Closing the Gap
The Development of a Regional Stroke System

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⁴-Southwest Texas Regional Advisory Council  
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Background

In 2009, the 7th largest populated city in the United States, had no certified Primary Stroke Centers, or organized approach to care for stroke patients.

Hospital leaders were compelled to create stroke programs in their facilities in response to intense community pressure following a patient who had a poor outcome secondary to no access to a stroke center in San Antonio.

The Southwest Texas Regional Advisory Council (STRAC) Stroke Committee, comprised of hospital, physician and EMS leaders, developed a Stroke Letter of Attestation signed by participating hospitals and EMS agencies. This letter defined an interim process for performance and pre-hospital stroke alert criteria while hospitals developed programs and became certified as stroke centers. The agreement established a commitment to maintain rapid response teams, a central one-call transfer process, and process improvement. Transfer tracking sheets were developed to monitor hospital responses to transfer requests and patient acceptance.

Despite a competitive environment, Stroke Coordinators met monthly to discuss data and develop regional reports for review in the Stroke Committee. In addition, stroke algorithms were distributed to rural facilities to assist with care prior to transfer to a stroke center.

Purpose

To describe how in one year, a large geographic region progressed from no system of stroke care to an organized system of 10 Certified Primary Stroke Centers and numerous EMS agencies.

Methods

Stroke Alert Criteria

1. One or more findings on Cincinnati stroke scale:
   a. Facial Droop - Asymmetrical
   b. Arm Drift - Asymmetrical
   c. Speech - Asymmetrical
   2. Less than 6 hours from onset of symptoms
   3. Blood sugar between 60mg and 600mg

Stroke Algorithm

1. RECOGNITION
   a. Definitive diagnosis of acute stroke within the first 6 hours
   b. Difficulty walking or understanding special instructions
   2. EVALUATION
   a. CT scan of the cranium
      i. Inpatient consultation to determine if acute stroke
      ii. Consultation with consulting neurologist
   3. MANAGEMENT
      a. IV reperfusion therapy
      b. Anticoagulation
      c. Antithrombin therapy

Total Stroke Alert Patients

TRA Administration For Occlusive Stroke Alerts

Results

By coordinating a system of care with first responders, no longer diverting patients out of the service area, and data sharing, a large region progressed from having no stroke system to an organized system of 10 Certified Primary Stroke Centers, which provide the region access to quality care. The STRAC Stroke/Performance Improvement Coordinator Committee and Coordinator Committee continue monthly meetings.

Conclusions

This process successfully closed the gap in stroke care. The STRAC Stroke Committee continues to improve data collection, provide feedback to EMS, set goals for public education, and engage hospitals and EMS agencies in the commitment to quality stroke care.

References:


In 2009, the 7\textsuperscript{th} largest populated city in the United States, had no certified Primary Stroke Centers, or organized approach to care for stroke patients. The purpose is to describe how in one year, a large geographic region progressed from no system of stroke care to an organized system of 10 Certified Primary Stroke Centers and numerous EMS agencies.
Hospital leaders were compelled to create stroke programs in their facilities in response to intense community pressure following a patient who had a poor outcome secondary to no access to a stroke center in San Antonio. The Southwest Texas Regional Advisory Council (STRAC) Stroke Committee, comprised of hospital, physician and EMS leaders developed a Stroke Letter of Attestation signed by participating hospitals and EMS agencies. This letter defined an interim process for performance and pre-hospital stroke alert criteria while hospitals developed programs and became certified as stroke centers.

### Methods

#### Stroke Alert Criteria

1. One or more findings on Cincinnati stroke scale:
   - A. Facial Droop – Abnormal
   - B. Arm Drift – Abnormal
   - C. Speech – Abnormal
   --And--

2. Less than 8 hours from onset of symptoms
   --And--

3. Blood sugar between 60mg and 600mg
Methods

Despite a competitive environment, Stroke Coordinators met monthly to discuss data and develop regional reports for review in the Stroke Committee. In addition, stroke algorithms were distributed to rural facilities to assist with care prior to transfer to a stroke center.
The agreement established a commitment to maintain rapid response teams, a central one-call transfer process, and process improvement. Transfer tracking sheets were developed to monitor hospital responses to transfer requests and patient acceptance.
By coordinating a system of care with first responders, no longer diverting patients out of the service area, and data sharing, a large region progressed from having no stroke system to an organized system of 10 Certified Primary Stroke Centers, which provide the region access to quality care. The STRAC Stroke/Performance Improvement Committee and Coordinator Committee continue monthly meetings.

"STROKE Patients" is defined as any patient transported by AirLIFE from within Trauma Service Area - P that had a transferring diagnosis with any of the following: Cerebral Vascular Accident, Stroke, Subarachnoid Hemorrhage, or Intracranial Hemorrhage.

"STROKE Patients Transported Out of Region" is defined as any patient that was defined as a "STROKE Patients" and transported out of the region.

*Through 12/12/2012

Data Provided by San Antonio AirLIFE
Results

Total Stroke Alert Patients

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<tr>
<th>Month</th>
<th>2011 Patients</th>
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<tr>
<td>Jan</td>
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<tr>
<td>Feb</td>
<td>63</td>
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<td>Mar</td>
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<tr>
<td>Nov</td>
<td>85</td>
</tr>
<tr>
<td>Dec</td>
<td>61</td>
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tPA Administration For Occlusive Stroke Alerts

<table>
<thead>
<tr>
<th>Month</th>
<th>tPA...</th>
<th>Overall Average 33%</th>
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<tbody>
<tr>
<td>Jan</td>
<td>31%</td>
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<tr>
<td>Feb</td>
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<tr>
<td>Mar</td>
<td>36%</td>
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<td>Apr</td>
<td>26%</td>
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<tr>
<td>May</td>
<td>25%</td>
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<tr>
<td>Jun</td>
<td>30%</td>
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<td>Jul</td>
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<td>Aug</td>
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<tr>
<td>Sep</td>
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<tr>
<td>Oct</td>
<td>33%</td>
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<tr>
<td>Nov</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>29%</td>
<td></td>
</tr>
</tbody>
</table>

Occlusive Stroke Alert (432) tPA given (142)
This process successfully closed the gap in stroke care. The STRAC Stroke Committee continues to improve data collection, provide feedback to EMS, set goals for public education, and engage hospitals and EMS agencies in the commitment to quality stroke care.