



Brockville
General Hospital



Perth and
Smiths Falls
District Hospital



Quinte
Health Care



Lennox and Addington
County General Hospital

Kingston Health
Sciences Centre

Centre des sciences de
la santé de Kingston



Kingston Health Sciences Centre

STROKE NETWORK
of Southeastern Ontario

Consolidation of Acute Stroke Care from 9 Communities to 3 Stroke Units associated with a significant drop in stroke mortality across 20,000km² rural region

Southeastern Ontario, Canada

World Stroke Congress October 2018

Cally Martin

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Bienvenue / Welcome

11TH WORLD STROKE CONGRESS

MONTREAL, CANADA | OCTOBER 17-20, 2018



Speaker Disclosure

X	No, nothing to disclose
	Yes, please specify

Acute Stroke Unit Care - The Evidence

- Patients should be admitted to a **specialized, geographically defined** hospital unit dedicated to the management of stroke patients. (Evidence Level A)
- The core stroke unit team should consist of a healthcare **team of professionals with stroke expertise**. (Evidence Level A)
- The stroke unit environment leads to **standardized care and better outcomes**



Logistical Challenges:

Hospital transfers, bed management, infection control, volumes

Acute Stroke Unit Care - The Evidence

- Consolidation of Acute Stroke Care
- Stroke volumes: **at least 165** ischemic stroke patients per year per organization.
- Expected clinical practice in Ontario
- Expected Acute LOS 5- 7 days



ICES Institute for Clinical
Evaluative Sciences

Supported an analysis of Ontario stroke data, 2002–2009: hospitals admitting < 130 ischemic stroke patients/year had **38% higher odds of dying** in 30 days compared to hospitals admitting 205–470 patients/year.

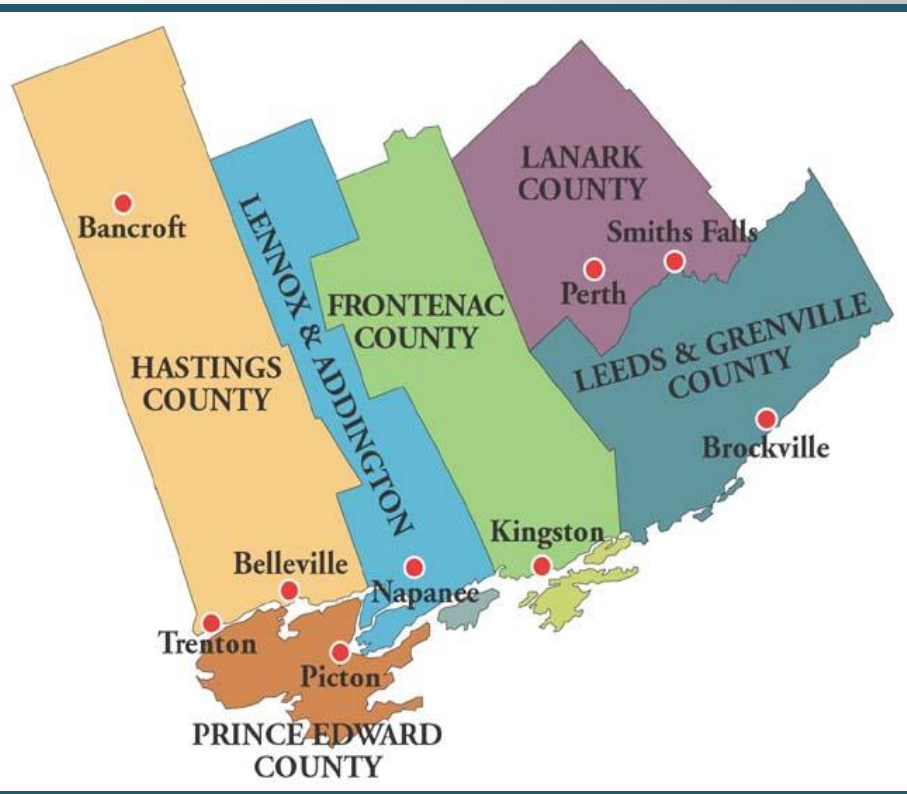
Quality-Based
Procedures: Clinical
Handbook for **Stroke**
(**Acute and Postacute**)

Health Quality Ontario and
Ministry of Health and Long-Term Care

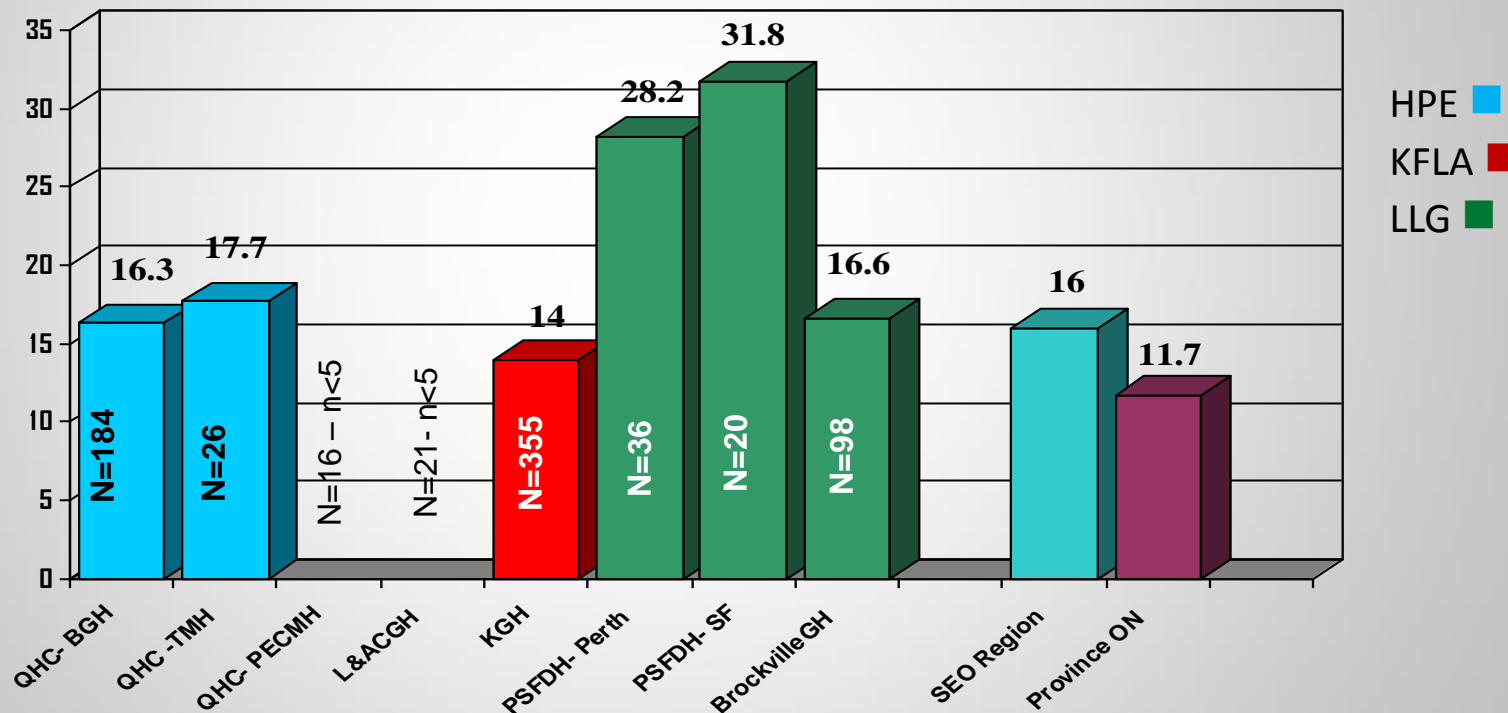
Acute Stroke Unit Care - Southeastern Ontario

Background

- 20,000 km² rural region
- Population 500,000
- 9 acute hospital sites
- Stroke Report Card indicated high and variable 30-day mortality rates
- Limited & variable access to Acute Stroke Unit Care
- Are resources deployed effectively for best stroke care outcomes?



Challenge! SE LHIN 30-day Risk-Adjusted Mortality Rates 2013-2014



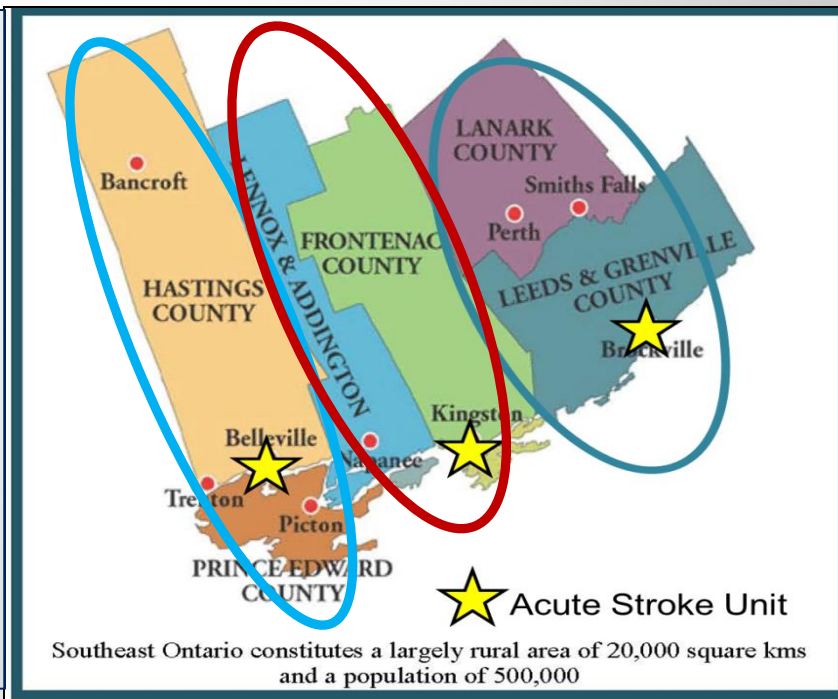
Consolidation of Acute Stroke Care

Aim: 75% of all patients admitted with stroke in the region will receive care by an interprofessional team in a geographically clustered acute stroke unit

Kingston ASU opened in 2004 and integrated service with Napanee in 2014

Belleville ASU integrated service across 4 sites in 2014

Brockville ASU in 2013, low volumes – integrated with Perth and Smiths Falls in 2016



Methods: Regional Implementation Plan

1. Engagement of patients, families, providers
2. Decision-making framework and communication plan for site selection
3. Implementation of standardized care plans
4. Education to build expertise
5. Algorithms to support emergency department flow to the ASU
6. Referral processes for secondary prevention rehabilitation and community supports
7. Financial transfer where applicable
8. Continuous quality improvement
9. Evaluation and sustainability plans



Methods: Example of Project Activities in the East

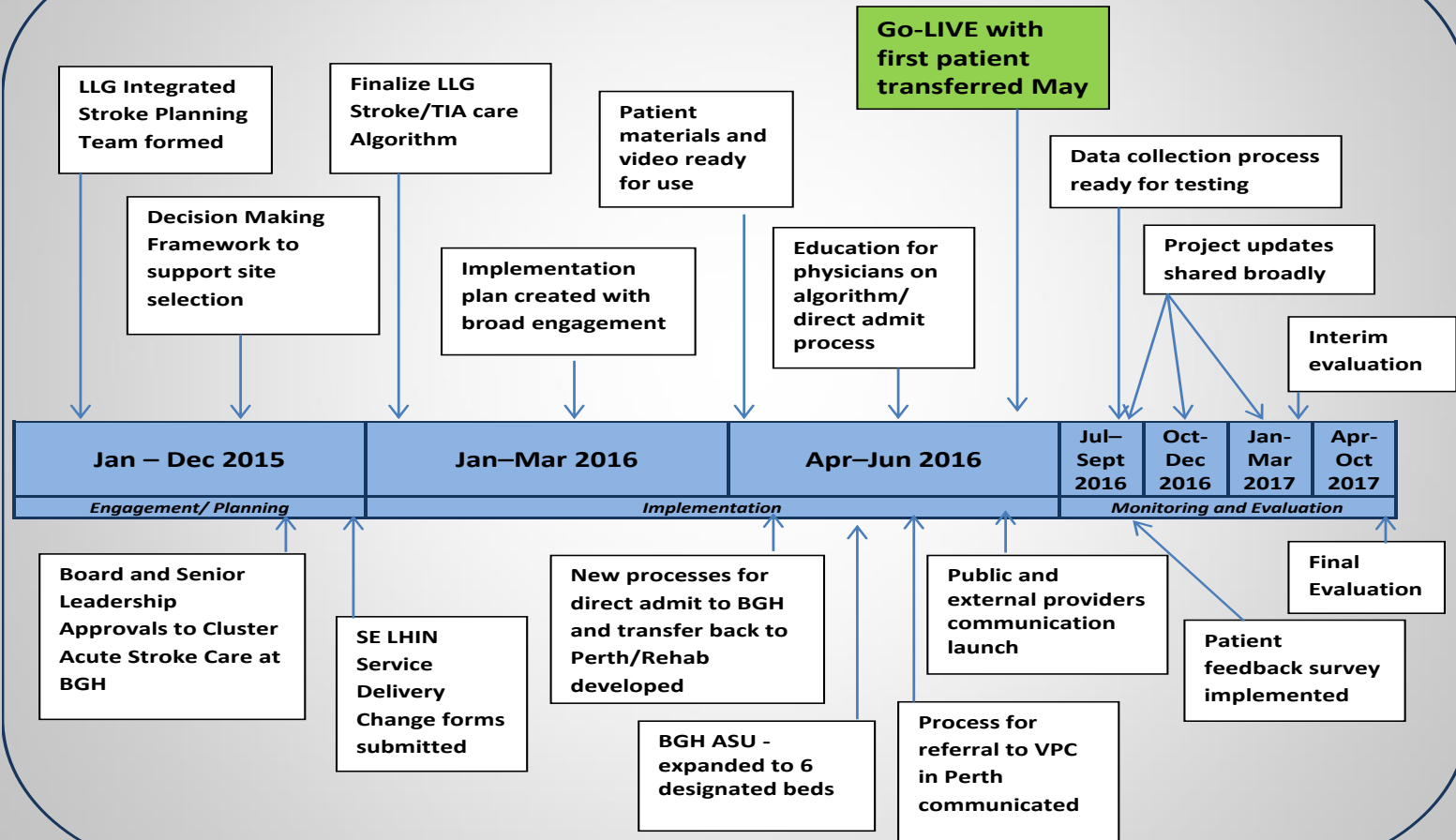


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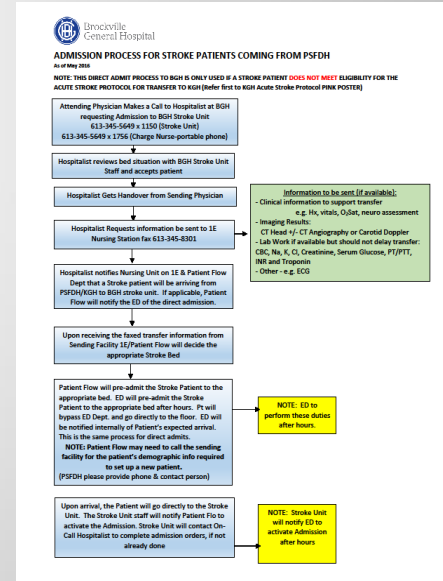
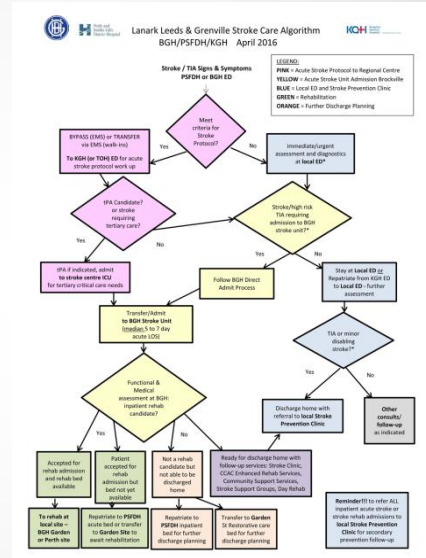
Methods: Examples of Clinical Processes

New Clinical processes:

- Stroke Care Algorithm
- Direct Admit Process
- Rehab Referral/Repatriation
- Link to local Stroke Prevention Clinics and Community Supports

Updates/Training:


- Clinical Pathways & Care Plans
- CNS training for nursing
- Dysphagia Screening
- Additional training for staff new to the ASU




Methods: Examples of Communication



Recovery can be
expected after a **stroke**.
People who experience
a stroke can **survive**
and **recover**.

Brockville
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Acute Stroke Unit Care in Lanark, Leeds and Grenville Counties

Right Care, Right Time, Right Place

A Partnership Between
Perth and Smiths Falls District Hospital
and Brockville General Hospital

Acute Stroke Unit Care in Lanark, Leeds, and Grenville Counties



Joan Moloughney
Stroke Survivor
with granddaughter



Linda Weese
Stroke Survivor



Acute Stroke Care Interim Report Shows Drop in Mortality Rates - March 2017

Perth and Smiths Falls District Hospital and Brockville General Hospital have worked together to improve outcomes for stroke survivors.

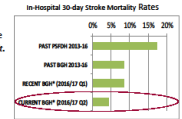
A person who experiences a stroke is more likely to survive, recover and return home when early stroke care is provided by a specialized team in an Acute Stroke Unit.

Collaboration between Perth and Smiths Falls District Hospital (PSFDH) and Brockville General Hospital (BGH) created a combined Acute Stroke Unit in Brockville.

Beginning in May 2016, people presenting with stroke to the Perth and Smiths Falls Emergency Rooms who required admission to hospital were transferred to the Acute Stroke Unit at BGH.

The Acute Stroke Unit, located on BGH's 1 East Inpatient unit includes a specialized team of doctors, nurses, therapists and others, who work with the patient and their family to determine the next steps for recovery. Upon discharge, patients receive care within their community.

A collective effort



A joint collaboration between the PSFDH and BGH teams, the Stroke Network of Southeastern Ontario and the South East Local Health Integration Network, patient advisors from both hospitals. Linda Weese from Mallorytown, and Joan Moloughney from Westport, have each survived strokes and become passionate about sharing the stroke survivor experience. Watch this [video](#) for their story!

Over the past year, the Acute Stroke Unit provided care to 136 patients from across Lanark, Leeds and Grenville Counties including 36 patients who were transferred from PSFDH. There has been significant improvement in patient outcomes. In-hospital mortality rates within the region dropped from 17.4% (PSFDH) and 8.4% (BGH) for the three years pre-current combined rate of only 4.3%.

Sharon JA McIntyre

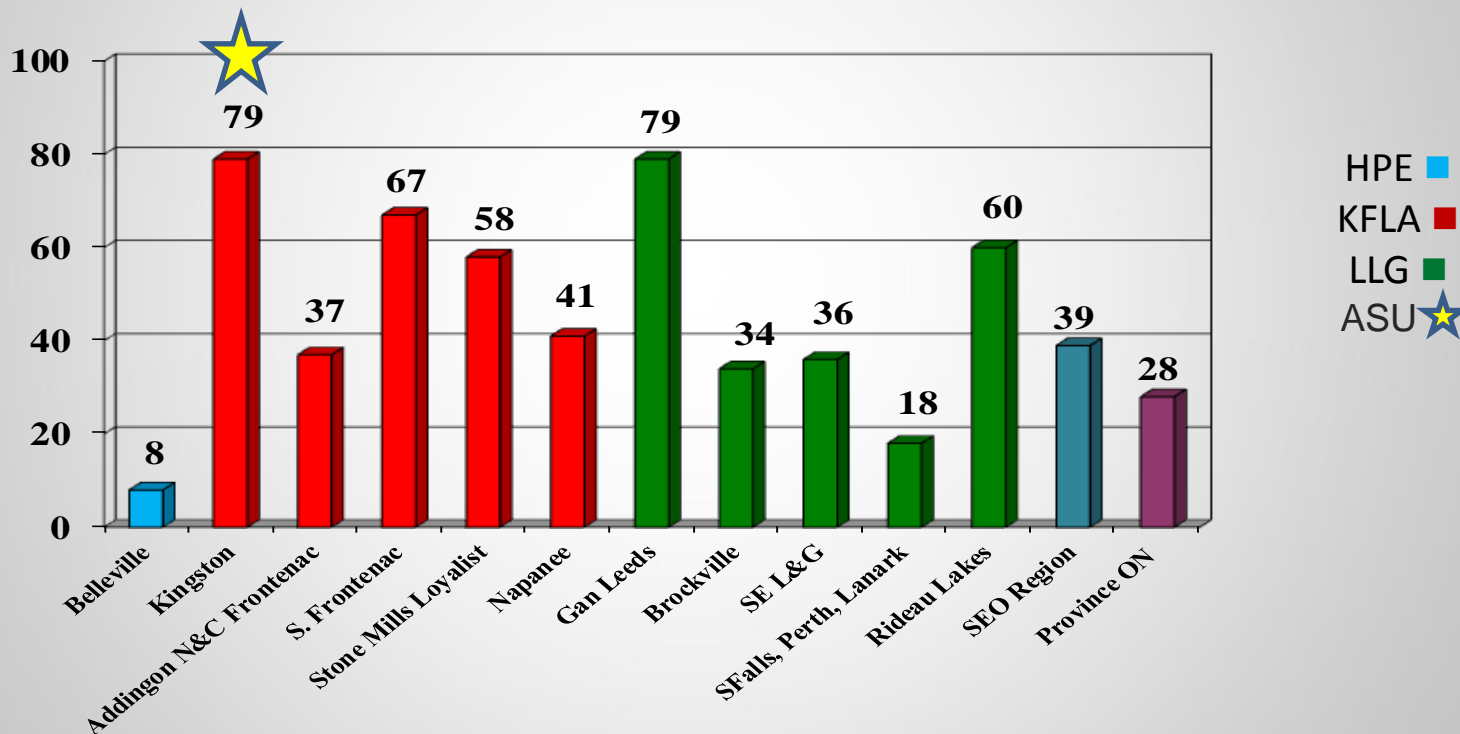


Regional Results: Key Highlights

Over 4 years from 2013/14 to 2016/17

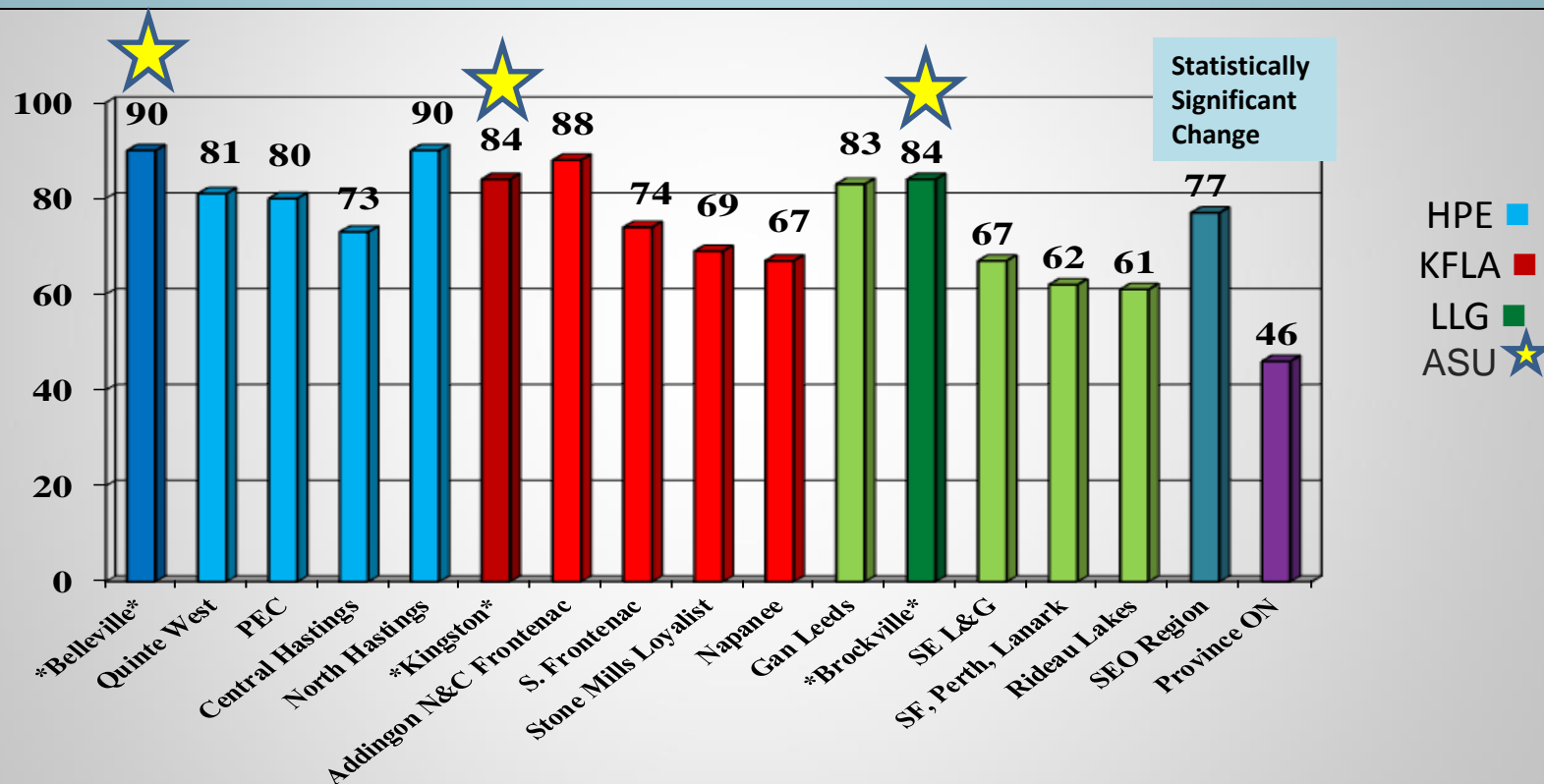
- Acute stroke care consolidated from **9 sites to 3 ASUs** in Belleville, Kingston and Brockville
- Each ASU achieved critical mass of **>165** annual stroke volume
- Regional ASU utilization rates improved from **38.5% to 77%**
- Regional 30-day all-cause risk-adjusted mortality dropped from **16.0% to 11.3%**
- Changes in both indicators were **statistically significant** per Ontario Stroke Report Card analysis of progress (by ICES)
- Evaluation findings at local sites indicated patient, family and staff **satisfaction**
- At all ASUs, clinical **best practices** were more likely to occur (e.g., timely CT scan, vascular imaging, dysphagia screening)

2013-14 ASU Utilization Rates prior to consolidation



Source: CIHI 340 FY 2013-14 – population based data

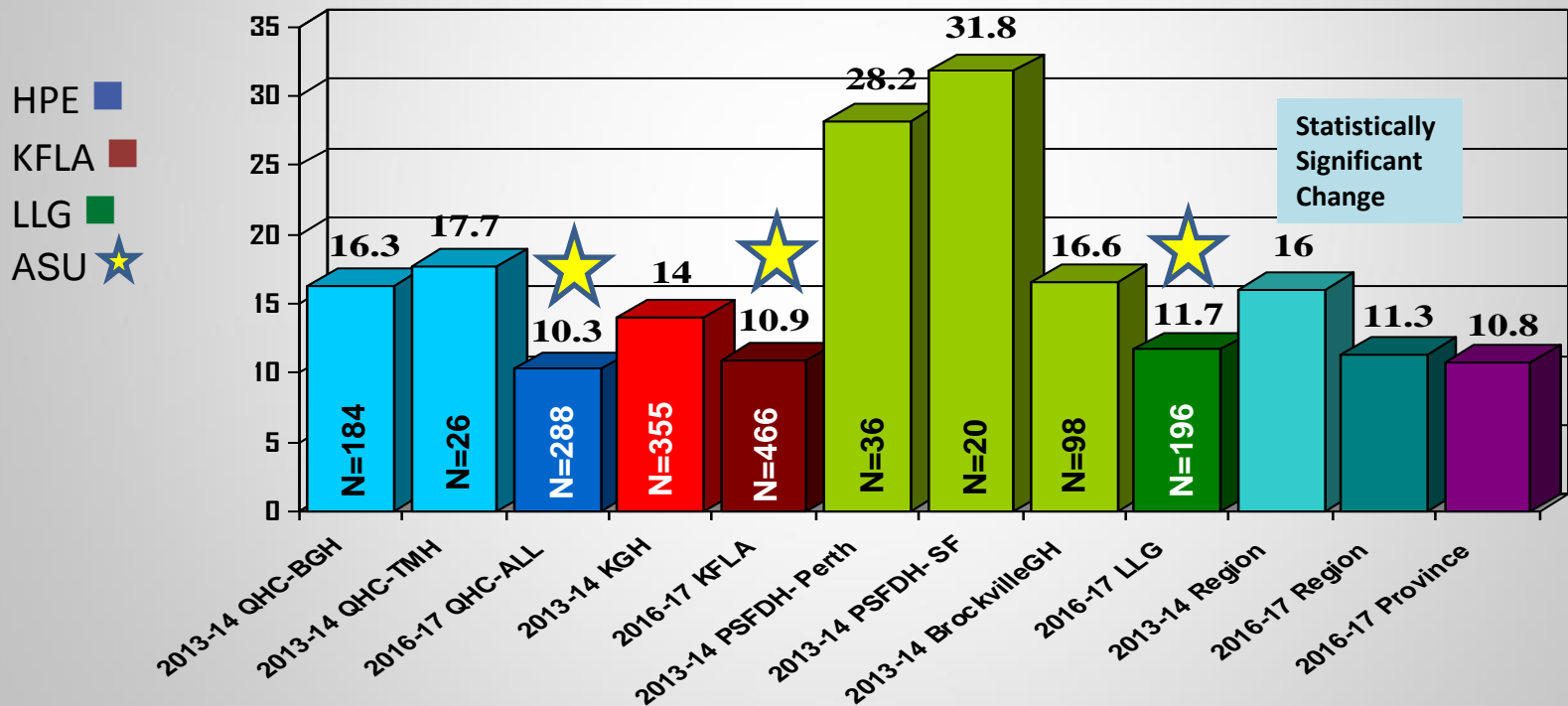
Results: 2016-17 ASU Utilization Rates



Source: CIHI 340 FY 2016-17 – population based data

Results: 30-day Risk-Adjusted Mortality Rates

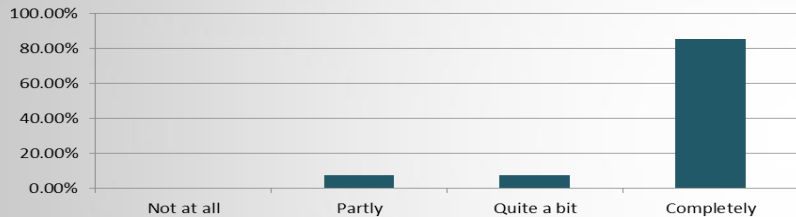
2013-14 to 2016-2017



CIHI DAD 2013-14 and 2016-17 linked with mortality database

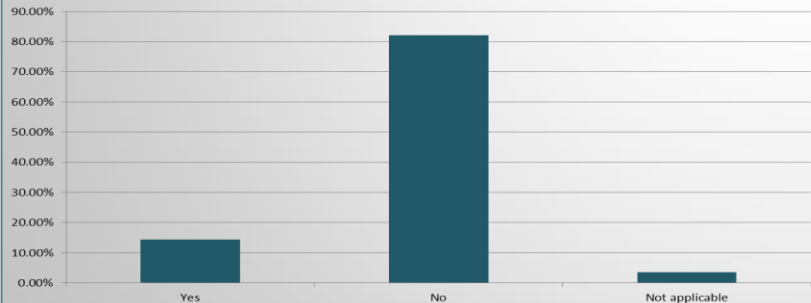
Patient Feedback - Example

Do you feel that your transfer from the Emergency Department to the Acute Stroke Unit bed was well organized?
(patient survey) N=27



*"Really good teamwork"
ASU Stroke Patient*

Did you have any problems being away from your home community? (patient survey) N=28



- Surveys administered via iPads
July 2016 -2017
- Consistently positive responses
- Little to no concerns from patients
going to another hospital for care

Current Acute Care Priorities

- **Regional Dashboard:** ongoing monitoring is key to sustaining gains
- **Belleville:** Integration of Acute & Rehab Stroke Units
- **Kingston:** Sustaining Accreditation Canada Stroke Distinction status
- **Brockville:** Building a new Rehab Unit
- **All:** Sustaining regional 24/7 access to EVT

Regional Stroke Dashboard - Fiscal 2017-18 Q3

Regional Stroke Dashboard - Fiscal 2017-18 Q3		Q3 2017-18		Q2 2017-18		Q1 2017-18		Q4 2016-17		Q3 2016-17		Q2 2016-17		Q1 2016-17		Q4 2015-16		Q3 2015-16		Q2 2015-16		Q1 2015-16		Q4 2014-15		Q3 2014-15		Q2 2014-15		Q1 2014-15		Q4 2013-14		Q3 2013-14		Q2 2013-14		Q1 2013-14		Q4 2012-13		Q3 2012-13		Q2 2012-13		Q1 2012-13		Q4 2011-12		Q3 2011-12		Q2 2011-12		Q1 2011-12		Q4 2010-11		Q3 2010-11		Q2 2010-11		Q1 2010-11		Q4 2009-10		Q3 2009-10		Q2 2009-10		Q1 2009-10		Q4 2008-09		Q3 2008-09		Q2 2008-09		Q1 2008-09		Q4 2007-08		Q3 2007-08		Q2 2007-08		Q1 2007-08		Q4 2006-07		Q3 2006-07		Q2 2006-07		Q1 2006-07		Q4 2005-06		Q3 2005-06		Q2 2005-06		Q1 2005-06		Q4 2004-05		Q3 2004-05		Q2 2004-05		Q1 2004-05		Q4 2003-04		Q3 2003-04		Q2 2003-04		Q1 2003-04		Q4 2002-03		Q3 2002-03		Q2 2002-03		Q1 2002-03		Q4 2001-02		Q3 2001-02		Q2 2001-02		Q1 2001-02		Q4 2000-01		Q3 2000-01		Q2 2000-01		Q1 2000-01		Q4 1999-00		Q3 1999-00		Q2 1999-00		Q1 1999-00		Q4 1998-99		Q3 1998-99		Q2 1998-99		Q1 1998-99		Q4 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1994-95		Q4 1993-94		Q3 1993-94		Q2 1993-94		Q1 1993-94		Q4 1992-93		Q3 1992-93		Q2 1992-93		Q1 1992-93		Q4 1991-92		Q3 1991-92		Q2 1991-92		Q1 1991-92		Q4 1990-91		Q3 1990-91		Q2 1990-91		Q1 1990-91		Q4 1989-90		Q3 1989-90		Q2 1989-90		Q1 1989-90		Q4 1988-89		Q3 1988-89		Q2 1988-89		Q1 1988-89		Q4 1987-88		Q3 1987-88		Q2 1987-88		Q1 1987-88		Q4 1986-87		Q3 1986-87		Q2 1986-87		Q1 1986-87		Q4 1985-86		Q3 1985-86		Q2 1985-86		Q1 1985-86		Q4 1984-85		Q3 1984-85		Q2 1984-85		Q1 1984-85		Q4 1983-84		Q3 1983-84		Q2 1983-84		Q1 1983-84		Q4 1982-83		Q3 1982-83		Q2 1982-83		Q1 1982-83		Q4 1981-82		Q3 1981-82		Q2 1981-82		Q1 1981-82		Q4 1980-81		Q3 1980-81		Q2 1980-81		Q1 1980-81		Q4 1979-80		Q3 1979-80		Q2 1979-80		Q1 1979-80		Q4 1978-79		Q3 1978-79		Q2 1978-79		Q1 1978-79		Q4 1977-78		Q3 1977-78		Q2 1977-78		Q1 1977-78		Q4 1976-77		Q3 1976-77		Q2 1976-77		Q1 1976-77		Q4 1975-76		Q3 1975-76		Q2 1975-76		Q1 1975-76		Q4 1974-75		Q3 1974-75		Q2 1974-75		Q1 1974-75		Q4 1973-74		Q3 1973-74		Q2 1973-74		Q1 1973-74		Q4 1972-73		Q3 1972-73		Q2 1972-73		Q1 1972-73		Q4 1971-72		Q3 1971-72		Q2 1971-72		Q1 1971-72		Q4 1970-71		Q3 1970-71		Q2 1970-71		Q1 1970-71		Q4 1969-70		Q3 1969-70		Q2 1969-70		Q1 1969-70		Q4 1968-69		Q3 1968-69		Q2 1968-69		Q1 1968-69		Q4 1967-68		Q3 1967-68		Q2 1967-68		Q1 1967-68		Q4 1966-67		Q3 1966-67		Q2 1966-67		Q1 1966-67		Q4 1965-66		Q3 1965-66		Q2 1965-66		Q1 1965-66		Q4 1964-65		Q3 1964-65		Q2 1964-65		Q1 1964-65		Q4 1963-64		Q3 1963-64		Q2 1963-64		Q1 1963-64		Q4 1962-63		Q3 1962-63		Q2 1962-63		Q1 1962-63		Q4 1961-62		Q3 1961-62		Q2 1961-62		Q1 1961-62		Q4 1960-61		Q3 1960-61		Q2 1960-61		Q1 1960-61		Q4 1959-60		Q3 1959-60		Q2 1959-60	
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Brockville
General Hospital



Perth and
Smiths Falls
District Hospital



Lennox and Addington
County General Hospital

Kingston Health
Sciences Centre

Centre des sciences de
la santé de Kingston



KCH
Kingston General Hospital

STROKE NETWORK
of Southeastern Ontario

Conclusion: Regional consolidation of acute stroke care to three ASUs resulted in a 77% ASU utilization rate with an associated 5% actual drop in 30-day mortality rates over a 4 year period.



Special thanks to our
patient advisors