Sutter Neuroscience Institute
Stroke Network

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SHSSR comprehensive stroke strategy 2010-2015

• JC PSC certification for all 6 hospitals
  – Continue and improve interaction with EMS
  – Create/maintain network of services/providers
  – Standardize care and education
  – Develop/improve/maintain services

• Comprehensive neurovascular clinics

• Promote research

• Establish and maintain professional education program
SHSSR acute stroke management strategy

- A simple plan
  - All acute stroke patients treated the same
    - Standardized order sets across 6 hospitals
    - Standardized provider education
      - NIHSS, algorithms, decision tree
      - Nursing education
  - Developing and implementing DI capability
    - Regional radiology service
    - Ability to access images
    - CT/CTA/CTP 24/7 for all acute strokes
  - Developing and implementing standardized metrics
    - JC core measures/dashboards
    - Facility steering committees
    - Regional collaboration/networking
Facts at a Glance

Sacramento Sierra Region

• Six acute-care hospitals (2012 data)
  – 1,416 licensed beds
  – 66,421 discharges
  – 256,720 ED visits

• Six Joint Commission Primary Stroke Centers
  – SMCS Get with the Guidelines Gold Plus
### Facts at a Glance*

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Volume</td>
<td>1,500</td>
<td>1,685</td>
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<tr>
<td>ALOS (ischemic)</td>
<td>3.78</td>
<td>4.13</td>
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<td>30-day Readmission</td>
<td>7.7%</td>
<td>7.4%</td>
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<td>Ischemic mortality</td>
<td>4.5</td>
<td>3.4</td>
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<tr>
<td>Hemorrhagic mortality</td>
<td>21.7</td>
<td>22.7</td>
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*ICD-9 codes found in appendix*
Regional Collaboration

• Regional nursing and physician education plan implemented
  – Initial and on-going training
    • All new hire RNs on stroke designated units receive 8 hours of stroke education that includes NIHSS certification, training on order sets, stroke alerts signs and symptoms
    • Established RNs on stroke designated units receive 4 hours of ongoing stroke education
    • Over 80% ED MDs NIHSS certified, 4-8 hours education
    • Core stroke team at each facility with NIHSS certification and 8 hours education
• Stroke coordinators monthly meetings
• Standardized pre-printed regional stroke order sets
• Post discharge phone calls
• Active stroke support groups (Sacramento and Roseville)
  – Stroke Camp
  – Strike out Stroke event
• Regional gap analysis for stroke completed
• Consistent community message
  – Be SAFE to Think FAST
• Research
SHSSR post stroke management strategy

• Challenges
  – Post hospital continuation of appropriate care
  – Education (patient and caregiver)
  – Optimization of medication
  – Risk factor management
  – Disability assessment and support
  – Appropriate/timely feedback to provider
  – Outcomes assessment
  – Quality measurement
  – Inability to reach all patients
    • Scattered providers
    • Multiple/no insurances
    • Lack of coordination between services
SHSSR post stroke management strategy

• Answer
  – Comprehensive neurovascular clinics
    • NP/RN lead weekly clinics at all 6 hospitals
    • Multidisciplinary, especially Therapy/SS
    • Goals: appropriate/timely RX, education, assessment, referral, outcomes, re-admission, care-giver/community support/outreach
SHSSR post stroke management strategy

• How?
  – Take coordinators away from data entry and abstraction and use them for clinical skills
  – Use subject matter experts as supervisors
  – Finance
    • CMI Adjusted Charge Per Case: $6,992 (2012)
      – Readmission rate: 7.4% = 125 patients
      – Projected readmission rate e.g.: 6.5% = 109 pts
      – Possible saving: $112,000
    • Nominal facility fee
    • Potential billing
SHSSR post stroke management strategy

• Benefits
  – Appropriate/timely assessment/care
  – Education
  – Outreach
  – Research opportunities
  – Outcomes
  – Registry
  – Community service
• Research
  – Sutter inter regional research collaboration
  – Sutter inter/intra regional CME collaboration

• Professional development
  – Semi annual/annual provider retreat
  – Annual stroke symposium
  – Sacramento neurovascular society
  – Neurovascular fellowship
• Sutter Medical Center, Sacramento
  – 823 beds
  – 33,256 discharges
  – 84,608 ED visits
• Sutter Roseville Medical Center
  – 313 beds
  – 18,315 discharges
  – 71,249 ED visits
• Sutter Solano Medical Center
  – 102 beds
  – 5,076 discharges
  – 36,767 ED visits
• Sutter Auburn Faith Hospital
  – 78 beds
  – 4,113 discharges
  – 24,356 ED visits
• Sutter Davis Hospital
  – 48 beds
  – 3,437 discharges
  – 21,445 ED visits
• Sutter Amador Hospital
  – 52 beds
  – 2,224 discharges
  – 18,295 ED visits
Appendix

• Stroke Volume ICD-9 codes

Ischemic: 433.01, 433.10, 433.11, 433.21, 433.31, 433.81, 433.91, 434.00, 434.01, 434.11, 434.91, 436

Hemorrhagic: 430.x & 431.x

TIA: 435, 435.8, & 435.9