



**The Journey to Comprehensive Stroke Certification**

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### Day 1: 1992

**MISSION**

- To be the best comprehensive organization in the country focused on stroke diagnosis, treatment, research, and education.

**FOCUS**

- Patient care plus contributions to worldwide research efforts aimed at understanding the complex mechanisms of stroke injury, treatment and prevention.




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### The Beginning

- 1996 • FDA approved tPA for treatment of stroke.
- 2000 • Brain Attack Coalition publishes recommendation for establishment of Primary Stroke Centers
- 2003 • The Joint Commission's Primary Stroke Certification Program launches. Developed in collaboration with the AHA / ASA.
- 2004 • Stanford certified as Primary Stroke Center.



Alberts et al. Recommendations for the establishment of primary stroke centers. Brain Attack Coalition. JAMA. 2000 Jun 21;283(23):3102-9.

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### Primary Stroke Center

The Certificate of Distinction for Primary Stroke Centers recognizes centers that make exceptional efforts to foster better outcomes for stroke care.



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### Primary Stroke Care

- Limited support
- Initially only 4 metrics required
- More focus on ischemic stroke, than hemorrhagic
- Interviews mostly nursing focused



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### The New Beginning

- 2005 • County announces it will divert stroke patients to closest stroke certified hospital.
- 2009 • ~ 600 hospitals are Primary Stroke Center.
- 2011 • Comprehensive Stroke Center infrastructure begins to build.
- 2013 • Estimated date for Joint Commission CSC Certification???



Leifer et al. Metrics for Measuring Quality of Care in Comprehensive Stroke Centers: Detailed Follow-Up to Brain Attack Coalition Comprehensive Stroke Center Recommendations: A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association Stroke. 2011;42:849-877.

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### Climbing a Mountain



- Vision
- Resources
- Strong team
- Conditioning



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### Vision

- Desire to be first CSC in Northern California
- Political incentive with two tiered county diversion



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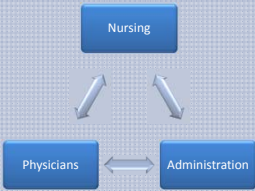
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### Vision



- Support in the literature
- Administrative Service Line Director
- Collaboration



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## Resources: Gap Analysis

**Recommendations for Comprehensive Stroke Centers  
A Consensus Statement From the Brain Attack Coalition**  
 Mark J. Alberts, MD; Richard E. Latchaw, MD; Warren R. Selman, MD; Timothy Shephard, RN;  
 Mark N. Hadley, MD; Lawrence M. Brass, MD; Walter Koroshetz, MD; John R. Marler, MD;  
 John Booss, MD; Richard D. Zorowitz, MD; Janet B. Croft, PhD; Ellen Magnis, MBA;  
 Diane Mulligan; Andrew Jagoda, MD; Robert O'Connor, MD; C. Michael Cawley, MD;  
 J.J. Connors, MD; Jean A. Rose-DeRenzy, CN, RN; Marian Emr; Margo Warren;  
 Michael D. Walker, MD; for the Brain Attack Coalition  
 (*Stroke. 2005;36:1597-1618.*)




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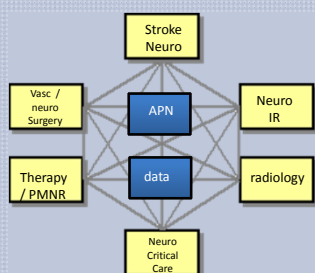
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## Comprehensive Stroke Center Guidelines – The Interdisciplinary Team




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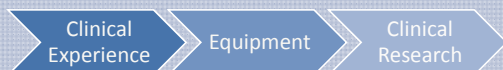
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## Resources - Current



- On site Neurosurgeons and NeuroIntensivists
- Dedicated, integrated, and collaborative Stroke care team including Neuro IR, Advance Practice Nurses, Neurosurgeons and Stroke Neurologists/Neuro Intensivists
- Neuro capable ICU and step down unit
- Bi-plane angiography
- Life flight/Transfer center program for urgent transfers
- Pre-existing program for rapid transfer of Stroke patients
- Ongoing cutting edge stroke/critical care research with NIH funding
- Participation/access to innovative clinical trials




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### Resources – Needed

- Data Entry / analyst
- Additional advanced practice nurse (hospital to home)
- IT support
- Dedicated financial support
  - Nursing education
  - Application fees




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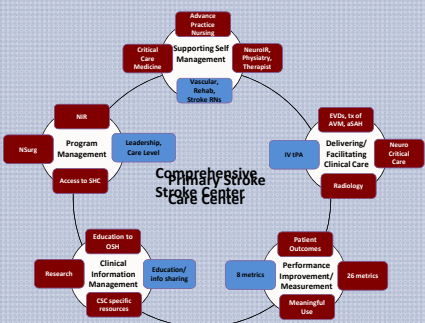
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### Move to Comprehensive




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### Strong Team

- CSC Leadership Team formed
  - Hospital Administration
  - Neurology, Neurosurgery, NeuroInterventional Nursing Leaders
  - Quality and Data
  - Informatics
- Expansion of the Stroke Interdisciplinary Team




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### Conditioning

- 2011 • Business plan developed.
- 2012 • Operations/Working Group initiated.
- 2013 • Stanford applies for and becomes the first accredited CSC in Northern CA???



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### Conditioning: Defining the Work

- Work flow
  - Visio
  - Ensure ALL are included
- Project tracker
  - Project Tracker – frequently reviewed
  - Helped identify weaknesses
  - Ownership assigned
- Data
  - Obtaining
  - Monitoring



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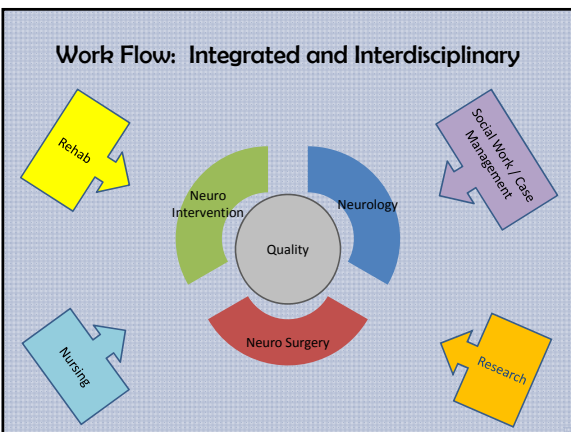
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### Work flow: Spreading the word

- Stroke team meeting
- Service line meeting
- Hospital quality meeting
- Nurse manager meeting
- Intranet site
- In house marketing



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### Project Tracker

1. Volume of cases (20 SAH, 15aneurysm tx, 25 IVtPA)
2. Hospital will be able to provide advanced imaging (24/7)
3. Post hospital care coordination for patients
  - Multi-disciplinary team rounds
  - Case management
  - Social work
  - 7 day phone calls
4. Dedicated neuro-intensive care unit (ICU) beds for complex stroke patients
5. Peer review process
6. Participate in research



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### Data - CSC Metrics

- National Institutes of Health Stroke Scale (NIHSS) Score on Arrival for CVA
- Modified Rankin Score (mRS) at 90 Days
- Severity Measurement on Arrival for SAH and ICH
- INR Reversal, if >1.4 (for ICH pts)
- Documentation of sICH post tx
- Nimodipine Treatment Initiated
- Median Time to Recanalization Therapy
- Stroke or Death Within 7 Days or Discharge If Earlier of a Comprehensive Stroke Procedure



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### Data – Talking the Talk

Developed in advance with both clinical, quality and informatics teams.

There are no CEA complications

I don't speak ICD-9

The data show a 32% CEA complication rate.. I need the right procedure codes

Courtesy of Stephanie Casal

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### Data Monitoring

State	Indicator	Indicator
Clinical Appropriateness	CSC Mortality after Angiogram	
Clinical Appropriateness - Case Measure	CSC Stroke after Angiogram	
Clinical Appropriateness - Case Measure	CSC AMI Complication after CEA	
Clinical Appropriateness - Case Measure	CSC AMI complication after CEA	
Clinical Appropriateness - Case Measure	CSC Hematoma after CEA	
Clinical Appropriateness - Case Measure	CSC Mortality after Angio	
Clinical Appropriateness - Case Measure	CSC Hematoma after Stereot	
Clinical Appropriateness - Case Measure	CSC Mortality after Stereot	
Clinical Appropriateness - Case Measure	CSC Stroke after Stereot	
Clinical Appropriateness - Case Measure	CSC - Aneurysm Clipping Mortality	
Clinical Appropriateness - Case Measure	CSC - Aneurysm Clipping Mort	
Clinical Appropriateness - Case Measure	CSC - Aneurysm Clip or Coil Mortality	
Clinical Appropriateness - Case Measure	CSC - Aneurysm Clip or Coil	
Mission	Mission	
Mission	Readmits Neurosurg All Adm	
Mission	Readmits Neurosurg All Admit Info	
OS	OS	
OS	CSC Angiogram Volume	
OS	CSC Stroke Volume	
OS	CSC Volume Decompressive Craniotomy	
OS	CSC CEA Volume	

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### Comprehensive Stroke Center

Ability to deliver the wide variety of specialized care needed by patients with serious cerebrovascular disease. Integration of specialized care and technology into hospital system is likely to improve outcomes of patients with strokes and complex cerebrovascular disease and require the services of a comprehensive stroke center.



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### Success



*Work together, celebrate together.*

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### Helpful Hints

- Have your eligibility criteria ready
- Let your integrated, interdisciplinary team shine
- Be able to answer why / how
  - Patient
    - Quality of care
  - Hospital
    - Provide Quality of Care
  - System
    - Influence quality of care



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### Lessons Learned

- Defined roles/ownership
- Integrated interdisciplinary approach
- Data collection and reviewed by entire team
- Frequently monitored project tracker progress



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## Relax?



- It is a process, not a goal
- Requires consent attention
- Survey helped identify opportunities for improvement

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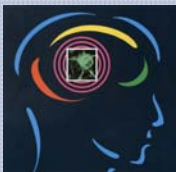
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## From the Start to the Future



"Drs. Albers, Marks and Steinberg knew from the very start of the Center that the most effective way to battle complex stroke cases was to create a truly coordinated, multi-disciplinary team that united experts from every related field – not just those dedicated to neurology, neurosurgery and neuroradiology, but also experts in nursing, rehabilitation, emergency medicine and pharmacy, amongst others. This approach has improved patient outcomes and pioneered significant advances in stroke diagnosis and treatment."

- Amir Dan Rubin, CEO Stanford Hospital & Clinics



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