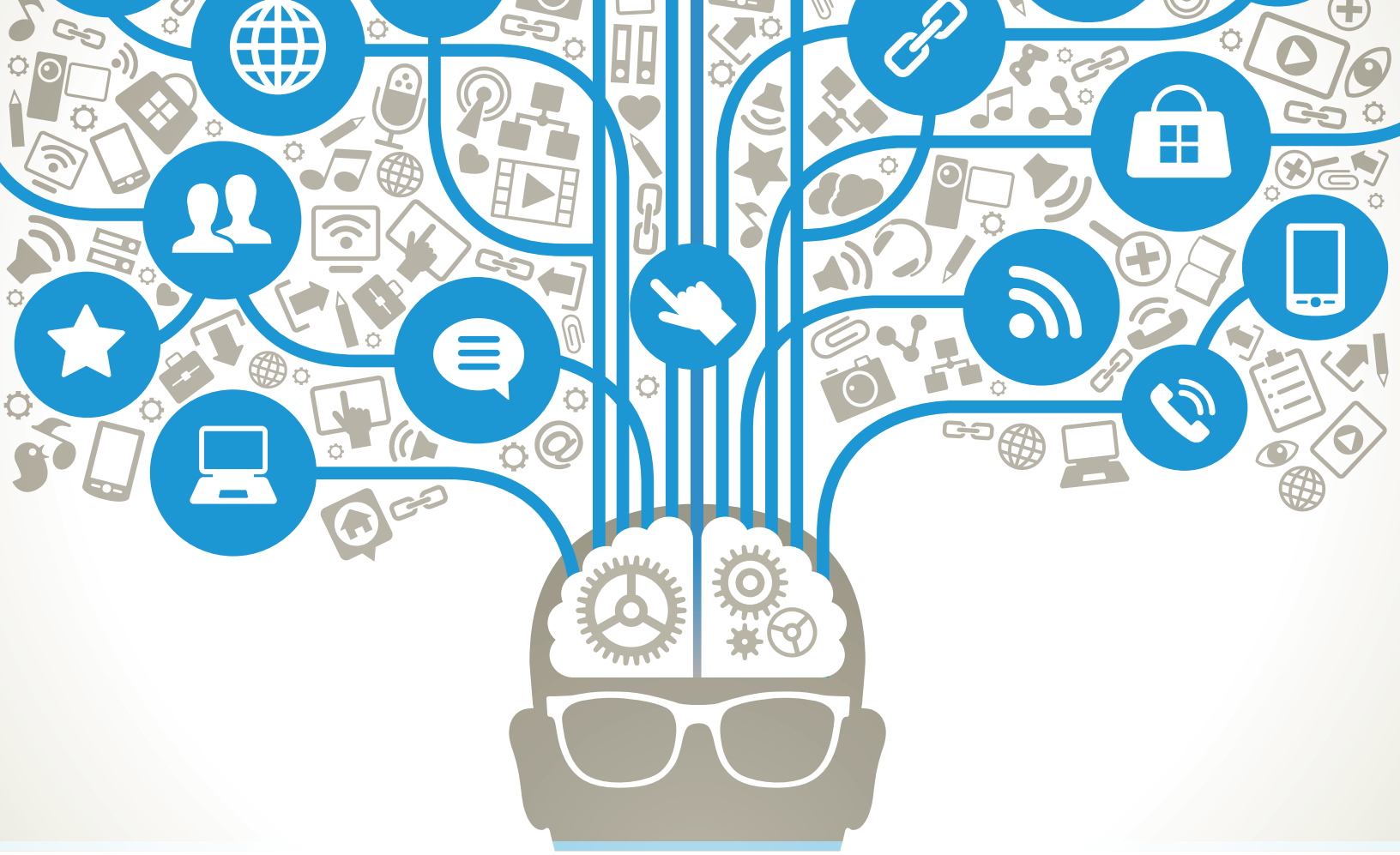

ANNUAL **REPORT** 2013

NEW **IDEAS**

I can't understand why people are frightened of new ideas. I'm frightened of the old ones.
~ John Cage

www.ontariostrokenetwork.ca

We provide provincial leadership and planning for the Ontario Stroke System by measuring performance, partnering to achieve best practices, and creating innovations for stroke prevention, care, recovery and reintegration.

GLOSSARY OF **TERMS**

AHMP
ABORIGINAL HYPERTENSION MANAGEMENT PROGRAM

CIHI
CANADIAN INSTITUTE FOR HEALTH INFORMATION

EMR
ELECTRONIC MEDICAL RECORD

HMP
HYPERTENSION MANAGEMENT PROGRAM

HQO
HEALTH QUALITY ONTARIO

ICD-10
INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES AND RELATED HEALTH PROBLEMS, 10TH REVISION

ICES
INSTITUTE FOR CLINICAL EVALUATIVE SCIENCES

LHIN
LOCAL HEALTH INTEGRATION NETWORK

MOHLTC
MINISTRY OF HEALTH AND LONG-TERM CARE

OACCAC
ONTARIO ASSOCIATION OF COMMUNITY CARE ACCESS CENTRES

ORSN
ONTARIO REGIONAL STROKE NETWORKS

OSER
ONTARIO STROKE EVALUATION REPORT

OSRC
ONTARIO STROKE REPORT CARDS

OSN
ONTARIO STROKE NETWORK

OSS
ONTARIO STROKE SYSTEM

RAI-MDS
RESIDENT ASSESSMENT INSTRUMENT – MINIMUM DATA SET

SEQC
STROKE EVALUATION AND QUALITY COMMITTEE

SPC
STROKE PREVENTION CLINIC

SPOR
STRATEGY FOR PATIENT ORIENTED RESEARCH

SQBP
STROKE QUALITY BASED PROCEDURES

TIA
TRANS ISCHEMIC ATTACK

CONTENT

LETTER FROM LEADERS

Given the increasing complexity of health care delivery, it is ever more essential to come together in partnership to achieve common goals. OSN has engaged in a variety of collaborative partnerships and efforts to raise awareness of vascular prevention, the signs and symptoms of stroke and to establish targets and measures for enhancing Ontario's stroke care system.

Since the OSN was created five years ago, our vision of fewer strokes, better outcomes has moved closer to reality. This has only been possible through the dedicated work of health care professionals working together to enhance the stroke care system in Ontario.

The OSER showed steady progress and statistically significant improvements in health outcomes. This included: reduced hospitalization and mortality; improved access to Neuroimaging, Stroke Thrombolysis and door-to-needle times; admission to acute stroke units; and wait times for Carotid Surgery.

The second iteration of the LHIN Stroke Report Cards was also released. The report cards are critical to driving improvements in access to best practices and patient/health system outcomes at the LHIN level. The report cards have effectively engaged the ORSN and LHINs in a dialogue relating to stroke system improvement.

But we are not resting on our laurels. The first-ever audit of 16,000 patients at Ontario SPCs was completed in 2012. A report card on five key indicators was included in the 2013 evaluation report (released June 2013).

The goal of the audit was to report on the quality of secondary stroke prevention care across the province. The results of the SPC audit is helping to inform the MOHLTC and HQO on the SQBP initiative. Additionally, the results of the SPC audit have been a cornerstone in the development of a TIA triage algorithm for SPCs. The report also serves as an essential baseline for further audits, helping to drive improvements in secondary stroke prevention care in Ontario.

We have established what some might consider challenging goals and targets to improve stroke care. For example, by December 2016, we aim to reduce stroke hospitalization to 1.14/1,000 of the population as well as increasing access to stroke units to 76 per cent.

Ambitious goals. By the integration of health policy, proven research results and stakeholder engagement, these goals - and more - are within our grasp.

We invite you to peruse our second Annual Report and experience first hand our accomplishments. Please visit our website at **www.ontariostrokenetwork.ca** *and connect with us on Twitter (@ONStokeNetwork). Most of all, stay in touch!*

Malcolm Moffat
Chair

Christina O'Callaghan
Executive Director

THE **ONTARIO STROKE NETWORK** HAS BEEN INSTRUMENTAL IN ASSISTING WITH THE CARE OF PEOPLE WITH STROKE ACROSS ONTARIO TO ENSURE ACCESS TO BEST PRACTICE CARE. THE OSN IS CONSIDERED THE LEADING ADVISOR ON STROKE CARE IN THE PROVINCE AS DEMONSTRATED BY WORK WITH THE STROKE REGIONS, LHINS AND PROVIDERS.

DEBORAH **HAMMONS**
CEO
CENTRAL EAST LHIN

OUR **ACCOMPLISHMENTS**

OUR **ACCOMPLISHMENTS**

The Ontario Stroke Network (OSN) continues to make significant progress on its strategic directions and provincial work plan, including in the areas of evaluation, research, education and knowledge translation and exchange, health promotion and prevention, emergency and acute care, rehabilitation and recovery, and organization.

ONTARIO STROKE EVALUATION REPORT

Released annually by the OSN and ICES, the OSER examines the variation in care by stroke care sectors. Sectors include secondary stroke prevention and care, emergency department care, acute inpatient care, inpatient rehabilitation, complex continuing care and home care services.

The *2012 OSER* showed steady progress and statistically significant improvements in the following best practice areas and health outcomes:

- Hospitalization including 90-day readmission
- In-hospital, 30-day and one-year mortality
- Access to Neuroimaging and Carotid imaging
- Stroke Thrombolysis and door-to-needle times
- Admission to acute stroke units
- Appropriate secondary prevention therapies (e.g. antithrombotics at discharge)
- Access to Stroke Secondary Prevention Clinics
- Wait times for Carotid Surgery
- Public awareness and calling 911
- Dysphagia screening

THE ONTARIO STROKE EVALUATIO
IS AN **EXTREMELY VALUABLE TOO**
REGIONAL STROKE CARE PLANNIN
ONLY DOES IT SHOW CURRENT AN
HISTORICAL PERFORMANCE BUT I
REGIONS AND ORGANIZATIONS TH
DEMONSTRATED MARKED IMPROV
DETAILS HOW OR WHY THIS IMPR
OCCURRED. ONE OF THE MAJOR
OF THE ONTARIO STROKE SYSTEM
BEEN THE ABILITY TO LEVERAGE T
IN ONE GEOGRAPHIC AREA ACROS
PARTS OF THE PROVINCE - AND T
ONLY ENHANCES THIS STRENGTH,
QUANTITATIVELY AND QUALITATIV

DARREN **JERMYN**
REGIONAL DIRECTOR
NORTHEASTERN ONTARIO STR

SINCE **2009**

Alternate level of care length of stay has decreased by one day, an estimated savings of 3,300 bed-days.

SINCE **2010**

Access to inpatient rehabilitation for severely disabled stroke patients has increased by 2%.

ON REPORT
OL FOR
IG. NOT
ND
T HIGHLIGHTS
HAT HAVE
EMENT AND
OVEMENT
STRENGTHS
M HAS ALWAYS
THE SUCCESS
SS OTHER
HIS REPORT
BOTH
ELY.

ROKE NETWORK

OUR **ACCOMPLISHMENTS**

LHIN STROKE REPORT CARDS

incorporating recommendations for improvement from stakeholders and end users, the second iteration of the *LHIN Stroke Report Cards* was released. The report cards are critical to driving improvements in access to best practices and patient/health system outcomes at the LHIN level. The report also serves as an essential baseline for further audits, helping to drive improvements in secondary stroke prevention care in Ontario.

The OSRC were developed by the SEQC in 2009 to provide a concise mechanism for communicating stroke care performance in the province. The report cards serve as a valuable stakeholder communication tool that allows for consistent planning across the *OSS*, both regionally and provincially. Fifteen report cards are produced annually, including an Ontario report card and a report card for each of the 14 LHINs. This year, a secondary prevention clinic report card was created for each LHIN, highlighting data collected from the *2011/12 Ontario Stroke Audit of Secondary Prevention Clinics*.

The SEQC Knowledge Translation and Accountability Subcommittee established a strategy for disseminating the report cards. Packages containing the report cards and an accompanying interpretation document were distributed by the directors of the ORSNs to each of the LHINs. The interpretation document highlights areas of progress, gaps identified, initiatives to address these gaps and opportunities for stroke system/LHIN collaboration. Follow-up meetings were then scheduled with the LHINs to review the data and develop quality improvement plans.

*The Ontario Stroke Network LHIN Report Card has been a **significant impetus for change** in the Toronto Central LHIN. It clearly illustrated where the LHIN could focus its time and energy to **make the biggest difference for stroke patients**. The Report Card was a key tool that helped to mobilize the health system partners to come together and implement transformational change in how Stroke Care is delivered by our Hospitals, the CCAC and other community agencies. This substantial change will lead to **better quality care and greater value for money**; and the Stroke Networks continue to be key partners in this significant change initiative.*

*~ **Camille Orridge**, Chief Executive Officer*
Toronto Central LHIN

OUR **ACCOMPLISHMENTS**

STROKE PREVENTION CLINICS AUDIT

The first audit of 16,000 patients' at Ontario SPCs was completed. A report card on five key indicators was included in the 2013 evaluation report (*released June 2013*).

The report card indicated that there have been marked improvements in rates of secondary prevention care following the establishment of SPCs:

- 94 per cent of stroke patients have the required brain imaging and 84 per cent undergo imaging of the carotid artery; and
- 80 per cent of stroke patients with atrial fibrillation have anticoagulant therapy prescribed or recommended.

RESEARCH

Since its inception, OSN has funded more than 85 projects, which touch on the continuum of care, with average annual leveraged funding of $500,000.

Although the OSN's research mandate ended in FY 12/13 (the OSN was unsuccessful in its application to the *MOHLTC's Health System Research Fund*), the OSN has been selected as the demonstration project for the *Canadian Institute for Health Research – SPOR* which is well aligned with the OSN's mission.

The objective of SPOR is to foster evidence-informed health care by bringing innovative diagnostic and therapeutic approaches to the point of care, so as to ensure greater quality, accountability and accessibility of care. SPOR is a coalition of federal, provincial and territorial partners – all dedicated to the integration of research into care:

- patients and caregivers
- researchers
- health practitioners
- policy makers
- provincial/territorial health authorities
- academic institutions
- charities
- pharmaceutical sector

EDUCATION AND KNOWLEDGE TRANSLATION

OSN participated in various Knowledge Translation and Exchange activities, designed to disseminate and exchange information to improve the health of Canadians, provide more effective health services and products and strengthen the Ontario Stroke System.

In collaboration with the Regional Stroke Networks and the Heart and Stroke Foundation, the Ontario Stroke Education Program helps to educate and share stroke related knowledge to more than 10,000 health care providers, from paramedics to personal support workers caring for stroke patients each year.

In partnership with the Heart and Stroke Foundation, the 15th Annual Stroke Collaborative was attended by more than 600 persons, the majority of which were multi-disciplinary health care professionals. This event provided the opportunity for researchers and knowledge users to interact and dialogue about stroke care across the continuum. The Minister of Health and Long-Term Care was also able to participate and addressed the attendees.

Eleven (11) Provincial Stroke videoconference rounds held with six (6) achieving CME accreditation with Northern Ontario School of Medicine.

A knowledge translation model for educational initiatives was developed and adopted for decision making. The model was applied to review the "Prof Ed Atlas" to determine priority areas for review and updating, OSN and regional stroke network posters (37) and 10 platform presentations were provided at the *2012 Canadian Stroke Congress.*

The OSN Best Practice Lead co-chaired the *Canadian Best Practice Recommendations for Stroke Care Secondary Prevention 2012* Update Task Group and is a member of the Canadian Stroke Network Professional Development Advisory Committee, Canadian Telestroke Action Committee and member of the Canadian Stroke Congress 2012 Program Planning Committee.

OUR **ACCOMPLISHMENTS**

VASCULAR HEALTH

A blueprint titled *Shaping the Future of Vascular Health: An Integrated Vascular Health Blueprint for Ontario* was released in August 2012, with a forward from the Minister of Health and Long-Term Care. The blueprint is based upon the recognition that the common and inter-related causes and prevalence of vascular diseases require an organized, integrated approach. The blueprint outlines priority areas for action on vascular health.

Vascular Health Implementation Steering Committee Terms of Reference were developed, a Chair identified and member recruitment completed. Two successful launch meetings have been held. The confirmation of the committee priorities and associated work plan is in development.

The Primary Care Work Group Terms of Reference were finalized, the chair was confirmed, membership recruitment was completed and two meetings were held. Work plan activities have been identified and are underway. The Patient Family Advisory Council held a successful first meeting in February 2013. The Knowledge Management Work Group, with a focus on evaluation and knowledge translation, will hold its inaugral meeting May 2013

HYPERTENSION MANAGEMENT PROGRAM

A proposal to advance the HMP has been approved by the MOHLTC Ontario Diabetes Strategy.

HMP accomplishments for FY 12/13:

- Continued outreach and practice support to all teams, with a focus on the 17 newly added teams that began the HMP in 2011/12 and the 3 Centres for Complex Diabetes Care's (CCDCs)
- Continued enrolment of patients and healthcare providers in the HMP, At March 31, 2013, the number of patients enrolled in the Hypertension Management Program was 6900+, exceeding the FY12-13 target of 6,000. The number of patient visits was >30,000.
- Maintenance of the web-based data repository for the full 2012/13 funding year
- Generation of confidential comparative practice reports for 41 HMP/AHMP teams on a monthly basis for 12 months
- Technical development for the Web-based data repository required for the 3 CCDCs data extraction, upload and development of confidential practice reports in progress
- Integration of the Heart & Stroke Hypertension "Plug-in"

OUR **ACCOMPLISHMENTS**

for the EMR relevant sites (Migration of sites from paper to EMR flowsheet and reports)
- As of October 2012, all the paper sites have ability to directly print the baseline assessment forms from the HMP/AHMP Site Manager website.
- Provision of printed healthcare provider and patient resources to the 41 existing HMP/AHMP teams and the 3 CCDCs
- Continuance of webcast learning rounds, "virtual rounds," for existing HMP/AHMP teams and CCDCs
- The health economic analysis of the Hypertension Management Initiative was published in the *Journal of ClinicoEconomics and Outcomes Research in November 2012*
- A paper on the qualitative results (patients and healthcare providers) of the HMP demonstration project has been submitted to the *Canadian Journal of Cardiology*.

REHABILITATION AND RECOVERY

A *Stroke Rehabilitation Resource Portal* went live on the OSN website in November 2012. This resource centre provides health system planners and clinicians with descriptions of the stroke rehabilitation standards, tools to support implementation and success stories. Resource updates are ongoing.

A *Resource List for People with Stroke, Families & Caregivers for Long-Term Care Homes* has been developed and made available online.

A project to integrate stroke best practice care plans with the RAI-MDS data elements and Resident Assessment Protocols has been implemented. The plans are based on the *Tips and Tools for Everyday Living Best Practice Resource*. A pilot at six sites has been completed and results collated and plans for provincial rollout will be developed. A toolkit to support uptake in long-term care homes is in development.

Collaboration with the OACCAC in the development of a Stroke Outcome Based Pathway which should be completed by summer 2013. Pilot of the pathway is planned for Fall 2013. The OACCAC serves as the collective voice for the contributions made by Community Care Access Centres to an integrated health care system.

The report *The Impact on Moving to Stroke Rehabilitation Best Practices* was released in September 2012. The purpose of this report is to estimate the potential economic impact of adopting the proposed stroke rehabilitation best-practice recommendations in Ontario. The report is designed to build a high-level, and conservative, case for promotion of best-practice and to broadly demonstrate the potential economic impact from an Ontario-wide perspective. Full attainment of the OSN stroke rehab and best practices recommendations would result in:

- Improved patient outcomes for Ontario residents who experience stroke and,
- ~$20M made available annually which could be used to help stroke patients and their families remain in their homes and become re-engaged in their communities

PAEDIATRIC STROKE

An epidemiologist was hired at ICES to support validation of paediatric stroke ICD 10 codes. Results have been shared and have been used to generate data for the 2013 report. Administrative databases continue to have low yield of cases and there are a small number of codes are accurate in capturing true strokes in children. Summary of results are included in the 2013 OSER.

ORGANIZATION, GOALS AND TARGETS

The OSN established challenging goals and targets to improve stroke care. For example, by December 2016, the OSN will have made an impact on the vision of "Fewer strokes. Better outcomes" by achieving the following *provincial targets*:

- Stroke Hospitalization: Reduce to 1.14/1,000 population.
- Stroke Units: Increase access to 76 per cent.
- Inpatient Rehabilitation Access: within 5 days.
- Community Re-integration: Reduce long-term care admissions to 3.2 per cent one year after stroke
- Reduce LHIN variation by half across all four targets

OSN implemented the recommendations from the Communications audit and plan priorities, including the OSN's first Annual Report, released in September 2012. The Annual Report was *available in online* and print-based format.

The OSN has been advisory to the development of the best practices for stroke care resulting in the completion of the *Stroke Quality Based Funding Episode of Care Expert Panel Phase One work: Quality Based Procedures: Clinical Handbook for Stroke* and has leveraged the strong OSN evaluation program at ICES with good data availability to inform development of priority indicators. Work will continue through FY 13/14.

PUBLICATIONS

A 5-Item Prediction Rule to Identify Severe Renal Dysfunction in Patients with Acute Stroke
M.D.I. Vergouwen, J. Fang, L.K. Casaubon, M.K. Kapral, M. Stamplecoski, A. Robertson, F.L. Silver, on behalf of the Investigators of the Registry of the Canadian Stroke Network
AJNR Am J Neuroradiology. 2012.

Which Risk Factors Are More Associated With Ischemic Stroke Than Intracerebral Hemorrhage in Patients With Atrial Fibrillation?
McGrath ER, Kapral MK, Fang J, Eikelboom JW, Conghaile AO, Canavan M, O'Donnell MJ.
Stroke. 2012 May 22. [Epub ahead of print]

Do Lacunar Strokes Benefit from Thrombolysis? - Evidence from the Registry of the Canadian Stroke Network
Shobha N, Fang J, Hill M.
International Journal of Stroke (in press)

The PLAN score: A simple bedside prediction rule for death and severe disability following acute ischemic stroke
O'Donnell, Fang, D'Uva, Saposnik, Gould, McGrath, Kapral
Archived of internal medicine, Published online-October 15, 2012

Neighborhood income and stroke care and outcomes
Kapral MK, Fang J, Chan C, Alter DA, Bronskill SE, Hill MD, Manuel DG, Tu JV, Anderson GM.
International Journal of Stroke (Awaiting publication)

Statin Therapy and Outcome After Ischaemic Stroke: Systematic Review and Meta-Analysis of Observational studies and Randomised trials
Chróinín DN, Asplund Ki, Åsberg S, Callaly E,Godia EC,Tejedor ED,Napoli MD, Engelter ST,Furie KL, Giannopoulos ST, Gotto A, Hannon N,Jonsson F, Kapral MK, Martí-Fàbregas J,Sánchez PM
International Journal of Stroke (awaiting publication)

Predicting Clinical Outcomes and Response to Thrombolysis in Acute Stroke Patients with Diabetes
Nikneshan, Raptis,Limei Zhou, Johnston, Saposnik
Diabetes Care (awaiting publication)

Do lacunar strokes benefit from thrombolysis? Evidence from the Registry of The Canadian Stoke Network
Nandavar Shobha, Jiming Fang, and Michael D. Hill
International Journal of Stroke

Factors Associated With 90-Day Death After Emergency Department Discharge for Atrial Fibrillation
Clare L. Atzema, MD, MSc; Peter C. Austin, PhD; Alice S. Chong, MSc; Paul Dorian, MD, MSc
Annals of emergency medicine

Effect of a provincial system of stroke care delivery on stroke care and outcomes
Kapral MK, Fang J, Silver FL, Hall R, Stamplecoski M, O'Callaghan C, Tu JV.
CMAJ vol 185 (10):E483-E491.

ABSTRACTS

Seasonal variation of stroke/TIA occurrence and mortality: 20-year time-series analyses in Ontario, Canada
Jiming Fang, Moira K. Kapral, Ruth Hall, Frank L. Silver, Melissa Stamplecoski, Eriola Asllani, Jack V. Tu
Canadian Stroke Congress, Calgary, Canada 2012

Telestroke in the 2010-11 Ontario Stroke Audit
Ferhana B. Khan, Ruth E. Hall, Melissa Stamplecoski, Sarah Meyer, Eriola Asllani, Moira K. Kapral, Frank L. Silver
Canadian Stroke Congress, Calgary, Canada 2012

Predictors of Readmission to Hospital Following Acute Stroke
Stamplecoski M, Fang J, Kapral MK, Silver F.
Best of AHA Specialty Conference Scientific Sessions, Los Angeles, November 2012.

Reducing readmissions through secondary stroke prevention clinics (poster)
Khan F, Hall R, Hodwitz K, Fang J, Kapral M, Silver F
2013 International Stroke Conference

Do the CHADS2, CHA2DS2-VASc and HAS-BLED Scores Predict Recurrent Stroke and GI Bleeding in Patients with Acute Ischemic Stroke or TIA and Atrial Fibrillation (oral presentation)
Silver F, Stamplecoski M, Fang J, Kapral M
2013 International Stroke Conference

Comparison of Stroke Subtype and Admission Rate between Beijing, China and Ontario, Canada - A Population-Based Approach (poster)
Fang J, Liu G, Wang Y, Zhao X, Wang C, Zhou Y, Pan Y, Xie X, Silver F, Wang Y, Kapral M
2013 International Stroke Conference

Effect of Statin Treatment Before and After Hospitalization on Mortality Following Acute Ischemic Stroke: Importance of Confounding by Stroke Severity and Palliative Care (oral presentation)
Reeves MJ, PhD, Fang J, Kapral M, Smith E, Dowlatshahi D, Sharma, M.
2013 International Stroke Conference

Living alone at home and outcomes following stroke: Results from the Registry of the Canadian Stroke Network (poster)
Reeves MJ, PhD, Fang J, Prager M, Kapral M.
2013 International Stroke Conference

The Impact of Post-Stroke Rehabilitation on 2-year Healthcare Costs in Ontario, Canada: Can Rehabilitation Save Us Money?
Meyer M, O'Callaghan C,Kelloway L, Hall R, Li S, Fang J, Bayley M, Reeves M, Teasell R.
2013 International Stroke Conference

Patient age linked to prolonged door to needle times in stroke thrombolysis
Gould.L, Sahlas DJ, Fang J, Kapral M, Oczkowski
European stroke conference 2013

REPORTS

2012 Stroke Evaluation Report & LHIN Report Cards
Hall R, Khan F, O'Callaghan C, Kapral M, Hodwitz K, Fang J, Bayley M.

June 2012 CIHI Stroke Pathways Report
CIHI Project Team. July 2012

The Impact on Moving to Stroke Rehabilitation Best Practices
Meyer M, O'Callaghan C, Kelloway L, Hall R, Teasell R, Meyer S, Allen L, Leci E; in collaboration with Ontario's Stroke Reference Group. Sept 2012

3rd OSN Research Program Annual Research Impact Assessment Report
Ontario Stroke Network. June 2012

THE **SPOTLIGHT**

LIFE **AFTER STROKE**

MAKING A DIFFERENCE

In 1998, at the age of 28, Cathy Blanchfield lived through an event that would change her life forever.

Cathy, a resident of North Bay, was trying to relay a message to her late brother when he noticed the right side of her face was drooping. A CT scan found an arteriovenous malformation - an abnormal connection between the arteries and veins in her brain. Her options were to have surgery or risk dying. After an eight hour surgery at St. Michael's Hospital, Cathy suffered a left hemorrhagic stroke causing paralysis to her right side. Cathy was newly married, wanted a family and had a good job as a bookkeeper at her family business. A stroke was not in her plans. After a month in Toronto she returned to North Bay where she spent 4 months in hospital learning how to shower, dress, feed herself, read, write and count all over again. She states she still does not count well and her debit card is a blessing when buying things. When she does have to pay with change, she holds out her hand trusting that the cashier will give her the correct change. This is a big change from her days as a bookkeeper.

Cathy spent a lot of her time being angry and depressed. The turning point was her divorce when she decided to no longer be angry and put one foot in front of the other and move on.

Today, Cathy is left with permanent disabilities, she has no movement in her right arm and her hand remains locked in a fist. She is able to walk, but moves slowly and tires easily.

Despite her challenges, Cathy lives independently, volunteers frequently, and has a boyfriend and two dogs that she dotes on. Cathy has made remarkable progress in her stroke recovery journey, but was looking for inspiration and support from people who knew what she was experiencing – fellow survivors. Cathy wanted to volunteer and be somebody who other survivors could share their stories with.

Cathy is the chair of the North Bay Stroke Support Group. This group helps stroke survivors reach out to other area survivors.

It began as a coffee group. It was only after Cathy connected with March of Dimes' Stroke Recovery Canada® program and received support, that the group was able to expand.

What began as a meeting of five is now more than twelve and growing. Understanding, compassion and support are the hallmarks of the North Bay Stroke Group. The group helps people figure out their lives, offer social activities and a friendly ear.

Cathy is also a volunteer at the North Bay Regional Health Centre. Every Tuesday, without fail, you can find Cathy down on the Inpatient Rehabilitation Unit chatting with a stroke survivor or family member. "It is important for me to share what I've learned," says Cathy. Survivors can relate better to others who have been in the same place and through the same turmoil. Cathy is an inspiration to many. She takes each day and finds the positives in it.

She gives her all in whatever she takes on and she shows us what is possible. It's people like Cathy who really make a difference in people's lives and we would like to thank her for her dedication to stroke survivors and their families.

This article was originally taken from the Northeastern Ontario Stroke Network June 2013 newsletter.

95% BETTER ... AND CLIMBING

> ***When Robert returned home, things were good, but he realized that he needed further support in order to return to his former life.***

Robert King was not a man known for sitting still. At 62 he was planning his retirement after 37 years as a maintenance worker at Listowel Memorial Hospital, and keeping up several rental properties in the Listowel and Kincardine areas. Robert hadn't missed a single day of work in his time with the hospital and attributed his good health to a health conscious, non-smoking lifestyle.

And perhaps that's why what happened next was so frustrating.

On October 26, 2011, Robert was home for lunch and just ready to head back to work when he collapsed and couldn't get back up. "I ended up crawling toward the front of the house and sort of falling down the steps before I called for one of our tenants living on the main level." Robert knew he had had a stroke despite not having experienced any early warning signs.

Robert's tenant, unable to enter the locked house, called 911. Local police broke in through a patio window and helped him to the ambulance which then transported him to Stratford General Hospital. Robert was rerouted by ambulance to London's University Hospital when it was discovered that the CT scanner at Stratford Hospital was down. A CT scan indicated a brain bleed resulting in right side paralysis. Months before his retirement from a life of fulfilling work, Robert King faced perhaps the most difficult task of all – three months of rehabilitation to regain lost function and get his life back.

Robert was an inpatient at Stratford General Hospital for three months. His partner Donna, a social worker working in Guelph, made the trek from Listowel to Guelph to Stratford every day to visit him and be involved in his care. After a few weeks they had his care team's permission to travel to Kincardine and spend time at their beloved home away from home each weekend. "Those weekends were good breaks," comments Robert. The interprofessional care team at the hospital worked with Robert on his mobility, hand/arm use, speech, and other aspects of function that allowed him to return home capable of managing independently. The hospital staff was excellent say Robert and Donna, "they answered all our questions and kept us informed." Stratford is a Designated Stroke Centre with stroke expertise and organized stroke care with a full interprofessional team. Louise Flanagan, Nurse Clinician with the Stroke Program, advocated for Robert to remain at Stratford for this expert care.

When Robert returned home, things were good, but he realized that he needed further support in order to return to his former life.

Louise recommended he continue rehabilitation at home with the support of a Community Stroke Rehabilitation Team (CSRT). Both Robert and Donna appreciate that the CSRT, consisting of a physiotherapist, speech language pathologist, occupational therapist and a rehabilitation therapist, took a very individual approach to care, starting with the question, "What do you want to accomplish?" This allowed them to customize their rehabilitation services to meet his personal goals. "The interventions at the hospital gave him his function back so he could be independent at home, but the CSRT helped him fine tune that function so that he could return to his previous activities," adds Donna. Robert and Donna were unanimous in their praise of Stratford Hospital staff and the CSRT. "We can't

Robert and Donna King in the backyard of their Listowel home.

say enough positive words, every member of both teams was outstanding." Robert says now that being stubborn, "isn't all bad," when it comes to rehabilitation. He was determined to always do to a little bit more than was suggested and pushed himself to do as much as he could.

Today he's "95%" of where he was pre-stroke. The speed at which he accomplishes a variety of tasks is slower than it was previously, but he's back to getting things done. More than a year and a half following his stroke, he is still regaining function – last week he realized he could easily turn pages in a book with his affected hand – and he is an enthusiastic proponent of stroke patients receiving long term rehabilitation so that they have the opportunity to keep improving.

"If it wasn't for this team (in-hospital acute and rehabilitation teams and the CSRT), I wouldn't have been able to be at home. I would have needed a lot of care. And I don't want to forget to mention Donna, she was the most important support," he concludes. "Robert worked very diligently through his rehab , he continues to pursue his rehab goals and I tell him often how proud I am of the effort he put forward," adds Donna.

Robert's story highlights the importance of good care by interprofessional expert teams across the continuum of care as well as the individual motivation and will to have a good outcome.

This article originally appeared in the Southwestern Ontario Stroke Network 2013 Annual Report.

FUNDED **RESEARCH: DIRECTED (FY 12/13)**

THIS RESEARCH, WHICH COULD NOT BE DONE WITHO
FUNDING FROM **OSN/MOHLTC**, SHOULD RESULT IN
FINDINGS THAT WILL IMPROVE THE CARE AND OUTCO
OF ONTARIANS WITH STROKE AND TIA.

~ DR. MOIRA KA

OPTIMIZING CARE FOR TRANSIENT ISCHEMIC ATTACK IN ONTARIO

PRINCIPAL INVESTIGATOR
MOIRA KAPRAL
INSTITUTE FOR CLINICAL EVALUATIVE SCIENCES

This project will provide key information on areas for improvement in current TIA management practices and will evaluate the impact of Ontario's stroke Secondary Prevention Clinics (SPC) on the care and outcomes of patients with TIA. Goals and objectives for the project include: identifying predictors of hospitalization in patients with TIA; evaluating the impact of SPC care on processes of care and outcomes after TIA. The investigators also plan to evaluate the processes of care for patients with TIA using quality indicators from the *Canadian BP Recommendations 2010*.

STROKE UNITS IN ONTARIO: CHARACTERISTICS AND COSTS ASSOCIATED WITH EFFECTIVENESS

PRINCIPAL INVESTIGATOR
MURRAY KRAHN
TORONTO HEALTH ECONOMIC TECHNOLOGY ASSESSMENT

This project will use a survey of hospitals in Ontario and data available from the Ontario Stroke Audit (OSA) to identify which specific characteristics of Ontario Stroke Units (SUs) appear to be (cost-) effective and are associated with improved patient outcomes, in comparison to non-specialized general medical wards (GWs). This project will compare acute stroke care received at SUs to care received in GWs (i.e. care not received at SUs) and will tackle the following research questions: 1. What are the characteristics of SUs in Ontario (i.e. frequently occurring, common characteristics)? 2. Are SUs effective, as currently structured in Ontario? 3. Are SUs cost-effective, as currently implemented in Ontario (i.e. what are the resources used and associated costs)? 4. Which SU characteristics are associated with improved patient- and system-level outcomes?

FUNDED **RESEARCH:** **INVESTIGATOR** DRIVEN (FY 12/13)

EFFECTS OF AN ADAPTED CARDIAC REHABILITATION PROGRAM OF COMBINED AEROBIC AND RESISTANCE TRAINING VERSUS AEROBIC TRAINING ALONE IN PEOPLE FOLLOWING STROKE

PRINCIPAL INVESTIGATOR
DINA BROOKS
UNIVERSITY OF TORONTO AND TORONTO REHABILITATION INSTITUTE

This project will examine the effects of a six-month program of combined aerobic and resistance training (AT+RT), compared to that of aerobic training alone (AT) on cardiovascular fitness (VO^2peak) and mobility (six-minute walk distance) in people ≥3 months following stroke with motor impairments, participating in an adapted cardiac rehabilitation program. The secondary objectives are to evaluate the effects of AT+RT compared to AT alone on cognition and health-related quality-of-life (HRQOL) and muscle mass and muscular strength.

COMMUNITY REINTEGRATION OF STROKE SURVIVORS IN NORTHEASTERN ONTARIO: THE EFFECT OF A COMMUNITY NAVIGATION INTERVENTION

PRINCIPAL INVESTIGATOR
DARREN JERMYN
NORTHEASTERN ONTARIO STROKE NETWORK

This project's goals are knowledge creation, knowledge translation and research capacity development. A mixed methods approach drawing from both quantitative and qualitative traditions will be used to explore the phenomenon of community reintegration (Knowledge Creation). Researchers and stakeholders will be engaged in various knowledge exchange and translation strategies. Creative and traditional knowledge translation activities will be implemented across Northeastern Ontario to promote understanding and dialogue about the applicability of the results to practice (Knowledge Translation). The use of various knowledge translation processes will foster a research-community alliance capable of advocating for change and sustaining the momentum required (Research Capacity Development).

FUNDED **RESEARCH: INVESTIGATOR** DRIVEN (FY 12/13)

COLLECTING BOTH QUANTITATIVE SURVEY DATA AND IN-DEPTH QUALITATIVE INTERVIEWS, WE HOP TO GAIN INSIGHT INTO THE KEY FACTORS, SURVIVO AND CAREGIVER-RELATED, THAT **INFLUENCE STRO SURVIVOR COMMUNITY RE-INTEGRATION**.

~ DR. JILL CA

ENHANCING STROKE SURVIVOR COMMUNITY RE-INTEGRATION BY SUPPORTING THEIR FAMILY CAREGIVER

PRINCIPAL INVESTIGATOR
JILL CAMERON
UNIVERSITY OF TORONTO

The study extends a previous study to determine whether caregivers' receipt of the Timing it Right Stroke Family Support Program intervention resulted in enhanced community re-integration for stroke survivors. In addition, research will determine if caregivers who are better supported, have a greater sense of mastery, participate in more valued activities, and have better mental health is related to better community re-integration for stroke survivors.

DEVELOPMENT AND EVALUATION OF AN INTEGRATED KNOWLEDGE TRANSLATION INITIATIVE TO TRAIN PHYSICAL AND OCCUPATIONAL THERAPISTS IN A MOTOR LEARNING-BASED VIRTUAL REALITY INTERVENTION PROGRAM

PRINCIPAL INVESTIGATOR
DANIELLE LEVAC
UNIVERSITY OF OTTAWA

Using a Knowledge Translation framework to guide a Knowledge Translation strategy designed to increase therapists' uptake of motor learning-based Virtual Reality interventions.

FUNDED **RESEARCH: INVESTIGATOR** DRIVEN (FY 12/13)

EFFECTIVENESS OF IPAD TECHNOLOGY FOR HOME REHABILITATION AFTER STROKE (IHOME)

PRINCIPAL INVESTIGATOR
GUSTAVO SAPOSNIK
ST. MICHAEL'S HOSPITAL

The goal of iHOME is to examine the feasibility of an interactive software application, using a tablet PC (the iPad), to enhance attention and fine motor function of the upper extremity in stroke patients, relative to the standard of care.

DEVELOPMENT AND PRELIMINARY EVALUATION OF AN ENHANCED FITNESS PROGRAM TO PROMOTE LONG-TERM ENGAGEMENT IN PHYSICAL ACTIVITY AFTER STROKE

PRINCIPAL INVESTIGATOR
AVRIL MANSFIELD
TORONTO REHABILITATION INSTITUTE

The researchers propose that structured fitness programming could provide a supportive therapeutic environment to facilitate long-term changes in exercise behaviour. The components of the program are: supervised aerobic exercise with increased self-monitoring of patients' progress, education regarding the benefits of physical activity, and development of plans to incorporate physical activity into everyday life.

AUDITOR'S **REPORT**

AUDITOR'S **REPORT**

June 7, 2013

To the Board of Directors of the Ontario Stroke Network

We have audited the accompanying financial statements of Ontario Stroke Network, which comprise the statements of financial position as at March 31, 2013, March 31, 2012 and April 1, 2011 and the statements of revenue, expenditures and changes in fund balances and cash flows for the years ended March 31, 2013 and March 31, 2012, and the related notes, which comprise a summary of significant accounting policies and other explanatory information.

Management's responsibility for the financial statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained in our audits is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Ontario Stroke Network as at March 31, 2013, March 31, 2012 and April 1, 2011 and the results of its operations and its cash flows for the years ended March 31, 2013 and March 31, 2012 in accordance with Canadian accounting standards for not-for-profit organizations.

PricewaterhouseCoopers LLP
Chartered Accountants, Licensed Public Accountants

FINANCIAL **STATEMENTS**

	March 31, 2013	March 31, 2012	March 31, 2011
	$	$ (note 2)	$ (note 2)
Assets			
Current assets			
Cash	652,875	1,980,469	736,051
Grants receivable	21,399	-	-
HST recoverable	37,808	71,095	9,324
Prepaid expenses	-	23,772	-
	712,082	2,075,336	745,375
Liabilities			
Current liabilities			
Accounts payable and accrued liabilities	69,648	356,870	64,919
Amount payable to Ministry of Health and Long-Term Care	304,630	404,131	-
Amount payable to Heart and Stroke Foundation of Ontario	60,651	862,833	4,700
Research grants and awards payable	98,247	249,830	493,999
Deferred contributions (Deferred contributions (note 4)	-	25,232	17,168
	533,176	1,898,896	580,786
Fund Balances			
Unrestricted Funds	178,906	176,440	164,589
	712,082	2,075,336	745,375

Statements of Revenue, Expenditures and Changes in Fund Balances

For the years ended March 31, 2013 and March 31, 2012

	2013	2012
	$	$
Revenue		
Government grants	3,128,698	4,355,592
Other contributions	175,000	100,000
Cost recovery from Canadian Stroke Network (CSN)	30,298	-
Interest	5,436	3,457
	3,339,432	4,459,049
Expenditures		
Research awards	734,333	745,000
Salaries	904,992	1,095,451
Consultants	220,418	225,510
Meeting and travel	27,681	265,833
General administration	1,437,082	1,979,716
Training and education	12,460	132,688
	3,336,966	4,447,198
Excess of revenue over expenditures for the year	2,466	11,851
Unrestricted fund balances - Beginning of year	176,440	164,589
Unrestricted fund balances - End of year	178,906	176,440

Statements of Cash Flows

For the years ended March 31, 2013 and March 31, 2012

	2013	2012
	$	$
Cash provided by (used in)		
Operating activities		
Excess of revenue over expenditures for the year	2,466	11,851
Changes in working capital		
Grants receivable	(21,399)	-
HST recoverable	33,287	(61,771)
Prepaid expenses	23,772	(23,772)
Accounts payable and accrued liabilities	(287,222)	291,951
Amount payable to Ministry of Health and Long-Term Care	(99,501)	404,131
Amount payable to Heart and Stroke Foundation of Ontario	(802,182)	858,133
Research grants and awards payable	(151,583)	(244,169)
Deferred contributions	(25,232)	8,064
	(1,330,060)	4,447,198
(Decrease) increase in cash during the year	(1,327,594)	1,244,418
Cash - Beginning of year	1,980,469	736,051
Cash - End of year	652,875	1,980,469

NOTES TO **FINANCIAL STATEMENTS**

March 31, 2013, March 31, 2012 and April 1, 2011

1 Nature of the organization

The Ontario Stroke Network (OSN) was incorporated under the Ontario Corporations Act as a corporation without share capital on June 12, 2008. It is a not-for-profit organization in accordance with the Income Tax Act (Canada Revenue Agency business number 857555296) and accordingly is exempt from income taxes, provided certain requirements of the Income Tax Act are met. OSN is funded primarily by the Ministry of Health Promotion and Sport and the Ministry of Health and Long-Term Care. Other funding is provided by the Heart and Stroke Foundation of Ontario (HSFO).

The purpose of OSN is to provide leadership and support of system coordination across the continuum of stroke care in Ontario, including health promotion, primary, secondary and tertiary prevention, pre-hospital care, emergency, diagnostic and acute care, rehabilitation, long-term care, and community reintegration.

OSN also provides provincial leadership and coordination for the Ontario Stroke System (OSS), including the following functions:

- support accountability, performance measurement, evaluation, and reporting on the progress of OSS;
- administer the OSS stroke research program;
- recommend and implement province-wide goals and standards for the continuum of stroke care, including health promotion and stroke prevention, acute care, recovery and reintegration processes;
- conduct ongoing strategic and operational planning, including trend and needs analysis;
- coordinate and enable relationships and initiatives across the continuum of stroke care to carry out the strategic and operational plans; and
- facilitate regional and provincial roles, responsibilities, activities and interfaces.

2 Transition to Canadian accounting standards for not-for-profit organizations

Effective April 1, 2012, OSN elected to adopt Canadian accounting standards for not-for-profit organizations (ASNPO) as issued by the Canadian Accounting Standards Board. The accounting policies selected under this framework have been applied consistently and retrospectively as if these policies had always been in effect. OSN has not exercised any transitional exemptions on the adoption of ASNPO. There were no adjustments to the statements of financial position or the statements of revenue, expenditures and changes in fund balances and cash flows as a result of transition.

3 Summary of significant accounting policies

The financial statements are prepared in accordance with ASNPO and include the following significant accounting policies.

Revenue recognition

OSN uses the deferral method of accounting for contributions. Accordingly, unrestricted contributions are recognized as

revenue when received or receivable if the amount can be reasonably estimated and collection reasonably assured.

Restricted contributions, arising primarily from government grants, are recognized as revenue in the year in which the related expenditures are incurred. Contributions not yet spent are reflected as deferred contributions.

Investment income represents interest earned on the unrestricted cash balance during the year and is recognized as revenue when earned.

Research grants and awards

Research grants and awards are awarded on an annual basis for up to a two-year period and are expensed when the amounts are committed.

At the discretion of the funder, any unspent funds of terminated grants will become due on demand or are adjusted against instalments of future grants.

Financial assets and financial liabilities

OSN initially measures its financial assets and financial liabilities at fair value. OSN subsequently measures all financial assets and financial liabilities at amortized cost. Changes in fair value are recognized in the statements of revenue and expenditures.

Financial assets measured at amortized cost include cash, grants receivable and HST recoverable.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities, amount payable to Ministry of Health and Long-Term Care, amount payable to HSFO and research grants and awards payable.

Use of estimates

The preparation of financial statements in accordance with ASNPO requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenditures during the reporting period. Actual results could differ from those estimates.

4 Deferred contributions

Deferred contributions include amounts that have been advanced by the Ontario Ministry of Health and Long-Term Care, the Ministry of Health Promotion and Sport, Central East Stroke Network and HSFO for various projects. These projects are managed and executed by OSN in partnership with other health organizations and stakeholders in Ontario. The contributions are recorded as deferred until the designated costs have been incurred.

The changes in the deferred contributions balances are as follows:

	2013 $	2012 $
Balance - Beginning of year	25,232	17,168
Amounts received or receivable during the year	3,613,394	4,867,787
Amounts recognized as government grants	(3,128,698)	(4,355,592)
Amounts recognized as other contributions	(175,000)	(100,00)
Amounts recognized as cost recovery from CSN	(30,298)	-
Amounts repayable in the year	(304,630)	(404,131)
Balance - End of year	-	25,232

ontario stroke network

Advancing the Ontario Stroke System

STAY **IN TOUCH**

2300 Yonge Street
Suite 1300
P.O. Box 2414
Toronto, ON
M4P 1E4

Ph. 416.489.7111, x. 456
Fax. 416.489.9343

email: info@ontariostrokenetwork.ca
www.ontariostrokenetwork.ca

ONTARIO STROKE NETWORK

We provide provincial leadership and planning for the Ontario Stroke System by measuring performance, partnering to achieve best practices, and creating innovations for stroke prevention, care, recovery and reintegration.