



## How Can the QCI-NASCAR Paradigm Be Applied to the Stroke Belt?

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Stroke Belt Consortium Meeting  
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## Care Access in the Stroke Belt

- Dichotomy of urban vs. rural geography
- The “telestroke” solution...
  - **Historical leader in application of telemedicine to acute stroke care**
  - **REACH network (MCG, Augusta, GA)**

### Targeting Telestroke: Benchmarking Time Performance in Telestroke Consultations

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*Objective:* To describe the length of time physicians spend completing telestroke consultations and examine factors associated with that period. *Methods:* This is a retrospective review of data from telestroke software. Clinical data obtained between July 2010 and February 2011 from 8 hub and 24 spoke hospitals were abstracted for 235 consecutive consultations and linked to time metadata generated by software interaction. Consult length was defined as the time logged on to the robot and was exclusive of any telephone interaction or documentation time. Response time was defined as patient arrival to physician log-on. *Results:* Mean consult length for 203 complete, time-stamped cases was 14.5 minutes. There was no independent association between consult length and age, diagnosis, time of arrival from symptom onset, neurologic exam findings, known recombinant tissue plasminogen activator (t-PA) contraindications, and absence of vascular risk factors. Mean consult length was statistically longer in r-PA-recommended cases (20.0 versus 15.3 minutes;  $P = .04$ ). Mean response time was 76.3 minutes. *Conclusions:* The relatively short consult length suggests a workflow model in which acute stroke care is largely completed before telestroke consultation with a specialist rendering an expert opinion on previously gathered data performed off-line. The findings for prolonged response times indicate an area for improvement. Future workflow models for telestroke consultation will need to be reconsidered to optimize quality of care and clinical efficiency. *Key Words:* Acute stroke—telemedicine—telestroke—care delivery models.

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## Target: DTN < 60 minutes?

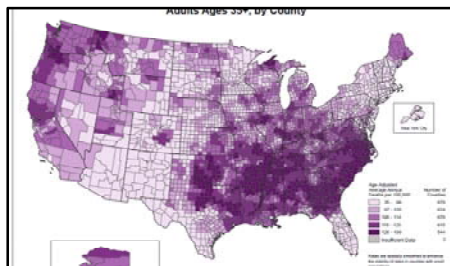
- How should clinical standards be set?
  - **AHA Target: Stroke Initiative**
  - **Is “success” different for the rural or telestroke model?**
- Implement **standardized workflow processes** to bring tertiary-level benchmarks to community hospitals
- Need for education and continual re-education...
  - **What works?**

13 seconds



Coincidence?

**Stroke Belt**



**NASCAR Tracks**





- Quality Care Improvement with Nursing-driven Acute Stroke CARe
  - **Funded by University of Texas Health Safety and Effectiveness Grants (2013)**
  - **Currently, piloting at the St. Paul University Hospital (Dallas, TX) since October 1, 2013**
  - **Will conclude March 2014 (150 code activations projected)**



- “Pit stop” model of stroke code workflow
  - **Multi-personnel code team**
  - **Organized urgency**
  - **Shared goal (faster door-to-needle)**
  - **Removal of gatekeepers**
  - **Non-sequential processes**
  - **Focus on defined, staged roles**

## "Driver Sheet"

ORGANIZED WORKFLOW  
--"same thing, same way, every time"

ADAPTIVE, RESPONSIVE  
--Five revisions since start of QCI program with direct feedback from physicians and nurses

EMPOWERED ENGAGEMENT  
--Data collection in real time  
--Satisfaction survey on back

## Interim Analysis

- 100% NIHSS certification of nursing staff
- 100% "execution" of protocol
- First three months (Oct. to Dec. 2013, n =73)
  - **Average Door-to-CT time: 25.5 mins**  
Reduction of 20 minutes from historical baseline!
  - **If one outlier case removed, average time drops to 18 mins (goal <20 mins)**

## Stakeholder Perspectives

- Nursing
  - **Fully embrace “Driver Sheet”**
  - **Will continue with protocol after conclusion of formal study period**
- ED Physicians
  - **Door-to-MD time decreased from 15.8 mins to 9.5 mins**
- Stroke Specialists
  - **Mixed response to validity of nursing-performed NIHSS**
  - **Perceived marginalization of resident learning**
- Hospital administration
  - **Super happy**
  - **Achieved historical “institutional best” DTN of 32 minutes in the week prior to CSC survey**
  - **Surveyors witnessed and specifically commented on structure and organization of stroke code process**

## The QCI-NASCAR Paradigm

- Branding / Marketing
- Goal Identification / Goal Sharing
- Empowered Engagement

## The QCI-NASCAR Paradigm

- **Branding / Marketing**
- Goal Identification / Goal Sharing
- Empowered Engagement

## Branding / Marketing

- The Power of a Name



- The Evolution of a Name  
NASCAR  
QCI-NASCAR

**NAS-Care**



## The QCI-NASCAR Paradigm

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- Empowered Engagement

## Insights into Stroke Education

- St. Paul University Hospital (Dallas, TX)
  - **More similar to community hospital than tertiary academic center**
  - **First spoke in UTSW telestroke network**
  - **Unique opportunity with stroke-naïve nursing**
- “The Wallen-what?” – An Academic Syndrome
  - **Very easy to over-complicate the message**
- Light Bulb Moments
  - **MOCK CODES**
  - **Time is...**
    - Brain?**
    - Millions of Neurons?**
    - LIFE-YEARS**



## Goal Identification/ Goal Sharing

**“We are going to save years of life.”**

Saver Time Is Brain—Quantified

Estimated Pace of Neural Circuitry Loss in Typical Large Vessel, Supratentorial Acute Ischemic Stroke

	Neurons Lost	Synapses Lost	Myelinated Fibers Lost	Accelerated Aging
Per Stroke	1.2 billion	8.3 trillion	7140 km/4470 miles	36 y
Per Hour	120 million	830 billion	714 km/447 miles	3.6 y
Per Minute	1.9 million	14 billion	12 km/7.5 miles	3.1 wk
Per Second	32 000	230 million	200 meters/218 yards	8.7 h

Saver JL. "Time is Brain—Quantified." *Stroke*. 2006 Jan;37(1):263-6. Epub 2005 Dec 8.

## The QCI-NASCAR Paradigm

- Branding / Marketing
- Goal Identification / Goal Sharing
- **Empowered Engagement**

## Empowered Engagement

- Nurses “Drive the Code”
  - **NIHSS completed prior to resident arrival**
  - **Not dependent on physician orders**
  - **Awareness of benchmarks  
(e.g. Door-to-CT under 20 minutes)**
- Division-wide recognition for superlative performance

## Empowered Engagement

**POST-CODE SURVEY**  
(RN DRIVER)

Please answer the following survey by indicating how much you agree with statements below on the 10 point scale.

1. "When the patient arrived in the ED I was 100% sure it was a stroke within the first minute"

1	2	3	4	5	6	7	8	9	10
Strongly disagree									Strongly agree

2. "I felt like this stroke code was *nursing-driven*."

1	2	3	4	5	6	7	8	9	10
Strongly disagree									Strongly agree

3. "I felt that this stroke code was completed as efficiently as possible.?"

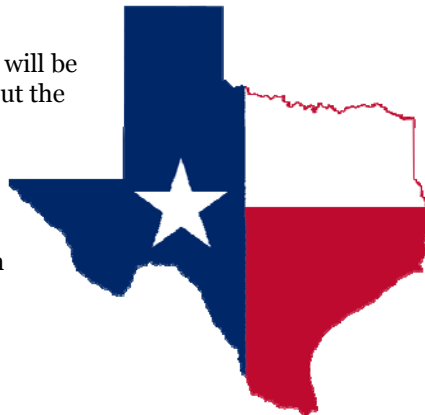
1	2	3	4	5	6	7	8	9	10
Strongly disagree									Strongly agree

## Future Directions

- QCI-NASCAR completes formal study on March 31, 2014
  - **Data analysis and manuscript to follow**
- Lone Star Stroke Consortium
- Stroke Belt Consortium

## QCI-NASCAR → NAS-Care

- **Q3 2014 Projected Start**
- **Lone Star Stroke Consortium** will be implementing NAS-Care throughout the Great State of Texas
- Five “hub” institutions
- At least 2 “spoke” hospitals in each network...





## SBC NAS-Care Challenge

### **NAS-Care Processes and Paradigm are “Open Source”**

- **Stroke Belt Consortium members are encouraged to implement NAS-Care or similar processes to their home institutions**
- **Creation of a QI network?**

Please e-mail for more information and materials!

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Just remember: the hyphen is important!

NA-Scare!

NA-Scary!

NA-Scared!

Thank You!