Moving from a Primary Stroke Center to a Comprehensive Stroke Center

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The Joint Commission
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Presenter Disclosure Information

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Moving from a Primary Stroke Center to a Comprehensive Stroke Center

Financial Disclosure:
Full-time employment: The Joint Commission

Unlabeled/Unapproved Uses Disclosure:
None
Models of Stroke Care

- **CSC (75 – 200)**: Academic medical center, tertiary care facility
  - Wide range of hospitals; standard stroke care; stroke unit; uses tPA

- **Primary Stroke Center (1000 – 1200)**
  - Rural hospitals; basic care; drip and ship; use tele-technologies

- **Acute Stroke Ready Hospitals (1200 - 1800)**
PSC vs. CSC

Primary Stroke Center
- Stabilize and provide emergency care for patients with acute stroke
- Either admit or transfer to a CSC

Comprehensive Stroke Center
- Provide all needed levels of care to patients with strokes, including
  - Special interventions
  - Highly technical procedures
Comprehensive Stroke Center Certification

- Our newest Advanced Certification
- Developed in collaboration with the American Heart/American Stroke Association
- Requirements derived from the Brain Attack Coalition recommendations published in *Stroke*, 2005.
- Launched September 1, 2012
CSC Certification Program Development


- A 21-member Technical Advisory Panel including representatives nominated by AHA, AACCN, ACEP, SSCM, ENA, CMS, SVIN, AAN, SVS, AANS/CNS, ASN participated in an initial 2-day meeting at TJC Headquarters, and several follow-up phone calls

- Field review was conducted September-October, 2011 with proposed requirements

- TJC Board of Commissioners approval 12/14/11

- First reviews September, 2012
Congratulations!
Stanford Hospital & Clinics Awarded First Comprehensive Stroke Center Certification

(OAKBROOK TERRACE, ILL. – November 16, 2012) The Joint Commission and the American Heart Association/American Stroke Association together announced that The Stanford Stroke Center at Stanford Hospital & Clinics in Palo Alto, California, is the first hospital in the country to meet The Joint Commission’s standards for Disease-Specific Care Comprehensive Stroke Center Certification. Comprehensive Stroke Certification is the third Disease-Specific Care program on which The Joint Commission and the American Heart Association/American Stroke Association are collaborating. The other programs include Primary Stroke Center Certification and Advanced Certification in Heart Failure.

The new level of certification recognizes hospitals that have state-of-the-art equipment, infrastructure, staff and training to diagnose and treat patients with the most complex strokes. Comprehensive Stroke Center Certification was derived from the Brain Attack Coalition’s “Recommendations for Comprehensive Stroke Centers,” (Stroke, 2005), and “Metrics for Measuring Quality of Care in Comprehensive Stroke Centers,” (Stroke, 2011), and on recommendations from a multidisciplinary advisory panel of experts in complex stroke care.
What is a Comprehensive Stroke Center?

A facility or system with the necessary personnel, infrastructure, expertise, and programs to diagnose and treat stroke patients who require

– a high intensity of medical and surgical care;
– specialized tests; and/or
– interventional therapies.

Comprehensive Stroke Centers

- Conditions treated in CSCs might include large ischemic strokes, hemorrhagic strokes, strokes requiring specialized tests or therapies, or multi-specialty management.

- CSCs likely act as a resource center for other facilities in their region for expertise or education.

- CSCs may also serve as a regional destination for referrals from PSCs.
CSC Case Volume Requirements

Case volumes:

- A minimum of 20 SAH patients per year
- A minimum of 15 endovascular coiling or surgical clipping procedures for aneurysm per year
- Administer IV tPA to an average of at least 25 eligible patients per year
Continuous Evolution

- This is a rapidly evolving area of medicine
- Additional revisions to these requirements are anticipated
- Global review of all CSC requirements currently underway
Structure:

Disease-Specific Care Standards

- Program Management
  - 10 Standards

- Delivering or Facilitating Clinical Care
  - 4 Standards

- Supporting Self-Management
  - 3 Standards

- Clinical Information Management
  - 5 Standards

- Performance Measurement and Improvement
  - 6 Standards
Brain Attack Coalition
Recommendations for CSCs

- Personnel and Clinical Expertise
- Diagnostic Imaging: Techniques and Personnel
- Neurosurgery and Vascular Surgery
- Infrastructure
Personnel and Clinical Expertise

Required practitioners:

- Neuro-interventionalist*
- Neuroradiologist*
- Neurosurgeon*
- Certified radiology technologist*
- MRI technologist*
- Endovascular technician*
- Endovascular professional nurse*
- Therapists: physical, occupational, speech
- Advanced practice nurse

*available 24/7
Personnel and Clinical Expertise

- **Additional staff members:**
  - Pharmacist
  - Data collection personnel
  - Nurse case managers and social workers with expertise in:
    - Neurology/stroke care
    - Care coordination
    - Levels of rehabilitation and referrals
    - Community resources

DSDF.1, EP 1(e)
## Specific Education and Training

<table>
<thead>
<tr>
<th>Staff</th>
<th>Minimum Hours/Year</th>
<th>No. Educational Programs/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Director</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ICU Medical Director</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Members of Core Stroke Team</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ED Staff</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Nurses providing stroke care</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>At least one nurse providing stroke care</td>
<td></td>
<td>1 regional/national seminar every other year</td>
</tr>
</tbody>
</table>

**DSDF.1, EP 7**

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Neuro-ICU Nurse Competencies

- Neurologic and cardiovascular assessment
- Ventriculostomy device management (pressure monitoring and drainage)
- Treatment of intracranial pressure
- Nursing care of hemorrhagic stroke patients
- Nursing care of patients treated with IV and IA tPA
- Managing malignant ischemic stroke with craniectomy
- Using therapeutic hypothermia protocols
- Using intravenous vasopressor, antihypertensive, and positive inotropic agents
- Methods for systemic and intracranial hemodynamic monitoring
- Methods for invasive and noninvasive ventilatory management
Diagnostic Imaging: Techniques

- Carotid duplex ultrasound
- Catheter angiography
- CT angiography
- MRI, including diffusion-weighted MRI
- Extracranial ultrasonography
- MR angiography
- Transcranial doppler
- Transesophageal echocardiography
- Transthoracic echocardiography
Diagnostic Imaging: Staff

- One or more certified radiology technologists available 24/7
- One or more certified radiology technologists available to assist with cerebral angiogram 24/7
- One or more qualified MRI technologists available 24/7
Neurosurgery and Vascular Surgery: Required Protocols

- Intra-arterial fibrinolytics
- Endovascular recanalization
- Interdisciplinary protocols for reducing peristroke complications
- Initiation of endovascular procedures
Neurosurgery and Vascular Surgery: Complication Rates

- CSC monitors periprocedure complication rates
- CSC monitors complication rates of carotid endarterectomies and carotid arterial stenting and demonstrates aggregate complication rates less than 6%
- Periprocedure stroke and death rate of less than or equal to 1% for diagnostic catheter angiography
- Aggregate serious complication rate of less than or equal to 2% for diagnostic catheter angiography
## Infrastructure (1 of 2)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Standard Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED/EMS Communication</td>
<td>DSPR.3, EP4 (d)</td>
</tr>
<tr>
<td></td>
<td>DSDF.2, EP1 (a)</td>
</tr>
<tr>
<td>Dedicated neuro-ICU beds</td>
<td>DSDF.1, EP5(a)</td>
</tr>
<tr>
<td>Ability to meet needs of 2+ stroke patients simultaneously</td>
<td>DSPR.5, EP6 (a)</td>
</tr>
<tr>
<td>Process for informed consent</td>
<td>DSSE.1, EP1</td>
</tr>
<tr>
<td>Requirement</td>
<td>Standard Citation</td>
</tr>
<tr>
<td>-------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Post-discharge follow-up call within 7 days</td>
<td>DSPM.3, EP4 (b)</td>
</tr>
<tr>
<td>Participates in IRB-approved patient-centered stroke research</td>
<td>DSPR.5, EP1 (b)</td>
</tr>
<tr>
<td>At least two public educational activities per year</td>
<td>DSDF.6, EP4</td>
</tr>
<tr>
<td>Uses a stroke registry</td>
<td>DSPM.3, EP2 (e)</td>
</tr>
<tr>
<td>Peer review process</td>
<td>DSPM.1, EP2(b)</td>
</tr>
</tbody>
</table>
Process:

Clinical Practice Guidelines

- Current evidence-based guidelines are embedded in the CSC standing orders.
- Evaluated thru patient tracer activity
- Most frequently-cited requirement for improvement: 21% of reviews in 2012 cited for not delivering care according to CPGs
Outcome:
Performance Measurement

- CSCs are currently required to collect and report data on the PSC Measure Set
- CSC Measure Set being pilot tested
  - Discharges October 2012 – March 2013
  - 65 hospital sites
- Final CSC Measures to be announced in 2013, and will include the PSC measures.
### CSTK Draft Measures

<table>
<thead>
<tr>
<th>Measure ID #</th>
<th>Measure Short Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSTK-01</td>
<td>NIHSS Score on Arrival</td>
</tr>
<tr>
<td>CSTK-02</td>
<td>Modified Rankin Score at 90 days</td>
</tr>
<tr>
<td>CSTK-03</td>
<td>Severity Measurement on Arrival</td>
</tr>
<tr>
<td>CSTK-04</td>
<td>Median Time to Treatment with a Procoagulant Reversal Agent</td>
</tr>
<tr>
<td>CSTK-04a</td>
<td>Median Time to INR Reversal</td>
</tr>
<tr>
<td>CSTK-05</td>
<td>Hemorrhagic Complication for Patients Treated with Intra-Venous (IV) Thrombolytic (t-PA) Therapy Without Catheter-Based Reperfusion</td>
</tr>
<tr>
<td>CSTK-05a</td>
<td>Hemorrhagic Complication for Patients Treated with Intra-Arterial (IA) Thrombolytic (t-PA) Therapy or Mechanical Endovascular Reperfusion Procedure With or Without Intra-Venous (IV) Thrombolytic (t-PA) Therapy</td>
</tr>
<tr>
<td>CSTK-06</td>
<td>Nimodipine Treatment Initiated</td>
</tr>
<tr>
<td>CSTK-07</td>
<td>Median Time to Recanalization Therapy</td>
</tr>
<tr>
<td>CSTK-07a</td>
<td>Thrombolysis in Cerebral Infarction (TICI) Post-Treatment Reperfusion Grade</td>
</tr>
</tbody>
</table>
Onsite Review Process

- 2 stroke reviewers for 2 days. Some activities together, some separate
- Focus on individual patient tracers
- Additional activities include:
  - Emergency department review
  - Education and Competence assessment and Credentialing Process
  - System tracer on data use, research and Performance Improvement
“They were tough on us”
Stroke Performance Measures are Improved at Certified Primary Stroke Centers Compared to Other Accredited Hospitals

MJ Alberts1, J Range2, MJ Hampel2, D Morton2, A Watt2, V Cantwell2, J Troy2, JM Loeb2
1Department of Neurology and Neurotherapeutics, UTSW Medical Center, Dallas TX; 2The Joint Commission, Oakbrook Terrace, IL

**ABSTRACT**

**Background**: Primary Stroke Centers (PSCs) certified by The Joint Commission (TJC) have been recognized since 2003, yet doubt still exists about to what extent they improve patient care compared to hospitals that are not PSCs. We compared various performance measures between such hospitals to address this issue.

**Methods**: Patient data from 56 accredited hospitals that were not PSCs were compared to data from 111 accredited hospitals that were TJC certified PSCs in 2009-2011. The 56 non-PSCs had voluntarily agreed to participate in the stroke performance measures. Data were obtained from the ORYX database. At the measure level, a random effects model for each year was used to identify differences between measure rates for certified PSCs and non-certified hospitals collecting data on the Stroke Core Measures.

**Results**: Data were available from 146,507 patients (15,580 at non-PSCs and 131,007 at PSCs). The measures analyzed were VTE prophylaxis (STK1), discharge on antithrombotics (STK2), anticoagulation for Afib (STK3), use of IV TPA (STK4), referral for rehabilitation (STK5), and consideration of rehabilitation (STK10). For all measures combined, the rate of compliance ranged from 74% vs 91% (non-PSC vs PSC, 2009) to 85% vs 95% in 2011. All composite measures had higher compliance rates at PSCs vs non-PSCs (p < 0.0001). Each individual measure differed significantly (p < 0.0001 for each), with STK4 having the largest difference (24% vs 72%, non-PSC vs PSC) and STK2 having the smallest (99% vs 99%). Other measures showing large differences included STK8 (70% vs 89%), STK4 (70% vs 93%), and STK6 (83% vs 94%).

**Conclusions**: Hospitals certified as PSCs met each stroke performance measure at a higher rate compared to non-PSC hospitals that chose to collect performance measure data. These differences narrowed somewhat over time but remained significant in 2011. This might have implications in terms of care quality and risk of recurrent stroke.

**BACKGROUND**

- Primary Stroke Centers (PSCs) have been certified by The Joint Commission (TJC) since 2003
- Prior studies have shown that PSCs improve outcomes such as mortality and the use of IV-TPA
- Uncertainty exists about whether other aspects of patient care are improved at a PSC vs other hospitals
- Studies comparing care at a PSC to other hospitals have included a variety of comparison facilities

**METHODS**

- We identified hospitals that reported data to TJC on the Stroke Core Measures
- The comparison time period was 2009-2011
- Data were analyzed from the ORYX database at TJC
- 8 Stroke Core Measures were analyzed
- A random effects model for each year was used to identify differences between measure rates for certified-PSCs and non-certified hospitals collecting data on the Stroke Core Measures

**RESULTS**

<table>
<thead>
<tr>
<th>Measure Designation</th>
<th>Measure Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>STK 1</td>
<td>VTE prophylaxis</td>
</tr>
<tr>
<td>STK 2</td>
<td>Discharge on antithrombotics</td>
</tr>
<tr>
<td>STK 3</td>
<td>Anticoagulation for Afib</td>
</tr>
<tr>
<td>STK 4</td>
<td>IV TPA consideration</td>
</tr>
<tr>
<td>STK 5</td>
<td>Antithrombotics by day 2</td>
</tr>
<tr>
<td>STK 6</td>
<td>Discharge on statins</td>
</tr>
<tr>
<td>STK 8</td>
<td>Stroke education provided</td>
</tr>
<tr>
<td>STK 10</td>
<td>Rehabilitation considered</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-PSC (%)</th>
<th>PSC (%)</th>
<th>Absolute Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>74.0</td>
<td>91.1</td>
<td>17.2</td>
</tr>
<tr>
<td>2010</td>
<td>80.4</td>
<td>93.3</td>
<td>13.0</td>
</tr>
<tr>
<td>2011</td>
<td>84.9</td>
<td>95.2</td>
<td>10.3</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

1. Hospitals certified by TJC as PSCs had significantly higher compliance rates for all Stroke Core Measures compared to accredited facilities that were not certified PSCs
2. These differences persisted but narrowed over a 3 year time frame
3. Further examination of other care processes at certified PSCs may provide other opportunities for improved patient care

**Potential Limitations**

- Relatively small number of hospitals
- Administrative databases limit analyses and causative insights
- Only examined Stroke Core Measures; other care elements and hospital factors might be important
- Limited data on case mix, physician expertise, socioeconomic factors, staffing, etc.
Resources

- CSC Standards are available on [www.jointcommission.org](http://www.jointcommission.org)
- Standards Interpretation Group: (630)792-5900
- Performance Measure Questions: [http://manual.jointcommission.org](http://manual.jointcommission.org)
- Pricing Unit: (630)792-5115
Stroke Certification Statistics
(as of 4/25/13)

- Certified Primary Stroke Centers
  - 1006 in 49 states
  - 98 (9.7%) in Texas

- Certified Comprehensive Stroke Centers
  - 31 in 15 states
  - 0 in Texas

- Certified Stroke Rehab Programs
  - 114 in 25 states
  - 19 (17%) in Texas
Benefits of Certification

- Improves the quality of patient care by reducing variation in clinical processes
- Provides an objective assessment of clinical excellence
- Creates a loyal, cohesive clinical team
- Promotes a culture of excellence across the organization
- Facilitates:
  - Marketing, contracting and reimbursement
Comprehensive Stroke Center Certification

Goal is to improve stroke care and recognize elite group of centers treating complex stroke patients

Exclusive benefits from both AHA and TJC:

– National agenda thru CSC quarterly networking events
– Special recognition at International Stroke Conference
– Standardized performance measures (1/2014)
– National advertising
– Ability to promote CSC with exclusive AHA/TJC Service Marks
TABLE_17

THE STANDARDS ARE TOUGH. BUT THEN, SO IS STROKE.
The first Comprehensive Stroke Centers have earned certification by meeting high standards for treating complex stroke.

NOW IT'S OUR TURN TO
honor you!

Please join us for a reception honoring the very first hospitals to achieve Comprehensive Stroke Center certification at the International Stroke Conference in Honolulu, Hawaii.

when
Wednesday, February 6, 2013
6:30 to 7:30 p.m.

where
Rainbow Suite on the Lagoon
Hilton Hawaiian Village Rainbow Tower

Cocktails and Hors d’oeuvres
R.S.V.P. by January 22 to Mara.Kogan@heart.org
Questions?

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