of stroke services.		
12.5	The team compares its results on performance measures with other similar acute stroke services or sites.		
12.6 *	The team uses information it collects about the quality of services to identify successes and opportunities for improvement, and make improvements in a timely way.		
12.7	The team shares evaluation results with staff, clients, and families.		

High Priority Criteria Standards *

Appendix D

Action Plan

Opportunities for Action Identified during Self-Assessment of the Canadian Best Practice Standards for Stroke Care and Prevention

Nov 21 2012

Background: Over the past two years a large group of KGH stroke stakeholders have come together at least every three months to review the Stroke Distinction program with a mutual goal for improving stroke care and prevention. The Stroke Distinction process was recognized by KGH leaders including front-line stroke team early on as an important quality improvement and safety vehicle for transferring evidence into practice. Two years ago a large group of stroke leaders including front-line staff reviewed the Stroke Distinction Core Performance Indicators and two Indicators (i.e., Stroke Unit Utilization & Dysphagia Screening) were identified as not fully achieving recommended threshold. As a result, actionable improvement plans were put into place (e.g., bed map process policy changes in 2011 to admit all stroke patients to Kidd 7 under Neurology or Medicine services followed by a further change in July 2012 to admit most under neurology; updates in the established patient care order sets and collaborative care plans and related protocols; and support and increased awareness of a Dysphagia Screening initiative). Small "working" groups (i.e., Data, Emergency, Inpatient & Prevention) met over the summer and fall of 2012 engaged in the review of the best practice standards and the development of a self-assessment checklist. The self-assessment checklist comparing care and prevention of stroke at KGH with national stroke best practice standards received broad input from many different health care professionals and administrators. Upon review and reflection it was noted that most of the standards have been met. During the self-assessment face-to-face meetings, opportunities for improvement were highlighted and discussed within the small working groups and recently during two large group meetings. In addition to brainstorming ideas to improve care and safety identified in the self-assessment checklist, prioritizing opportunities for action was discussed. The high priority Best Practice Standards requiring some improvement have since been mostly resolved. Top three priorities were also obtained from front-line staff through a priority voting ranking system. Overall the team will initiate actions around the first 5 priorities ranked in the table below. What has been helpful, relevant and applicable throughout the Stroke Distinction process is aligning efforts with KGH's strategic direction for achieving "*outstanding care, always*" and the Medicine program's "Tactics" for continuous improvement that utilizes a LEAN Methodology. What has also been noted throughout the Stroke Distinction process is further enhancement of team collaboration. The following table provides a summary of the identified opportunities for improvement including recently resolved items.

Rank	Standard	Identified Opportunity	Action Planning	Interested Participants	Timelines/Measurements
1					
2					
3					
4					
5					
6					
7					
8					

Appendix E-1

Table of Contents (Binder of Materials/Resources)

A. Program Description, Strategic Plans, KGH Action Plan, Stroke Workplan

B. Pre-hospital Protocols and Agreements
- *1. Dispatch*
- *2. Paramedic Prompt Card and Brochure*
- *3. Bypass/Redirect Protocols and Signed Agreements*
- *4. Stroke Repatriation Agreements*
- *5. EMS Pre-notification*
- *6. Community Hospital Transfer Guide*

C. KGH tPA Guideline and Process

D. Stroke & TIA Care Plans and Order Sets, SPC Care Plan

E. Internal (In-hospital) Stroke Protocol

F. Related KGH Inpatient Order Sets and Guidelines
(VTE prophylaxis, CEA order set, diabetes order sets, admission algorithms)

G. Transition to Rehabilitation and Community
(Alpha FIM Triage Tool, Rehabilitation and CCAC referral forms, Discharge Link Service)

H. Neurosciences Change Team and examples of PDSA Cycles

I. KGH & Medicine Program CQI Activity

J. Innovation: Recent Research Activity and Regional Projects

Note:
Dysphagia Project in separate binder
SPC Office manual including care processes and referral forms in separate binder
Patient and Family Education in separate box
Staff Resources, Orientation info and Education in separate box

Appendix E-2

Stroke Team Materials to Showcase for Stroke Distinction Survey

Stroke Collaborative Care Plans/Patient Care Order Sets/Protocols
❑EMS Medical Re-direct agreements
❑Repatriation Agreements
❑tPA rationale and guideline
❑tPA process chart
❑Internal Stroke Protocol
Stroke/TIA Collaborative Care plans and order sets
❑TIA discharged from the ED (two order sets – pre and post Diagnosis)
❑Acute stroke/TIA admission (two order sets – stroke with and without tPA)
❑Hemorrhagic stroke admission (same order set as stroke without tPA)
❑Stroke Prevention Clinic (no order set)
❑Dysphagia screening form and process
❑Dysphagia Project Report
Related KGH CCPs/Patient Care Order Sets Guidelines/Protocols/Projects/Programs
❑Management of Diabetes
❑VTE Prophylaxis (Also embedded within Stroke order sets)
❑Admission guide to stroke unit
❑Interprofessional collaboration work- assessment, documentation: ICPM report
❑Orientation for new staff – what is covered all areas with stroke/TIA patients
❑Continuous Improvement work on Medicine- including PDSA examples
❑Smoking Cessation Program
❑Medication Reconciliation Program/technology
❑Bed Coordination: Electronic bed board/Admission criteria/algorithm for admission

Links to services outside KGH

- ❑Regional Stroke Newsletter
- ❑Rehab and CCAC referral forms and processes
- ❑Enhanced CCAC rehab brochure
- ❑Stroke Support Group brochures and info on Living with Stroke
- ❑Community Resource Directory
- ❑CNIB referral
- ❑Videos on the 4 rehab units
- ❑Report: Building Capacity to Enhance Community Reintegration of People with Stroke
- ❑Brain Body and You program at SLC

Staff Resources

- ❑Canadian Best Practice Recommendations for Stroke Care
- ❑RNAO Nursing Best Practice Guidelines
- ❑Stroke Unit House Staff Resource Manual
- ❑Heart and Stroke:
    a. Fast FAQs for Stroke Nurses
    b. Stroke Nurse Pocket Guide
    c. Canadian Neurological Scale Reference Card
    d. Common Signs and Symptoms of Stroke Syndromes
    e. Cranial Nerve Function and Testing
    f. Management of Dysphagia in Acute Stroke
        i. Nutrition Screening for Stroke Survivors
        ii. An Educational Manual for the Dysphagia Screening Professional

Patient and Family Education

- ❑Stroke Resource Binder – updated
- ❑Examples of Heart & Stroke materials used- Let's talk about Stroke, including French samples

❑Pictographic resource binder and communication kits
❑Patient's Guide to Best Practice Recommendations
❑Moving on after stroke
❑Dysphagia Brochure
❑EAT UP! poster
❑Tips and Tools Manual and associated videos
❑Pharmacy – Medication Guides
❑Stop the Clot Handout
❑Poster series on various topics (seating, communication, depression, feeding/oral health, blood pressure, etc)
❑Community Resource Directory
❑Videos on the 4 rehab units
❑Paediatric stroke booklet
❑E-Discharge record given to patients on discharge
❑Flow program-Discharge Criteria Info Sheet given to Patients/Families
❑CCAC Safe Living Guide
❑Falls Prevention Brochure
❑"Your Loved One May Be Experiencing a Stroke" pamphlet given out by paramedic
Other
❑Stroke Program Description
❑KGH Annual Report and Organization Chart
❑KGH Internal Communication Vehicles
❑KGH Hospital Accreditation Report
❑Champions on Kidd 7 for:
I. Dysphagia Screening III. Smoking Cessation
II. Oral Care IV. Mobility

Appendix F-1

Core Performance Indictors: Stroke Distinction Award - Overview for staff

Performance Indicator	KGH: FULL Fiscal 2010 April 1/09-March 31/10	KGH: 6 Mos Fiscal 2011 April 1/10-Sept 30/10	KGH: 6 Mos Fiscal 2011 Oct 1/10-Mar 31/12	KGH: 6 Mos Fiscal 2012 April 1/11-Sept 30/11	KGH: 6 Mos Fiscal 2012 April 1/11-Sept 30/11	KGH: 6 Mos Fiscal 2012 Oct 1/11-Mar 31/12	KGH: 6 Mos Fiscal 2012 Oct 1/11-Mar 31/12	Bench mark	Comment
Data Source	**Spirit Acute & CIHI (Readmit Rates)**	**Spirit Acute & CIHI (Readmit Rates)**	**Spirit Acute & CIHI (Readmit Rates)**	**CIHI #340/DAD & Chart Review Validated**	**CIHI#340/DAD+ NACRS & Chart Review Validated**	**CIHI #340/DAD & Chart Review Validated**	**CIHI#340/DAD+ NACRS & Chart Review Validated**		
Stroke/TIA **mortality** rates								<22%	30-day in-hospital
Proportion of all ischemic stroke patients who receive **tPA**								7%	Regardless of time from stroke onset to
Median **door-to-needle** time.								<60 min	50% of all tPA patients have DTN time of < 60 min
Proportion of all stroke patients treated in a stroke unit								75%	Any part of their acute inpatient stay.
Median **LOS**								≤14 days	Active + ALC
Readmission Rate at 90 days								≤ 12%	Stroke/TIA-related causes
Proportion of patients **discharged to inpatient rehabilitation**								≥ 15%	All stroke subtypes discharged alive
Proportion of patients prescribed **antithrombotic therapy** on discharge								≥ 90%	All ischemic stroke/TIA patients
Proportion of patients with **dysphagia screening** during admission to ED or inpatient care								≥ 90%	All stroke subtypes
Proportion of stroke/TIA patients receiving CT/MRI within 24 hours								≥ 90%	All stroke subtypes
Percentage of Admissions that experience at least one complication								No target	All stroke subtypes

Data Tables for Data Portal Entry and Reports for On-Site Evaluation
Core Performance Indicators

1. Stroke/TIA Mortality Rates Within 30 Days

30-Day Inhospital All-Cause Mortality of All Strokes/TIA

Mortality (count)	
Total Patients ED and InPatient	
Proportion	

Calculate Stroke<30-Day Mortality by Stroke Sub-type

	Mortality	Patients	Proportion
ED			
TIA			
Hemorrhagic			
Ischemic			
Inpatient			
TIA			
Hemorrhagic			
ICH			
SAH			
Ischemic			
ED + Inpatient			
TIA			
Hemorrhagic			
Ischemic			

Calculate Stroke 30-Day Mortality by Patient Location

	Mortality	Patients	Proportion
ED			
Inpatient			
Total			

2. Proportion of Ischemic Stroke Patients Receiving Thrombolytic Therapy

# Patients Received tPA-IV	
#Ischemic Stroke Patients	
Proportion	

3. Time to Administration of Acute Thrombolytic Agent (IV tPA)

#tPA Patients with Door-to-Needle time < 60 minutes	
# Patients Received tPA-IV	
Proportion of Patients Receiving tPA-IV <60 minutes	

Calculate IV tPA for ALL Patients

Count		Patients
SUM		Minutes
Average		Minutes
Median		**Minutes**
25th percentile		Minutes
50th percentile		Minutes
75th percentile		Minutes
90th percentile		Minutes

Calculate IV tPA within One Hour

Count		Patients
SUM		Minutes
Average		Minutes
Median		Minutes
25th percentile		Minutes
50th percentile		Minutes
75th percentile		Minutes
90th percentile		Minutes

4. Stroke Unit Admissions by Stroke Sub-Type

	Count	Sub-Type Total	Proportion
TIA			
Hemorrhagic			
Ischemic			

5. Proportion of Stroke Patients Discharged to Inpatient Rehabilitation

# of Stroke Patients Admitted to Inpatient Rehabilitation	
# of All Stroke Sub-Types Discharged Alive and Not Transferred to Other Acute Care Hospital	
Proportion of Stroke Patients Admitted to Inpatient Rehabilitation	
Inpatient Rehabilitation Transfers Spent Time in a Stroke Unit	

Stroke Sub-Type Admission to Inpatient Rehabilitation

	TIA	Hemorrhagic	Ischemic	Total
Admission Count to Inpatient Rehabilitation				
Stroke Sub Type Count				
Proportion of Rehabilitation Admissions/Sub-Type				

6. Length of Stay

Median Acute Services Total Length of Stay	
Total# of Stroke Patients Discharged Alive	

Acute Care Hospital Days (ED and Inpatient Days)

TOTAL days	
Mean LOS	
Median LOS	
25th percentile	
50th percentile	
75th percentile	
90th percentile	

ED Length of Stay

Mean LOS	
Median LOS	
Average of Decision to Admit to Physically left ED	
Average Total ED LOS	

Inpatient Days

Mean LOS	
Median LOS	

Acute Portion Length of Stay

Mean LOS	
Median LOS	

ALC Length of Stay

Mean LOS	
Median LOS	

LOS by Stroke Sub-Type

	TIA	Hemorrhagic	Ischemic	Total
TOTAL LOS				
Mean LOS				
Median LOS				
25th percentile				
50th percentile				
75th percentile				
90th percentile				
ED LOS (Hours)				
Mean LOS				
Median LOS				
25th percentile				
50th percentile				
75th percentile				
90th percentile				
Inpatient LOS (Days)				
Mean LOS				
Median LOS				
25th percentile				
50th percentile				
75th percentile				
90th percentile				

7. Readmission to Acute Care for Stroke Related Causes

90-Day Readmission Rate to Acute Services for Stroke Related Causes
Ed=Inpatient Readmission Rate

Total # of Stroke/TIA Patients Readmitted to Acute Stroke Services	
Total # of Stroke Patients Discharged from ED or Inpatient Setting	
Proportion	

ED Readmission Rate

Total # of Stroke /TIA Patients Readmitted to Acute Stroke Services Total # of Stroke Patients Discharged from ED Proportion	

Inpatient Readmission Rate

Total # of Stroke /TIA Patients Readmitted to Acute Stroke Services Total # of Stroke/TIA Patients Discharged from Inpatient Unit Proportion	

ED+Inpatient Readmission Rate Per Stroke Sub-type

	Readmit	Patient Count	Proportion
TIA			
Hemorrhagic			
Ischemic			

8. Proportion of Ischemic/TIA Patients Prescribed AntiThrombotic Therapy

# of Ischemic/TIA Patients Discharged From the ED and Inpatient Acute Care Services on Antithrombotic Therapy	
# of Ischemic/TIA Patients Discharged Alive from ED and Inpatient Acute Care Services	
Proportion of Ischemic/TIA Patients Prescribed Antithrombotics before Discharge	

9. Proportion of Patients with Dysphagia Screening

# of Admitted All Stroke Types with Documentation of Dysphagia Screening	
# of Admitted All Stroke Sub-Types	
Proportion of All Stroke Patients with Documentation of Dysphagia Screening	

Optional Indicators

1. Proportion of Stroke/TIA Patients Receiving CT/MRI within 24 Hours

# of All Stroke/TIA Patients Receiving CT/MRI within 24 Hours of Hospital Admission	
# of All Stroke/TIA Patients Admitted to ED and/or Inpatient Care	
Proportion of all Stroke/TIA Patients	

2. Complication Rates

Total # of Admissions that Experience at Least One Complication During Inpatient Stay	
Total # of All Stroke Type Patients	
Percentage of Inpatients Experiencing Complications	

Rates per Complication

Complications	**Count**	**Percentage**	**TIA**	**Hemorrhagic**	**Ischemic**
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					
Rates per 1,2,3 and>3 Complications, by Complication Type					
Total Admissions with Complications					
1 Complication					
2 Complications					
3 Complications					
>3 Complications					

Rates per Age

	Count	**Percentage**	**TIA**	**Hemorrhagic**	**Ischemic**
>85 years					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					
75-84 years					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					
65-74 years					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					
< 65 years					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					

Rates per Gender

	Total	**Percentage**	**TIA**	**Hemorrhagic**	**Ischemic**
Male					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					
Female					
Pneumonia					
VTE					
GI Bleed					
Secondary Cerebral Hemorrhage					
Pressure Skin Ulcers					
UTI					

Appendix G

Kingston General Hospital Stroke Distinction Survey Schedule

Day 1

	Surveyor 1	Surveyor 2
Priority Process	a. Episode of Care b. Decision Support c. Clinical Leadership d. Competency e. Impact on Outcomes	f. Episode of Care g. Decision Support h. Clinical Leadership i. Competency j. Impact on Outcomes

	Surveyor 1	Surveyor 2
0800-1200	**Planning time** ½ day evaluator planning time (on site) (surveyors only) • Copy of organizational chart • Copy of annual report • Description of the stroke program/service • Protocols • Review indicators data • Review excellence and innovation information • Staff files	
1200-1300	**Lunch / Evaluator information exchange**	
1300-1330	**Organization introductory meeting: clinical stroke leaders (e.g., CEO, VPs, Directors of related programs, Chief of Staff, Chief of Medicine, Stroke Neurologist, COO, Clinical Specialist/Case Manager, Managers of related programs, and Accreditation Coordinator)** • 10-15 min organization overview: scope of services; major successes/challenges • Discussion with evaluators about survey activities	
1330-1430	**Clinical leaders discussion group (e.g., Directors of related programs, Mangers of related programs, OT, PT, SLP, Social Worker, Dietitian, Stroke Neurologist, ED physician, Clinical Specialist/Case Manager, Clinical Educators of related programs, Accreditation, CCAC case manager, Rehabilitation discharge coordinator, Community Support Manager, EMS deputy chief, Health Records Manager, Coordinator)** Topics: Best Practices Innovations in stroke services Quality improvement Health and Wellness Stroke Population	

Day 1	Surveyor 1	Surveyor 2
1430-1700	*Priority Process* **Episode of care** – Acute Care Client record review and selection for all tracers Tracer activities (i.e. interviews with staff on unit, physicians, clients/patients, families) ***Documentation review:*** Service performance measures, clinical priorities, benchmarking. ***Discussion with Clinical leader of the program*** Topics Clinical Leadership Clinical Competency Clinical Impact on Outcomes Decision Support	*Priority Process* **Episode of care** – Acute Care Client record review and selection for all tracers Tracer activities (i.e. interviews with staff on unit, physicians, clients/patients, families) ***Documentation review:*** Service performance measures, clinical priorities, benchmarking. ***Discussion with Clinical leader of the program*** Topics Clinical Leadership Clinical Competency Clinical Impact on Outcomes Decision Support
	Innovation in stroke services Tracer: • Innovation in stroke services initiative that has been implemented	*Innovation in stroke services* Tracer: • Innovation in stroke services initiative that has been implemented
	Information and Communication Systems Assessment of the clinical information system	*Client Education* Review educational material
1700-1800	Review and assessment of Stroke Protocols Evaluator information exchange	
1800-1815	Daily review with Accreditation Coordinator	

Day 2	
0800-1200	Report writing and preparation of the debriefing session, verification for any additional interviews, review of evidence, validation if required
1200-1300	**Lunch / Evaluator information exchange**
1300-1500	Finalizing the report writing Finalizing the debriefing session
1500-1600	**Debriefing**

Appendix H
Briefing Note for On-Site Survey

KINGSTON GENERAL HOSPITAL

STROKE NETWORK *of* Southeastern Ontario

BRIEFING NOTE

TOPIC OF REPORT: **KGH Stroke Program Overview**

SUBMITTED TO: **National Stroke Distinction Award Survey Team**

SUBMITTED BY: KGH Medicine Program, Neurosciences and Regional Stroke

DATE: November 22, 2012

Our **program description** is attached for your review.

Our team is pleased to note the following with respect the **five components** of the distinction accreditation process:

- The stroke accreditation standards have each been reviewed and a self-assessment performed with resultant action plans for process improvements;
- We have achieved targets on 8 out of 9 core performance indicators and have tracked 2 optional performance indicators; a recent chart audit indicates we are now meeting the target on the 9th indicator. Our data indicate that significant gains have been made over the past 2 years since embarking on this accreditation process and further improvements are already evident.
- We have many care protocols in place; some of which have been in place since 1997.
- We have completed an innovative project: Kidd 7 implemented a standardized swallowing screening tool in March 2011 and a standardized screening documentation system in March 2012.
- We are proud of the patient/family education that we provide.

Note: key elements of the Canadian Best Practice recommendations are embedded in our pre-hospital and ED stroke protocols, in each of our four interprofessional collaborative care plans and order sets and in our education and orientation and therefore are underpinning the care that we provide.

Strengths and Opportunities

Strengths that we wish to profile or showcase:

1. **Our regional acute pre-hospital stroke protocol** implemented in 1999: we have been a national leader in organized pre-hospital stroke care and are consistently amongst the top performers in door-to-needle times for administration of thrombolysis within the KGH ED. We have also provided leadership in successfully building regional capacity and access to thrombolysis by assisting Quinte Health Care, Belleville General Hospital to implement tPA delivery as of Dec 2010 with the assistance of a provincial telemedicine consultation service.

2. **Stroke Unit Utilization** rates have improved from below 40% in 2004 to above 80% in fiscal 2011-12. Geographic clustering of stroke patients on Kidd 7 with access to a full interprofessional expert stroke team has led to improved outcomes including decreased mortality rates and reduced readmission rates. The introduction of a swallowing screening tool as an innovative project has also contributed to reduced complications and improved outcomes.

3. **Our Stroke Prevention Clinic** is supporting timely TIA diagnostic testing, medical and surgical management and patient/family education for self-management, reducing unnecessary admissions and contributing to a low

30 day all cause readmission rate (provincially a top performer on this indicator at an adjusted rate of 3.7 compared to a provincial rate of 8.0 in the Ontario Stroke Report Card released last May). Our 90 day stroke and TIA readmission rate is also low, varying between 1.6% and 2.3% in fiscal 2011-12.

4. The positive profile we gained through **Hospital Accreditation** (99% of standards met.) A consistent **continuous improvement methodology** has been implemented within the Medicine Program, further facilitating continuous improvement in stroke care. Also central to provision and development of services is the inclusion of **Patient Experience Advisors** who are equal members in a growing number of committees and councils and as such are engaged in improvement cycles.

5. **Community collaboration**: The regional team has had success in working jointly with our **Community Care Access Centre** to implement, evaluate and sustain an enhanced community based rehabilitation service. Regional evaluation results included a 15.7 day reduction in hospital LOS leading to ongoing base funding from the SE LHIN. The regional team has also been successful in working with **Community Support Services** such as the Kingston Seniors to build and sustain Stroke Survivor and Caregiver Support Groups. LHIN funding was successfully obtained in the past year with evaluation underway. All **Family Health Teams and Community Health Centres** and an **NP-led Clinic** in our region have been visited in the past year to discuss programs and services related to the promotion of vascular health. Collaborative follow-up work is now underway with a regional Primary Health Care Council in partnership with other disease networks.

Opportunities to focus improvements:

1. Two documentation issues we continue to work to improve are:
    - Dysphagia swallowing screening – a recent audit shows significant improvements in screening practice but the documentation (screening form) is not found in a consistent place in the chart on chart review.
    - Patient and family education – though the team has worked to develop and make use of excellent resource materials, a standardized method of documenting this would be helpful in future

2. Although we meet the performance indicator target for access to rehabilitation, the target would be considered low for Ontario. Access to rehabilitation services is an identified area of concern creating barriers to patient flow with high stroke patient ALC rates to LTC (Our 10-11 Stroke Report Card facility data indicated that 41% of KGH stroke LOS was spent designated as ALC and 79% of those days were spent waiting for LTC beds). High rates of stroke survivor discharge directly to LTC are of concern. Variability in access to rehabilitation services within and outside of KGH impedes flow. Rehabilitation system change to create more options such as access to slow stream rehabilitation and to more intensive inpatient and outpatient services would improve patient flow within KGH and Providence Care, St Mary's of the Lake Hospital, our key rehabilitation partner. The regional stroke program has set rehabilitation system change as its number one priority. A workshop is planned for Nov 28th to begin the work to engage the region in a plan to leverage rehabilitation for improved patient flow. This is being delivered in partnership with the Restorative Care Clinical Services Roadmap of the SE LHIN.

A tremendous amount of preparation has already delivered improvements in patient care. We have strength in our process improvement methodology and we feel we are well placed to demonstrate and showcase all that has been accomplished across the hospital and with our regional partners to provide *Outstanding Care Always* and to continue to realize the provincial and regional stroke network vision of *Fewer Strokes. Better Outcomes*.

Appendix I

Program Overview Description

Kingston General Hospital (KGH)
Regional Stroke Centre for Southeastern Ontario,
Stroke Program Description

May 2002 – updated Nov 2012

OVERVIEW and CONTEXT

The role of KGH as the Regional Stroke Centre (RSC) within the continuum of regional stroke care is derived from the June 2000 report of the Joint Working Group of the Ministry of Health and Long-term Care (MOHLTC) and the Heart and Stroke Foundation of Ontario (HSFO), entitled "*Towards An Integrated Stroke Strategy for Ontario"*. The MOHLTC outlines the expected role of the RSC in its designation guidelines (see *Appendix A*):

"*Regional Stroke Centres (RSC) are accountable for providing leadership, development, implementation and coordination of stroke care throughout their region and across all points in the spectrum of stroke care (health promotion, clinical and secondary prevention, acute care, rehabilitation and home care). For example, Regional Stroke Centres will help hospitals in the region localize and implement stroke protocols and stroke teams. As well, the RSC will coordinate with and assist the community-based agencies responsible for health promotion and stroke prevention in building inter-organizational relationships throughout their respective catchment areas and across the spectrum of stroke care. The RSCs are committed to participating in ongoing education/training in stroke care and providing coordinated stroke services based on best practices and evidence."*

The **catchment area** served by KGH and the South East (SE) stroke region is very close to that of the SE Local Health Integration Network (LHIN) and includes the county areas of Hastings and Prince-Edward (HPE), Kingston, Frontenac, Lennox and Addington (KFLA), and Lanark, Leeds and Grenville (LLG). Kingston General Hospital is centrally located as the only tertiary care facility in the region. A map of the region is included in *Appendix B*.

Associated partners in stroke care include Public Health Units, primary health care providers, Emergency Medical Service providers associated with the associated municipalities, the Central Ambulance Communication Centre, the Regional Paramedic Program of Eastern Ontario, emergency departments, acute care hospitals, rehabilitation units/centres, complex continuing care hospitals, the SE Community Care Access Centre, Community Support Agencies, Long Term Care Homes and residential facilities. Other partners include academic institutions such as Queens University, St Lawrence College and Loyalist College, the Heart and Stroke Foundation and the Ontario and Canadian Stroke Networks. The program works closely with its allied regional health networks such as the Ontario Renal Network, Regional Geriatric Program and the Diabetes Strategy. A Regional Stroke Steering Committee established in 2000 oversees a Regional Stroke Workplan and facilitates these partnerships.

VISION, STRATEGIC DIRECTIONS, VALUES and ACTION PLAN for KGH

KGH aims to provide ***Outstanding Care Always*****.** A five-year strategy for achieving this vision was launched in June 2010 and encompasses the following **strategic directions:**

1. Transform the patient experience through a relentless focus on quality, safety and service;
2. Bring to life new models of interprofessional care and education;
3. Cultivate patent-oriented research;
4. Increase our focus on complex-acute and specialty care.

KGH Patient Declaration of Values (principles of the strategic directions):

- **Respect:** we treat every person we encounter the same way we like to be treated ourselves.
- **Engagement:** We encourage and support the involvement of our internal and external communities in all aspect of KGH life.
- **Accountability:** We are responsible for the decisions we make and the results we achieve as individuals and teams.
- **Transparency:** While respecting the privacy of our patients and staff, we communicate clearly, openly and honestly about everything we do. We do not hide from difficult conversations and we share both our success and our opportunities for improvement.
- **Value for money**: We are responsible stewards of resources, striving always to achieve the greatest results for the money entrusted to us over both the short term and the long term.

The identified **enablers of this plan** include **People, Process, Facilities, Technology, Finances and Communication.**

Stroke care within KGH is delivered through several programs including the ED, Critical Care and Medicine Programs. The responsibilities of the Regional Stroke Program and the inpatient neurosciences unit are led through the Medicine Program in partnership with the Regional Stroke Steering Committee. The Medicine Program including the neurosciences unit uses a standardized continuous improvement methodology that includes the use of PDSA cycles for rapid cycle change.

Central to provision and development of services is the inclusion of the patient. **Patient Experience Advisors** (PEAs) are equal members in a growing number of committees and councils and, as such, are engaged at each step of the way. The Medicine Program has a Program Council, and the neuroscience service has a Clinical and Academic Change Team (CACT). Membership on both includes 2 PEAs who are, typically, patients or family members of patients. Their input and involvement is invaluable to the type and quality of services we provide currently and in the future. PEAs have been advising on continuous improvement activities including PDSA cycles.

Decision Support (Information Management) at KGH provides quarterly CIHI data for monitoring care delivery. This includes CIHI project #340 data used specifically to collect and review stroke indicators from NACRS and DAD. Concurrent chart reviews, on-line patient safety reports, financial and other operational data also form part of the monitoring information available to the program. Quarterly medicine reports outline the current state against corporate performance metrics outlined in the KGH strategy.

Further information on the KGH Strategy and Action Plan for 2015 including milestones and metrics is available on the KGH website at www.kgh.on.ca

VISION, VALUES, STRATEGIC DIRECTIONS, and WORKPLAN for the Stroke Network of SEO

Network Role: A client-centered, collaborative network that leads, plans coordinates and delivers stroke prevention and care across the continuum of stroke care, facilitating best practice in Southeastern Ontario (SEO). As Regional Stroke Centre, KGH is a leader in the work of this network. A Regional Stroke Steering Committee (RSSC) governs this network and includes leaders across the region and the continuum of care, including stroke survivors.

The **vision** of this regional network is the same as that of the Ontario Stroke Network:
Fewer strokes. Better outcomes.

Mission: To continuously improve stroke prevention, care, recovery and reintegration.

Values:

- **Equity and Comprehensiveness:** Our activities will be aligned with the health interests of all Ontarians and in doing so will improve access to the care continuum and respect the diversity of the population we serve.
- **Accountability and Integrity:** We will demonstrate accountability and integrity in all our activities and in the use and management of public resources.
- **Transparency and Engagement:** We will foster and demonstrate a culture of responsive, interactive, open and respectful communication and collaboration
- **Learning and Performance Improvement:** We will contribute to and apply evidence and knowledge, advance new ideas and take action to continuously improve the stroke system.
- **Leadership and Innovation:** We will look to the future, embrace change and innovation, challenge the status quo, grow more leaders and through partnership build capacity.

The Four Strategic Priorities established by the Regional Stroke Steering Committee of SEO in 2012 include:
1. To lead the development of a regional plan to implement provincial **rehabilitation** expert panel best practice recommendations for stroke care.
2. Support the Community Re-integration Leadership Team to investigate and secure funding for **stroke survivor and caregiver support** groups.
3. Collaborate with other network s to **build capacity within primary care for vascular health.**
4. Set and monitor **regional expectations for acute stroke unit care**.

A **regional workplan** is developed every two years in alignment with strategic priorities that are developed based on a review of regional stroke data and on input from regional and local stakeholders. This workplan includes local action plans based on local stakeholder engagement. It includes a **performance indicator report** that provides facility and population based performance indicators for each aspect of the continuum of stroke care**.** A workplan report is prepared every two months for the RSSC. The **data sources** for the performance indicator report include:

a) Provincial evaluation data including a *SE LHIN Stroke Report Card* released yearly by the Ontario Stroke Network Evaluation office. Regional indicators are broken down to local population and facility indicators that include detailed information on KGH stroke care performance. This information is derived from several data sources including CIHI NACRS, DAD, NRS and RAI administrative data sets, Home Care data, and the Ontario Stroke Registry (including an Ontario Stroke Audit of acute hospitals and stroke prevention clinics).
b) LHIN Health Profiles based on the Canada Health Survey
c) Information on pre-hospital care in SEO available through a data partnership with the Regional Paramedic Program of Eastern Ontario providing EMS data that has relevance to monitoring regional stroke patient flow, public awareness and volumes.

d) Regional Stroke Prevention Clinic data collected at each of the four SPC sites across the region on volumes referral sources and wait times by triage priority rating.
e) Regional Rehabilitation CIHI NRS data provided by each rehab facility
f) Kingston Community Support Group evaluation data collected by the Kingston Seniors Community Support Service.
g) Regional Stroke Education Program stats including number of events held, interprofessional participation from across the continuum of care.
h) Financial reporting though KGH variance reports.

Further information on the Stroke Network Regional Workplan and associated performance indicator report, the SE LHIN Stroke Report Card, and evaluation data is available on the stroke network website at www.strokenetworkseo.ca

PROGRAM and SERVICES DESCRIPTION

KGH PATIENT CARE PROGRAMS

The patient care services internal to KGH include:

1. Secondary Stroke Prevention Clinic (stroke and cerebrovascular)

Those at highest risk of stroke, most often, those who have experienced a Transient Ischemic Attack (TIA) or non-disabling stroke are identified by the KGH/HDH ED, the L&ACGH ED in Napanee, primary care providers and referred to the KGH Stroke Prevention Clinic (SPC). In-hospital cases also may be referred if secondary prevention follow-up is required. Secondary stroke prevention and admission avoidance is the result of a timely coordinated approach to identifying those at highest risk and referring them for urgent diagnostics, medical management, surgical management where appropriate, education on lifestyle change and self-management. The KGH SPC collaborates with three other SPCs in our region including clinics in Belleville, Perth and Brockville and KGH receives urgent tertiary referrals for carotid endarterectomy from these clinics. The SPC is responsible for maintaining the following care processes:

- TIA Collaborative Care Plan for those discharged from the KGH/HDH ED with associated order sets
- SPC Collaborative Care Plan for care within the clinic
- Referral and communication systems (e.g. referral forms, information flow)
- TIA packages in the ED to facilitate care processes
- Provision of early assessment, urgent diagnostics, timely diagnosis, appropriate timely medical management and surgical intervention based on best practice
- Case management for rapid access to specialists such as neurology, internal medicine, vascular surgery or neurosurgery, interventional radiology
- Case management for rapid risk factor identification, modification and lifestyle change.
- Education and support to patients, family and other health care providers about evidence based risk factor management and stroke prevention
- Assessment and treatment by a Registered dietitian
- Lifestyle change/behaviour modification
- Links within KGH/HDH (Neurosciences unit on Kidd 7, ED, internal medicine, lab, radiology/imaging, ambulatory care including other clinics such as cardiac or anticoagulation clinics or diabetes education)
- Rapid feedback to referring physicians
- Follow-up care, links with primary care, links with rehabilitation
- Regional planning and links for provision of these services across SEO
- Regional referral systems for those with TIA and other high risk clients
- Education regarding public awareness of stroke recognition, links with health promotion and health provider education
- Patient and family education, client-centred care
- Participation in stroke-related research (e.g. EMBRACE trial)
- Data collection, outcome measurement, use of standardized assessment tools, measuring and monitoring. A provincial Stroke Prevention Clinic audit has just been completed for 2011-12. Data analysis will soon be now underway and findings will be used to make process improvements.
- Monthly reports are provided outlining clinic activity, referral sources and wait times by triage priority level.

The SPC is currently located at the KGH ambulatory Care Centre, The Fraser Armstrong Patient Centre. Ambulatory care will be moving to nearby Hotel Dieu Hospital in Jan 2013 and although the clinic office and staff will remain at KGH, the SPC patients will be seen at HDH. The management of the SPC and its staff will continue to be the responsibility of KGH Regional Stroke Program within the Medicine Program.

2. Emergency and Hyperacute Stroke Care

The Southeastern Ontario **Regional Acute Stroke Protocol** has been in existence since July 1999. It involves a **coordinated regional system response** whereby paramedics use pre-defined medical criteria outlined in a provincial paramedic prompt card to evaluate individuals with symptoms of a stroke who dial 911. Paramedics use the prompt card to determine the suitability for medical re-direct or bypass of the local hospital in order to facilitate organized access to regional or district stroke centres. The stroke centres provide timely assessment of eligibility for time sensitive thrombolytic clot busting medication tPA, diagnostic testing, and other treatments. KGH was the only stroke centre in our region until Dec 2010 when Quinte Health Care-Belleville also put mechanisms in place via “telestroke” to provide timely hyperacute stroke assessment and tPA delivery.

Paramedics provide **pre-notification** to the stroke centre ED while en route. Upon receipt of this pre-notification a stroke call is activated at KGH to facilitate readiness of the stroke team to meet the incoming patient.

Memorandums of agreement for medical re-direct (bypass) related to regional and district acute stroke protocols have been signed between all EMS providers and acute hospitals across the region. These were updated in 2010 to align with new evidence for an expanded time window from three to four and a half hours. The patients who meet the criteria for bypass from Hastings and Prince Edward counties are transported to Belleville and all others are transported to Kingston. In addition to bypass agreements, systems are in place to facilitate **timely transfers** of those with stroke symptoms that present to local hospital EDs and need to be transferred quickly to a stroke centre for assessment. Transfer protocols are outlined using pink posters distributed to each local ED. An algorithm for the stroke protocol process has been developed and is referred to in the memorandum of understanding.

Repatriation agreements exist between KGH and all SEO hospitals. These agreements allow for ED to ED repatriation for those that arrive on bypass and do not quality for tPA as well as inpatient to inpatient repatriations for those that are admitted. Agreements are also in place to cover repatriations across bordering regions (e.g. with Peterborough and Renfrew counties). A forum for **review of pre-hospital and acute evaluation data** and discussion of the flow of hyperacute stroke care in the region is provided through the Regional and District Acute Stroke Protocol Multidisciplinary Committee.

Collaborative Care Plans for **Acute Ischemic Stroke** and for **TIA management** and **associated order sets** were developed at KGH in1997 and 2002 respectively and are updated regularly to align with best practice recommendations. A **Haemorrhagic Stroke Care Plan** was developed in 2007. These care plans were all most recently updated in 2012. They outline care in the ED and where applicable, inpatient care through to discharge planning. A **guideline for administration of tPA at KGH** has been in place since 1999 and is also updated regularly. A process chart for tPA provision is also available and documents processes for obtaining patient consent. Thrombolytic therapy provision at KGH is largely provided intravenously but intra-arterial tPA processes have been built and IA tPA can be provided with the assistance of interventional radiology in specific instances. This is not currently a standard method of treatment at KGH.

KGH Care processes integral to hyperacute ED care include:

- Communication with dispatch and EMS services related to the Regional Acute Stroke Protocol; pre-notification from the field as well as internal communication mechanisms using switchboard to communicate with stroke teams for timely urgent acute stroke team activation
- Acute Ischemic Stroke/TIA Collaborative Care Plan for care in the ED and for those admitted
- TIA Collaborative Care Plan for those discharged from the ED, linking to the SPC Collaborative Care Plan.
- Haemorrhagic Stroke Care Plan for care in the ED and for those admitted.
- Pre-printed order sets associated with each of the above care plans.
- Acute stroke packages and TIA packages in the ED to facilitate care processes
- Timely urgent triage/assessment regardless of method of arrival in the ED
- Processes for urgent lab work using labeled blood tubes contained in the stroke packages
- Diagnostic imaging/timely CT scanning - stroke protocol patients are “next on scan”
- Specialist consultation (neurology, neurosurgery, neuroradiology, vascular surgery, internal medicine, cardiology etc)
- tPA treatment protocols and process charts that include consent
- Patient and family education, client-centred care
- Pharmacy consultation; other allied health as appropriate per collaborative care plans
- Referral/follow-up/admission
- Repatriation agreements (both directly from the ED and from inpatient care as appropriate given medical needs facilitating regional flow)
- Discharge planning and links with the community/CCAC/primary care
- Participation in stroke-related research (e.g. KGH is completing a joint research project with the Regional Paramedic Program of SEO, EMS providers and the hospitals across Eastern Ontario)
- Data collection, outcome measurement, use of standardized assessment tools, measuring and monitoring including use of pre-hospital EMS data and participation in CIHI Special Project #340 for stroke data from NACRS
- Education and knowledge translation

3. Acute Stroke Care

Once admitted, patients receive care under neurology in the Davies 4 ICU if they have received tPA but unless they otherwise require critical care, they are admitted directly to the Acute Stroke Unit on the neurosciences unit, Kidd 7. The Davies 4 ICU transfers to the stroke unit following the tPA critical phase of care. A specialized expert interprofessional team approach to care is provided in the Acute Stroke Unit. Care processes include:

- Designated area and team for stroke care in the Kidd 7 **Acute Stroke Unit** (ASU). The most acute stroke patients are seen in the designated ASU and then moved onto the neurosciences ward to allow new patients in.
- Acute Ischemic Stroke Collaborative **Care Plan** or Haemorrhagic Care Plan and associated order sets continue in follow up from the ED.
- Dysphagia screening
- Case Management across the hospital through a designated ***Stroke Specialist Case Manager*** with assistance from the ED, Critical Care and Neuroscience Charge Nurses, the Stroke Resource Nurse and the acute stroke team.
- Expert neurological, neurosurgical and medical diagnostics and care
- Access to other medical expertise as needed (e.g. cardiology, endocrinology, physiatry)
- Full interprofessional assessment using standardized assessments
- Interprofessional Treatment (for interprofessional team members see *Appendix C*)
- Lab and imaging support

- Links to Stroke Prevention Clinic and other ambulatory care clinics
- Patient and family education, client-centred care
- Rehabilitation begins in the acute phase
- Referral/follow-up services
- Regional links to inpatient rehabilitation, community care, Long Term care, complex continuing care
- Support from the Community Care Access Centre (CCAC) to assist in these transitions
- Timely enhanced provision of stroke rehabilitation services via the CCAC through a LHIN-funded program called the "Discharge Link Service"
- Links to community support groups for those discharged home
- Participation in stroke-related research and the Stroke Registry
- Data collection, outcome measurement, use of standardized assessment tools, measuring and monitoring including participation in CIHI Special Project #340 for stroke data from DAD.
- Knowledge translation and processes for **Continuous Quality improvement** within the QI context of the Medicine Program (e.g. use of PDSA rapid improvement cycles). An interprofessional unit level **Neurosciences Change Team** meets monthly to discuss best practices and monitor quality improvement activities.
- **Internal Stroke Protocol**: A process has been put in place for stroke protocol activation for those that experience in-hospital stroke. The care provider that observes the stroke signs pages the neurologist on call who, on assessment, can activate a timely organized response to internal stroke protocol activation with assistance from the "RACE" team.

The following stroke services are not provided directly by KGH but require focused coordination and communication strategies:

4. Links to Rehabilitation and Community Re-Integration

Regional stroke rehabilitation links are well established. Inpatient stroke rehabilitation units are located at Providence Care, SMOL Hospital in Kingston, Brockville General Hospital, the Perth site of Perth and Smiths Falls District Hospital, and Quinte Healthcare, Belleville Hospital. Community based stroke rehabilitation is provided through an enhanced community based rehabilitation service through the community care access centre Discharge Link Service. This service involved two pilot project demonstrations led by the Regional Stroke Network in 2002-2004 and 2009-2011. Positive evaluation results such as reduced length of stay, improved change in function over time (FIM efficiency) and reduced readmissions led the LHIN to fund this as an ongoing base service of the CCAC. This enhanced CCAC service has been critical in filling a gap related to limited outpatient rehabilitation service in our region and in meeting the needs of our highly rural region (45% rural residency). SMOL hospital in Kingston has been working on the development of a Day Rehab program but this is in pilot stages only. Rehabilitation system change is a priority focus of the Regional Stroke Steering Committee.

Community Stroke and Caregiver Support Groups have been established in Kingston at the Kingston Seniors Association, in Belleville with QHC and Community Care for South Hastings, in Brockville and Perth with Community Primary Health Care and the Perth Legion. These four groups are provided with best practice support through the regional stroke team. Three of the four groups have been regularly delivering a self-management program, "*Living with Stroke*" offered using the materials developed by the Heart and Stroke Foundation.

Other community links are provided to stroke patients and families as needed – for example, referral to the CNIB or to other relevant supports such as diabetes education. Community Resource Directories for each part of the region were developed by the regional stroke team in 2007 and updated regularly for use by stroke teams, patients and families across the region. These directories are provided to patients and

families at KGH as one part of the many educational materials shared by the *Stroke Specialist Case Manager* and acute stroke team.

5. Links to Health Promotion and Primary Prevention
Collaboration and communication with the SEO Health Units and Primary Health Care Providers is an ongoing part of service delivery at KGH. For example, referrals can be made to smoking cessation or exercise programs. A recent focus of the regional stroke program has been regional collaborative work in vascular health with a focus on evidence-based practice.

STROKE NETWORK OF SEO (REGIONAL STROKE PROGRAM)

This program is responsible for:

- Development and implementation of a Regional Workplan that crosses the entire continuum of care and engages regional stakeholders involved in stroke prevention, care, recovery and re-integration;
- Oversight of this workplan by a Regional Stroke Steering Committee (RSSC)
- Coordination of the RSSC activities and subcommittees crossing the continuum of care (Planning Group, Prevention Sub-committee and Stroke Prevention Clinic Nursing Workgroup, Regional and District Acute Stroke Protocol Multi-disciplinary Committee, Regional Rehabilitation Sub-Committee, Community Re-integration Leadership Team, LTC Learning Collaboratives);
- Coordination of regional education activities, promotion of best practice and knowledge translation and continuous improvement in stroke care across the region and across the care continuum;
- Coordination of data collection and use of the data for measuring and monitoring of regional stroke care;
- Regional reporting and communication, linking stroke care initiatives across the continuum in SEO;
- Participation in the updating of evidence-based practice guidelines and processes such as the Regional Acute Stroke protocol, Regional uptake of Acute Stroke and TIA collaborative care plans/order sets, regional prevention planning, promotion of vascular health, planning and implementation of rehabilitation system change, transitions and community support.
- Coordination and communication with the Ontario Stroke Network, other regional stroke networks, other key stakeholders such as the LHIN, academic institutions, other chronic disease networks, the Canadian Stroke Network and the Heart and Stroke Foundation.

Services provided by KGH for each of the regional components of stroke care are outlined in the MOHLTC designation guidelines for Regional Stroke Centres and SPCs found in appendix B. The expected components of the regional program led by KGH are well established and include:

1. Collaboration/Leadership

- Establishment of a region-wide Steering Committee with terms of reference, work-groups or sub-groups, separate cost centres and reporting mechanisms to track resources
- A statement of vision, mission and core values
- A Regional workplan crossing the continuum of care, monitored over time
- Executive sponsors, MOUs and repatriation agreements, and a communication strategy
- Collaboration and sharing of resources and information with other Regional and District
- Centres and providers across the care continuum

2. Best Practice

- Structures/plans/tools to support regional stroke care at all points along the continuum (These are based on the Canadian Stroke Network Best Practice Recommendations)
- Dissemination of these throughout the region
- Best practice implementation and communication

3. **Components of care outlined in RSC service guidelines**
    - **Health Promotion /Vascular Health/ Primary and Secondary Stroke Prevention** - identification of resources, formalized linkages with community providers including primary care, consultation and training with community providers, links to health promotion strategies;
    - **Pre-hospital and Emergency** - pre-hospital and emergency protocols for stroke care, paramedic training, transport agreements, communication and dissemination approaches, referral process for TIA's to secondary prevention clinics;
    - **Acute care** - Medical and Regional Directors with dedicated regional team, admin support for regional leadership; nurse stroke specialists, designated interdisciplinary acute stroke team, 24-hour access for specific stroke services, designated acute stroke unit, acute care plan(s), outreach support;
    - **Rehabilitation** - needs assessment, innovation in rehabilitation including pilot projects, rehabilitation as a component of patient's care plan, care-plan moves with patient across transitions, linkages with secondary stroke prevention clinics, linkages with community supports;
    - **Secondary prevention clinics** - structure to include an advanced practice nurse, 0.2 FTE healthy living specialist (at KGH this involves a registered dietitian) , admin support, structures to oversee and monitor the plan, resource for evidence-based prevention and best practice implementation along the continuum and across the region;
    - **Community re-integration** - outreach support and consultation, communication strategies, links with Long Term Care and community support agencies.

4. **Information Systems**
    - Collection and coordination of core regional data with support from the Ontario Stroke Network Evaluation office at ICES and the Ontario Stroke Registry including chart abstraction by a local Stroke Registry Research Coordinator.
    - Administrative databases and stroke registry data used to assess performance, evaluate outcomes and develop standards of stroke care across the region.

5. **Professional Education and Knowledge Translation**
    - Needs assessment and annual regional plan for professional education across the continuum of care – integrated with the strategic directions of the Regional Stroke Workplan.

Appendices:

- **Appendix A**: MOHLTC Designation Guidelines for Regional Stroke Centres and Stroke Prevention Clinics.
- **Appendix B**: Regional Map
- **Appendix C**: Interprofessional Teams
- **Appendix D**: Client Consumer Profile
- **Appendix E**: Operational Supports

APPENDIX A

Ministry of Health and Long-Term Care (MOHLTC)
Ontario Stroke Strategy (OSS)
Service Guidelines – Regional Stroke Centre (RSC)

SECTION A

RSC Role

- The RSC is accountable for providing leadership, development, implementation and integration of stroke care throughout their region and across all points in the spectrum of stroke care (promotion, clinical and secondary prevention, acute care, rehabilitation and home care). For example: RSC will help hospitals within the region localize and implement stroke protocols and stroke teams.
- The RSC has fiduciary responsibility for the Regional Stroke funds in partnership with the Regional Stroke Steering Committee (RSSC).
- The RSC will co-manage the allocation of these regional funds for the sustainability of the OSS e.g. the regional education funds will be prioritized for region-wide educational activities as per the OSS Education Atlas in co-operation with the RSSC's recommendations.
- The RSC will ensure a senior executive from their facility is an active member on the RSSC.
- The RSC coordinates with and assists the community-based agencies responsible for health promotion and stroke prevention in building inter-organizational relationships throughout their respective catchment areas and across the spectrum of stroke care.
- The RSC is committed to participating in ongoing education/training in stroke care and providing coordinated stroke services based on best practices and evidence.

Accountability

- In partnership with the RSSC the RSCs are accountable for the leadership, development, implementation and coordination of stroke care within their region and the provision of stroke care based on best practices and evidence.
- The RSCs have fiduciary responsibility for the regional stroke funds allocated to the base budget at the RSC.
- The RSC is accountable to adhere to the stroke line-by-line infrastructure allocated for the provision of stroke care and service in both the RSC site and within the region. Stroke funding cannot be reallocated to the RSC's operating budget.
- The RSC is accountable to submit separate quarterly and year-end financial reports specific on the stroke infrastructure.
- The RSC will sustain the stroke infrastructure roles, descriptions, responsibilities and requirements as per Section B of the Service Guidelines.
- The RSC will work in partnership with their health-care community including District Health Councils, District Stroke Centres (DSC), the rehabilitation and long-term care community, acute hospitals, Community Care Access Centres (CCAC) and the community.
- The RSCs will also partner with other stakeholders such as local boards of health and the Heart and Stroke Foundation to fulfill their accountability in the leadership, development, implementation and coordination of stroke care for their region.
- The RSCs agrees to provide best practice stroke care through the access to a geographically clustered stroke unit with a dedicated stroke interdisciplinary team.
- The OSS aligns with the RSC's operational and strategic plans.

Responsibilities

1. Leadership, Development, Implementation and Coordination

- Develop a regional plan for stroke care across the continuum, which builds upon existing networks, resources and capacity.
- Maintain the region-wide steering committee to oversee regional activities, coordination and financial allocation.
- Partner with other RSCs to ensure a province wide system which is based on best practices, builds on the expertise of the centres, provides for the sharing of tools and processes to decrease duplication and develops consistency of approaches.
- Develop reports on the status of the regional stroke plan to the MOHLTC on a scheduled basis.

- Administer the regional strategy and develop and maintain the regional network.
- Act as the trustee for the funds for regional activities and to establish cost centres and reporting mechanisms to track resources and include a status of regional stroke plan and operating plan in partnership with the priorities established by the RSSC.
- Ensure timely communication to all stakeholders (e.g. MOHLTC, local communities).
- Ensure the implementation of the regional plan for stroke care based on best practices and continuous improvement.
- Develop and implement the acute stroke protocol (e.g. ambulance dispatch communication policies, paramedic hospital bypass protocols, community hospital triage and transport process including bypass with clustered hospitals without 24 hour CT scanning or which are missing other critical acute stroke care components).
- Develop care plans for the continuum for adoption by providers as a basis for best practices.
- Develop coordinated regional stroke rehab services (e.g. RSC, inpatient community hospitals, ambulatory and community-based services and outreach.
- Ensure funding and provision of outreach services to support enhanced consultation in rural and remote areas of the region.
- Ensure a regional stroke prevention strategy by planning and organizing regional stroke prevention services and ensuring close linkages with primary care, acute care, stroke rehabilitation sectors and cardiac rehab programs.
- Organize and continuously upgrade stroke treatment in the region by adopting best practices based on a model of continuous learning and continuous improvement.
- Demonstrate a commitment to monitoring the effectiveness of the regional stroke strategy by working in collaboration with their partners to ensure the collection and coordination of core data.
- Provide leadership in measuring and monitoring by working with other stakeholders to define further data needs, collect data, assess performance, evaluate outcomes and develop standards.
- Provide leadership and mentoring on the use of data to improve coordination and provision of stroke care throughout the region and across the spectrum of stroke care.
- Assist hospitals in the region localize and implement stroke protocols and stroke teams.
- Provide consultation and mentoring to other hospitals in the region to promote access to tPA and other interventions and organized stroke care.
- Develop and provide regionally based education and training in relation to stroke care:
    - Coordinate education and training needs within the region.
    - Facilitate primary care provider education in best practice (e.g. blood pressure monitoring)
    - Dissemination of information on health promotion and prevention to the public.
    - Participate in forums, conferences, etc. with other regions to share experiences across the province and build a province-wide system for stroke care.

2. <u>Provision of Patient Care and Services</u>

- Rapid emergency care accessible through established triage procedure.
- On-staff Neurologists/Stroke Specialists 24/7 emergency/acute organized to provide service with an established on-call schedule.
- Access to a Neurologist/Stroke Specialist within 15 minutes of patient's triage.
- CT scanner on site, with available technical staff to access scanner 24/7.
- Protocols and processes to support patients accessing CT scan within 1 hour of referral
- Radiologist/Neuroradiologist accessible 24/7 (may include teleradiology).
- Neurosurgery accessible through established processes as required.
- Clinical protocols established for all acute aspect of care from the ED to inpatient admission to discharge planning and case management.
- Dedicated clinical team of specialists in stroke care (e.g. RN, Physiotherapy, Occupational Therapy, Dietician, Social Work and SLP). If human resource issues in the region preclude the hiring of staff (e.g. SLP) strategies must be in process to still provide access to that care.
- Capability to provide tPA care with established rapid response protocol for RSC and regional patients.
- Provide coordinated services for all high-risk patients to allow for access to prevention programs, clinics, referrals and communication with primary care providers.
- Develop end implement care guidelines that enforce best practice standards that include transition of care management.

3. Systems

- Through the leadership of the Regional Medical Director, ensure the provision of evidence based and best practice stroke care across the region.
- Demonstrated clinical leadership, board and senior leadership commitment and track record of working collaboratively, establishing alliances and planning structures for the region.
- Commitment of Medical Director to leadership (patient care, education, training, research and evaluation) in clinical stroke care for the region (e.g., education and development of other hospitals based on best practices).
- Adequate critical mass of resources and expertise – clinical competence and technical resources.
- Participation agreements with DSCs, community hospitals, rehabilitation sites, community agencies, etc. in order develop and implement the regional plan for stroke care.
- Partnership agreements and repatriation guidelines/agreements with DSCs, community hospitals and local facilities (e.g. CCACs, Rehab. facilities, long-term care) to ensure appropriate and timely return of patients to their communities (cross border issues to be addressed).

Transfer protocols (to include bypass) with clustered hospitals without CT scanning.

Service Guidelines – Stroke Prevention Clinics (SPC)

SECTION A

SPC Role

- The SPC is accountable for providing the leadership, development and implementation of the prevention clinic under the leadership and guidance of the Regional Stroke Centre (RSC) and/or District Stroke Centre (DSC) and the Regional Stroke Steering Committee (RSSC).
- The SPC will provide an integrated interdisciplinary approach to stroke prevention for patients within their community, who are at high-risk for stroke, have had a TIA and/or who have had a stroke.
- The SPC will work in partnership with primary care, acute care, rehabilitation, long-term care, community services and other stakeholders to meet the prevention leadership role within the region/district.
- The SPC will develop a regional stroke prevention plan that encompasses primary and secondary prevention in conjunction with the RSC, DSC and the RSSC.
- The SPC will facilitate evidence-based practice in prevention throughout the community.
- The SPC facility has the fiduciary responsibility for the SPC budget in partnership with the RSSC.
- The SPC in partnership with the RSC/DSC coordinates and assists the community-based agencies responsible for health promotion and stroke prevention in building inter-organizational relationships throughout their respective catchment areas and across the spectrum of stroke care.

Accountability

- In partnership with the RSSC the SPCs are accountable for the leadership, development, implementation and coordination of stroke prevention within their facility based on best practices and evidence.
- The SPC's site hospital is accountable to adhere to the stroke line-by-line infrastructure allocated for the stroke clinic's provision of care and service in their clinic and/or at any satellite clinics where appropriate.
- Stroke clinic funding cannot be reallocated within the hospital's operating budget.
- The SPC is accountable to provide separate quarterly and year-end financial reports on the stroke infrastructure to the ministry.
- The SPC will sustain the stroke infrastructure roles, descriptions, responsibilities and requirements as per Section B of the Service Guidelines.

Responsibilities

1. Leadership, Development and Implementation

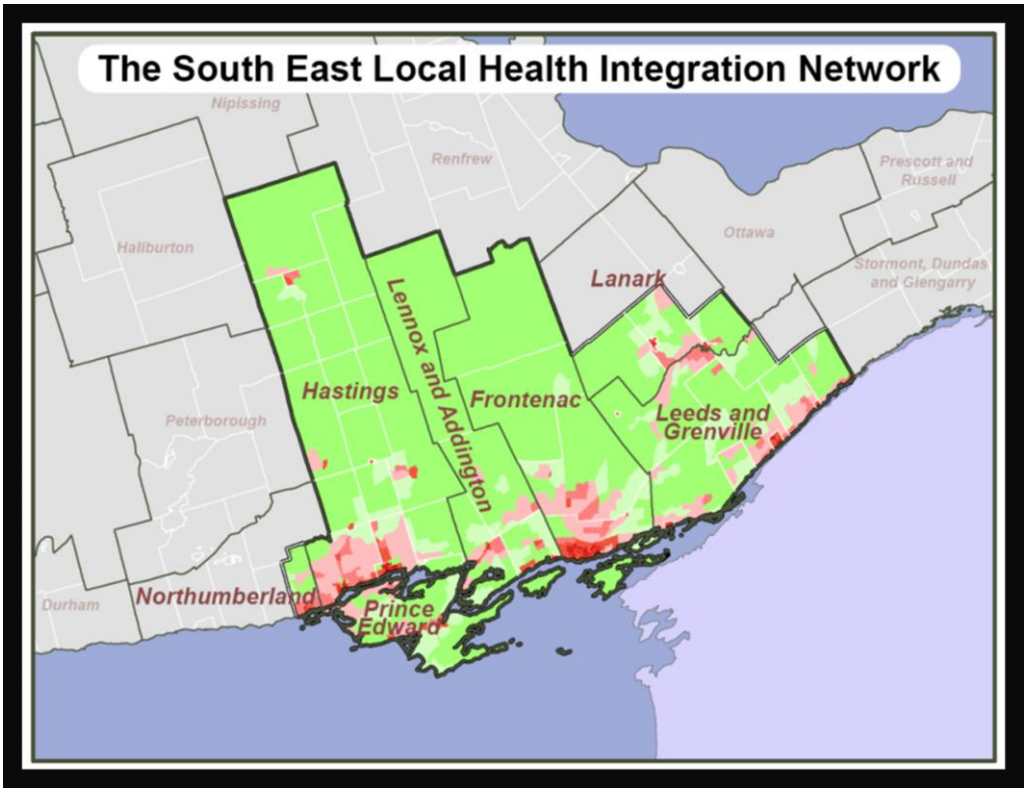
- Partner with other SPCs to ensure a province wide system which is based on best practices, builds on the expertise of the clinics and provides for the sharing of tools and processes to decrease duplication and develop consistency of approaches.
- Ensure timely communication to all stakeholders (e.g. MOHLTC, local communities).

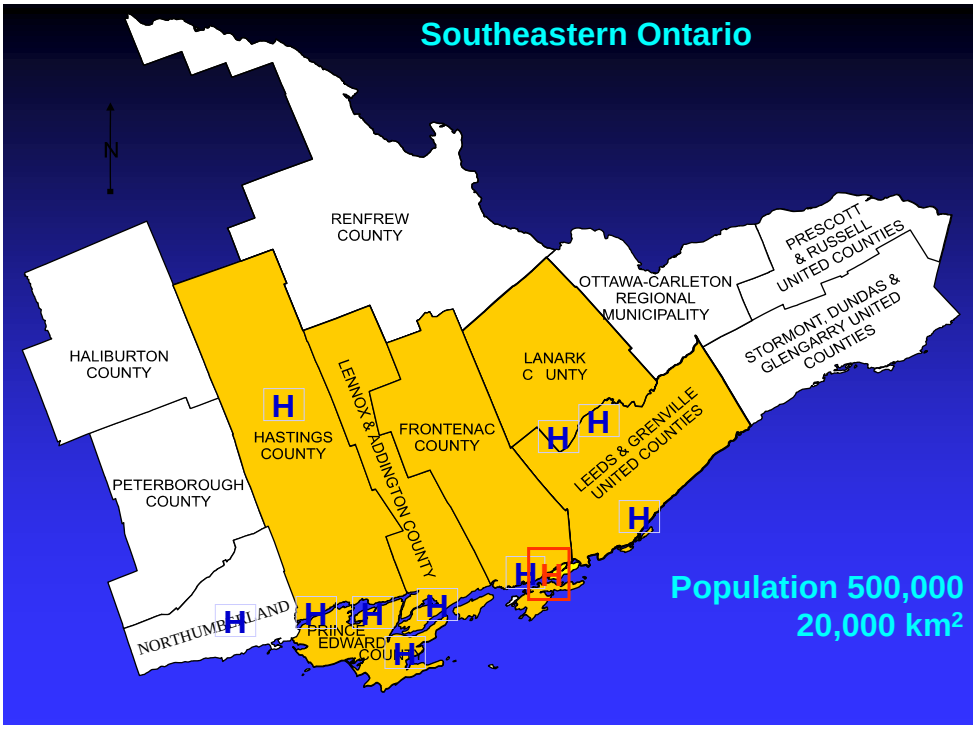
- Ensure the implementation of the regional/district stroke prevention strategy for stroke prevention based on best practices and continuous improvement.
- Plan and organize regional stroke prevention services by providing support and ensuring close linkages with primary care, acute care, stroke rehabilitation sectors and cardiac rehab programs.
- Demonstrate their commitment to monitoring the effectiveness of the regional stroke strategy by working in collaboration with partners to ensure the collection and coordination of core data.
- Provide leadership in measuring and monitoring by working with other stakeholders to define further data needs, collect data, assess performance, evaluate outcomes and develop standards.
- Provide leadership and mentoring on the use of data to improve coordination and provision of stroke prevention throughout the region and across the spectrum of stroke care.
- Assist hospitals in the region to localize and implement appropriate stroke protocols.

3. <u>Provision of Patient Care and Services</u>

- Provide coordinated services for all high-risk patients to allow for access to prevention programs, clinics, referrals and communication with primary care providers.
- Develop and implement referral and triage processes that enforce best practice standards to facilitate the transition of care management e.g. from the emergency department or from the primary-care practitioner to the stroke prevention clinic.
- Established process with the RSC/DSC to coordinate timely access to specialty consults, specialty diagnostics and surgery.
- Diagnostics services available and/or accessible in a timely manner for clinic patients (e.g. CT scanners, Doppler, Ultrasound).
- Access to interdisciplinary services for consult and treatment e.g. dietician, pharmacist, physical therapist.
- Access to interdisciplinary team member(s) for behavior modification activities such as lifestyle modification.
- Processes established for access to Neurosurgery onsite or through the RSC in a timely manner.

APPENDIX B
MAP OF SOUTH EASTERN ONTARIO





APPENDIX C
THE INTERPROFESSIONALSTROKE CARE TEAM(s)

Several teams are involved in the provision of stroke care in each part of the continuum. Students are involved with all disciplines due to the affiliation of the Regional Centre with Queens. St Lawrence College and other teaching facilities. The **patient/client, family and significant others are an integral part of every team**. KGH has developed, as part of its strategic directions, a patient advisory council that leads patient centered care provision. The interprofessional Neurosciences Change Team meets monthly to oversee continuous improvement in best practice stroke care and includes two patient advisors.

Regional Coordination Team
Medical Director (KGH/Queen's Stroke Neurologist)
Regional Director, Stroke Network of SEO
Administrative support
Regional Education Coordinator
Regional Best Practice Coordinator
Regional Rehabilitation Coordinator
Regional Community and LTC Coordinator

Secondary Stroke Prevention Team:
Medical Director and SPC physician specialists
Clinical Nurse Specialist/APN
Medical Secretary
Registered Dietitian
Consults to other professions or CCAC as needed
Imaging and lab techs
Primary Care Provider/Physician
Other ambulatory clinics (anticoagulation, diabetes education etc)

Pre-hospital and Emergency Team:
Dispatch (Central Ambulance Communications Centre)
EMS Services (Hastings-Quinte EMS, Frontenac EMS, Lennox and Addington County EMS, Leeds-Grenville EMS, Lanark County EMS)
Regional Paramedic Program for Eastern Ontario
Emergency Departments in each SE hospital

Hyperacute and Emergency team at KGH:
Emergency physicians
Emergency registered nurses and charge nurses
Clinical Educator
Unit clerks
Switchboard and admitting
Imaging manager and staff (e.g. CT and angio techs)
Lab manager and staff
Neurology, Neurosurgery, Radiology and Interventional radiology (IVR)
IVR manager and nurses
Other specialists (Medicine, cardiology, vascular surgery etc)
Pharmacy and other allied health as needed
Admitting and Discharge planning, Community care
Primary Care Provider/Physician
Acute Stroke Critical Care and Neurosciences Inpatient teams
Program Directors and Managers (Critical Care and Neurosciences)
Clinical Educators, Practice Leaders

Stroke Specialist Case Manager
Clinical Nurse Specialist/NP, Neurosciences
Neurology, Neurosurgery, Internal medicine, Physiatry and other specialists as required
Primary Care Physician/Provider
Charge Nurses, Registered Nurses and Registered Practical Nurses
Patient Care Assistants
Unit clerks
Allied Health/Rehab professionals (Pharmacy, OT, PT, PT/OT aides/assistants, Speech-language pathology, Clinical Nutrition/Dietitian, social work)
Neuropsychology by special consult
Pastoral care
Admitting and Discharge planning from both KGH and SMOL
Community Care Case Manager
Imaging and lab
Stroke registry nurse

In- and Out-patient, and Day Hospital Rehabilitation teams
Inpatient rehab teams and outpatient day hospitals located at PC-SMOL, QHC - Belleville site, Brockville General Hospital – Garden St Site and PSFDH - Perth site

Physiatry and Inpatient Attending Staff
Primary Care Physician/Provider
Director, Manager of Rehabilitation services/Practice Leaders
Rehabilitation nurses and RPN's
Ward clerk
Pharmacy and Lab
Rehabilitation therapists (OT, PT, Speech-language pathology, Recreation Therapy)
OT/PT/Communication Aides/assistants
Psychologist, Clinical Nutrition/Dietary, Social Work, Pastoral care, Discharge planning
Community care case manager
Vocational Rehabilitation
Assistive Devices Rehabilitation Assessors

Community Care Team:
Primary Care Physician/Provider
CCAC team: Director and Managers of Client Services; Case manager
CCAC Contracted Rehabilitation providers (OT, PT, SLP, SW and RD services)
CCAC contracted nursing and PSW service providers
Community Support Services (Stroke Survivor/Caregiver Support Groups, adult day) Driving assessment programs
Community transportation (Access Bus, Taxi services)
Orthotics and Prosthetics
Community Support Services

Health Promotion and Primary Prevention Team:
Health units
Community Health Centres, Family Health Teams, NP-led Clinics
Other Primary Care providers

APPENDIX D
CLIENT/CONSUMER SURVIVOR PROFILE

The clients served by the stroke program are those residing in Southeastern Ontario as per the map in *Appendix B.* The clients include those at risk of having a TIA or stroke, those who have experienced a TIA or stroke and their families/support network.
A Summary of the risk profile across SEO can be found in table 1 below. Further information is also available on the SE LHIN website at http://www.southeastlhin.on.ca/factsheet.aspx

Table 1 Vascular Health Indicators (Statistics Canada, 2012)

Indicators	HPE	KFL&A	LLG	South East LHIN	Ontario
Health Condition/Health Behaviour					
Obesity %	23.6	22.6	20.2	22.0	18.0
Diabetes %	8.0	8.9	8.5	8.7	6.8
Hypertension %	23.0	18.7	18.4	19.8	17.4
Current daily smoker %	23.0	15.7	21.6	20.0	14.5
Heavy Alcohol drinking %	18.6	17.1	19.5	18.3	15.9
Perceived life stress %	24.8	26.9	25.0	25.8	24.0
Physical Activity: Moderately Active or Active %	57.8	63.4	59.6	60.5	50.5
Hospitalized Myocardial Infarction (per 100,000 population)	241	210	212	218	207
Hospitalized Stroke (per 100,000 population)	140	108	133	127	125
Health System					
Coronary Artery Bypass Graft (per 100,000 population)	101	101	94	103	68
Percutaneous Coronary Intervention (per 100,000 population)	214	202	224	207	174
Mortality					
Circulatory Diseases (per 100,000 population)	179.1	162.3	178.1	174.7	155.6
Community					
Age $\geq$ 65 %	16.9	15.2	17.2	16.4	12.7
Rural Area Population	48.2	36.9	58.7	45.9	14.9

Note: Vascular-Related Health Profile adapted from "Health Profile, June 2012: South East Health Integration Network Ontario" by Statistics, Canada, 2012. Retrieved from www.statcan.gc.ca
Note: **HPE**: Hastings & Prince Edward Counties; **LLG:** Lanark, Leeds & Grenville Counties; **KFL&A**: Kingston, Frontenac, Lennox & Addington Counties

Links to provincial evaluation reports providing detailed information about stroke volumes and care profiles across SEO can be found at http://www.strokenetworkseo.ca/projothregions
The provincial evaluation report and supplementary tables with sub-LHIN and facility based information can be accessed directly on the ICES website at
http://www.ices.on.ca/webpage.cfm?site_id=1&org_id=68

The Stroke Evaluation Report notes that the annual age and sex-adjusted inpatient admission rate for stroke/TIA across SE Ontario in 2010/11 was 1.5 per 1000 (same as the provincial rate). The variance across the SE region sub-LHIN areas was 1.0 to 2.1.

At KGH, 541 stroke/TIA patients presented to the ED in 2011-12 and 317 were admitted. The stroke subtypes of those admitted are as follows: 218 Ischemic, 58 Hemorrhagic, 41 TIA. The stroke subtypes of those discharged from the ED and not admitted are as follows: 40 Ischemic, 12 Hemorrhagic, 172 TIA.

Stroke survivors may have significant physical and emotional care needs due to the high level of disability that may result (for example, hemiparesis is common). Communication deficits such as aphasia, cognitive and perceptual deficits, incontinence and limited independence in daily activities such as swallowing, feeding, dressing and mobility add to the care complexity and advocacy needs of this client group. Stroke patients are at high risk of post-stroke complications such as post–stroke depression, pneumonia, urinary tract infections, deep vein thrombosis, pain or physical injury related to safety issues and cognitive deficits, falls and spasticity. These can significantly impact on quality of life of both the survivor and family/caregiver and impact the success of rehabilitation outcomes. Interprofessional client-centered expert care and effective ongoing communication with the family and patient are needed for successful management of stroke survivors. Stroke survivors require ongoing assistance with transitions of care, rehabilitation, community re-integration and return to life participation. Wheelchair accessibility is critical to effective management of this client group. Secondary prevention is an ongoing concern as these clients often have complex medical co-morbidities. As such, effective partnerships across the care continuum are vital to stroke prevention care and outcomes.

APPENDIX E
OPERATIONAL SUPPORTS

Documentation and information support

The KGH client record is not yet fully computerized. EDIS (*Emergency Department Information System*) and PCS (*Patient Care System*) are used in the ED and inpatient care respectively. Documentation for stroke care follows established KGH policies and procedures. Physician discharge summaries are electronic. Electronic order entry is not yet in place but corporate planning is underway as part of the move toward full computerization of the electronic record. Clinical administrative CIHI data is available through Decision Support. Financial information is available through an electronic system, *SAP*. Incidents are entered, tracked and reported electronically using *Safe Reporting*. KGH participates in ongoing *PICKER* client satisfaction surveys. The medicine team reviews these reports regularly and can pull neuroscience-specific data from the satisfaction surveys.

Stroke specific data collection at KGH is facilitated by CIHI NACRS and DAD, CIHI special project #340, SPC data collection and the stroke registry audit. The Ontario Stroke Network Evaluation office also provides yearly reports with sub-LHIN and facility level data. Monitoring and reporting mechanisms were described earlier.

Imaging, lab and switchboard support

Imaging support for emergency access to CT scanning is a standard process of the acute stroke protocol. Imaging services are part of the team that receives the pre-notification message from switchboard and protocol patients become “next on scan.” MRI scanning is available as the back- up if all CTs are down. CT, carotid duplex Doppler studies/carotid angiodynography, cerebral angiography, MRI and MR angiography are included in stroke/TIA diagnostics. Echocardiograms and transesophageal echos may also be required. The services of the interventional suite are sometimes needed for intra-arterial administration of tPA but this is not a standard service at KGH. The stroke protocol requires 24/7 neurology and radiology on call and CT tech service, as well as very occasional on-call for IVR nurses/techs in the case of Intra-arterial administration of tPA after daytime hours.

An urgent turn-around time for lab services is required for the acute stroke protocol. Significant lab support is also needed for the Stroke and TIA care plan testing and ongoing diagnostics.

The KGH switchboard provides critical communication support to the stroke protocol, activating the stroke team for both external and in-hospital strokes.

People Services and Organization Development Support

People services provide assistance for **recruitment and retention** strategies relevant to both KGH stroke care and the Regional Stroke Program. Organizational development includes a corporate **leadership development plan** that is embedded in the 5 year strategy for KGH. A **Learning Management System** is in place to provide staff with web-based learning systems with automated tracking of learning activity and reminders. A comprehensive hospital **orientation** for all new staff is followed by a clinical teaching unit orientation for new nursing staff. Staff orientation in the ED, critical care and inpatient neurosciences program all include stroke- specific information. Stroke specific orientation teaching outlines are available from the Neurosciences Clinical Educator and Stroke Specialist Case Manager.

There is a hospital policy in place for **performance review at** http://intranet.kgh.on.ca/default.aspx?page=18&policy.Id.0=26846

However, this process has been expanded over the last two years as follows:

- Since 2009, Executive Team member's Annual Performance Agreements and Pay at Risk are tied together for achievement of QIP and Strategy milestones.
- Since 2010, Executive Team members have completed competency self-assessment and 360 degree reviews and completed Learning Plans.
- Since 2011, Employee members of the KGH Leadership Group have Annual Performance Agreements put into place. Annual increases are not processed until assessments of the achievement of the goals have been completed.
- Since 2011, Employee members of the KGH Leadership Group have completed self-assessment and at Director level conducted 360 degree reviews and completed Learning Plans.
- Since 2011, Performance Goals and Learning objectives template for non-leadership positions have been piloted in clinical and corporate areas. It is part of the corporate plan to expand this process to all staff.
- Since 2012, Performance goals and learning objectives have been put into place for all non-union/non-leadership positions. Annual increases are not processed unless this has been completed with an assessment of performance.