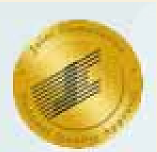
SPECIALISTS ON CALL

Effective Solutions to the Specialty Physician Shortage

Acute Stroke and Telemedicine

- Colin T. McDonald, MD
  - Founder/Chief Medical Officer
    Attending Physician, Specialists On Call, Inc.
    Boston, MA and Los Angeles, CA
  - Neurologica, Inc., Danvers, MA



Past Clinical Disclosures

- Attending Physician
  Stroke & Neurocritical Care Service
  Massachusetts General Hospital
  Harvard Medical School
  (1997 to 2002)

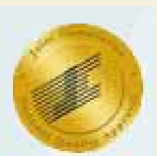
- Attending Physician
  Stroke Director
  South Shore Hospital (MA)
  (2002 to 2006)

SPECIALISTS ON CALL, INC. (SOC)

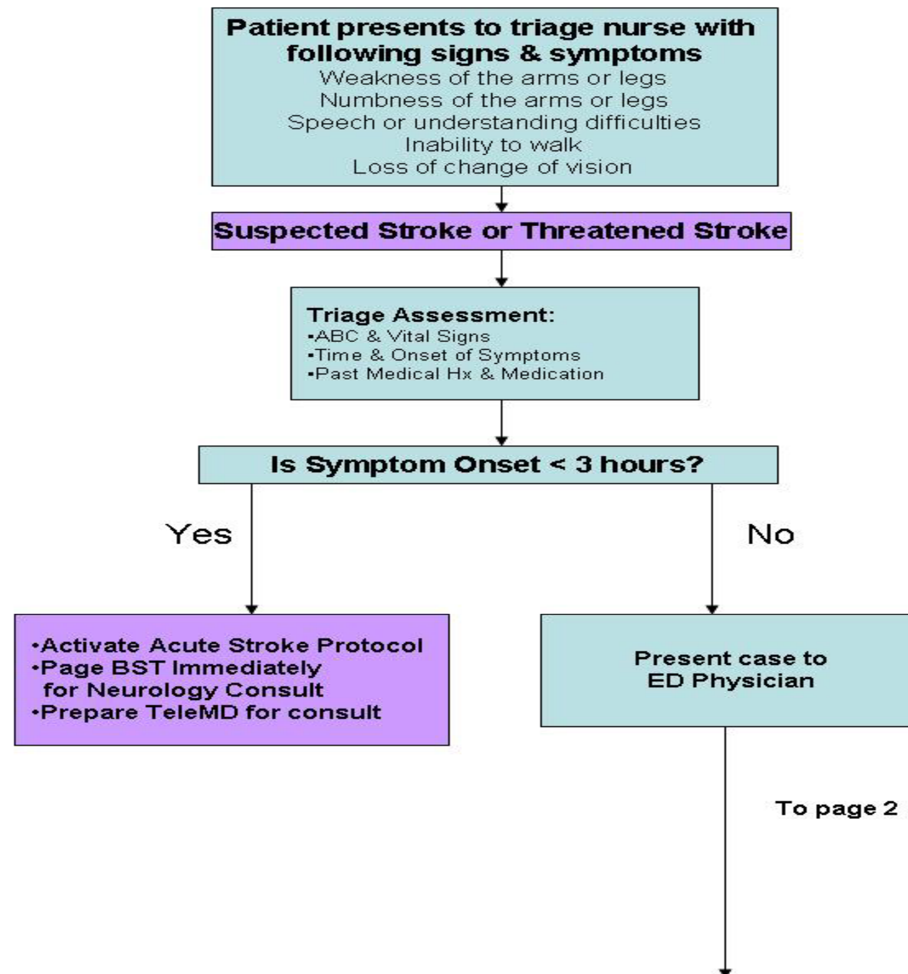
- **SPECIALISTS ON CALL, INC. (SOC)** is a physician-led telemedicine company committed to improving the care of emergency neurology patients.
- **SOC provides:**
  - Multiple Emergency Specialist Services: **Neurology**
  - real-time telemedicine infrastructure, support and services
  - turnkey specialty implementation
  - highest quality specialist consultation services
  - *First and only* **free-standing Teleneurology provider to receive JCAHO accreditation**

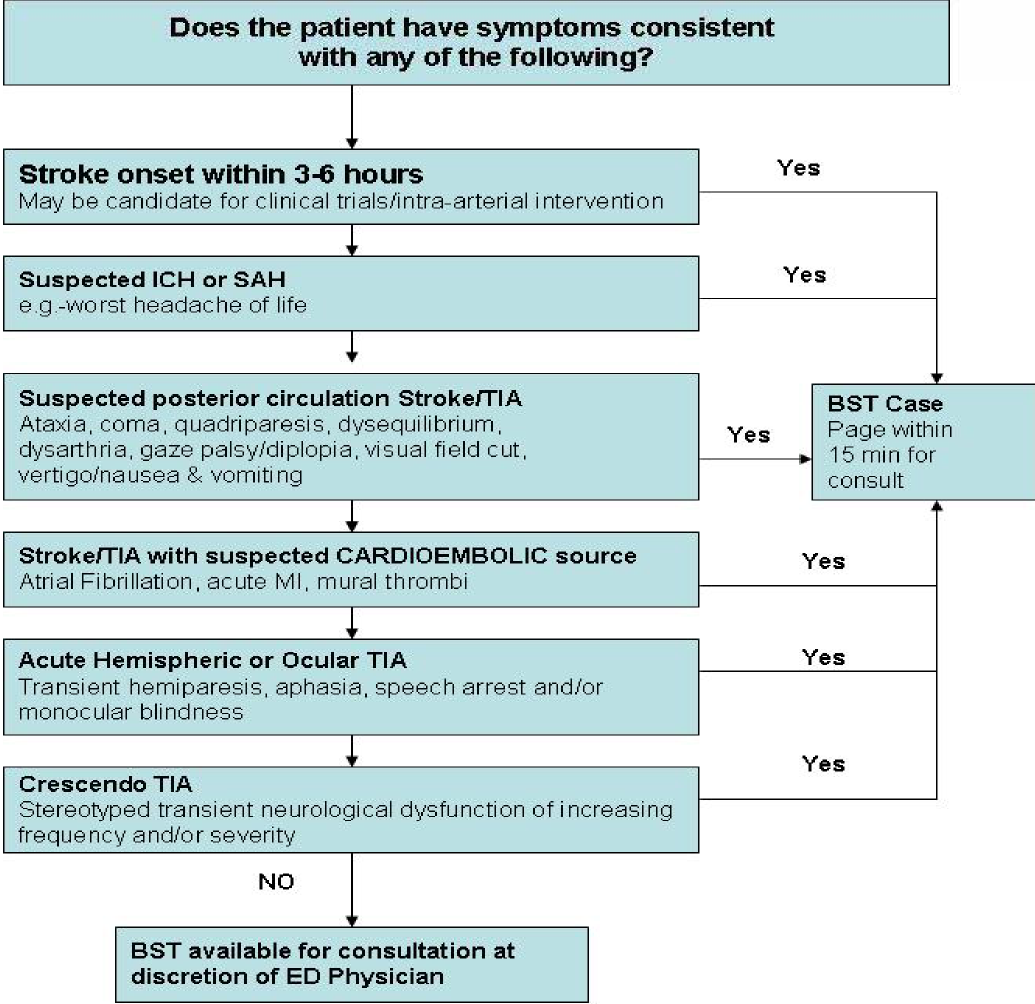
SOC Timeline

- Brain Saving Technologies, LLC (2003)
- Brain Saving Technologies, Inc. (2004)
- Massachusetts Telephysicians (2005)



SOC Triage Protocol




Does the patient have symptoms consistent with any of the following?
Stroke onset within 3-6 hours
May be candidate for clinical trials/intra-arterial intervention
Yes
Suspected ICH or SAH
e.g.-worst headache of life
Yes
Suspected posterior circulation Stroke/TIA
Ataxia, coma, quadriparesis, dysequilibrium, dysarthria, gaze palsy/diplopia, visual field cut, vertigo/nausea & vomiting
Yes
BST Case
Page within 15 min for consult
Stroke/TIA with suspected CARDIOEMBOLIC source
Atrial Fibrillation, acute MI, mural thrombi
Yes
Acute Hemispheric or Ocular TIA
Transient hemiparesis, aphasia, speech arrest and/or monocular blindness
Yes
Crescendo TIA
Stereotyped transient neurological dysfunction of increasing frequency and/or severity
Yes
NO
BST available for consultation at discretion of ED Physician
BST available for other neurological emergencies at discretion of ED Physician
(e.g. 1st seizure, status epilepticus, cord compression, Guillane Barre)

SOC Clinical Philosophy

- If a hospital needs help to administer acute stroke therapies, it probably also needs advice and assistance for other neurological emergencies.
- TIA is a *threatened stroke* and should be viewed as a neurological emergency.
- It is easier to prevent the next stroke than it is to treat the present stroke.

SOC Clinical Protocol

- Call for patients that you know are having a neurological emergency. Call for patients that you worry might be having a neurological emergency.
- Every patient with a neurological emergency has a neurological problem. Not every patient with a neurological problem has a neurological emergency.
- Every case will begin with a conversation doctor to doctor and phone to phone.
- Not every case will end with a videoconference.

Emergency Neuro Care Center

Video Monitor

Internet Monitor

CT Monitor

CT Workstation

ED Video Conferencing Unit

Videoconferencing
Today s most advanced videoconferencing codec with remote control and a 23 inch lcd high resolution display.

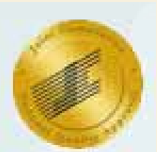
Mobile
Lockable wheels for stationary or mobile usage. Push handle on back makes this unit easy to navigate in the Emergency Room.

UL2601-1 Approved Medical Device
This device is UL2601-1 approved with a specialized speaker designed for the hospital environment.

Additional Notes:
Full warranty on all components.
24/7 customer support service.

SOC Timeline

- Brain Saving Technologies, LLC (2003)
- Brain Saving Technologies, Inc. (2004)
- Massachusetts Telephysicians (2005)
- **The Joint Commission (2006)**
- **Specialists On Call, Inc. (2007)**

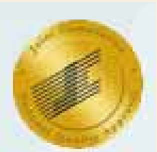


SOC Client Hospitals (52)

- MA (2005) 9
- NJ (2006) 12
- FL (2007) 15
- TX (2007) 14
- VA (2008) 2

The SOC Experience: March 1 – August 31, 2008

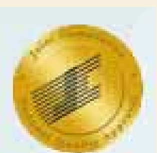
- Greater than 1500 Emergency Neurology Consults.
- Majority were presumptive Cerebrovascular Emergencies (including ICH) ~ 70 %.



The SOC Experience: March 1 – August 31, 2008

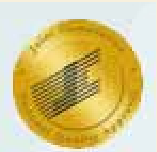
- *Other* Emergency Neurology Consults:

  Seizure (7%)
  Encephalopathy (5%,
  Migraine (5%)
  Syncope (2%)
  Vestibulopathy (2%)
  Transient Global Amnesia (1%)
  Tumor (1%)…



The SOC Experience: March 1 – August 31, 2008

- Potential thrombolytic candidates were all patients presented to an Emergency Neurologist less than 3 hours from onset of serious or debilitating stroke symptoms.



The SOC Experience:
March 1 – August 31, 2008

- **Clear Opportunity:** tPA delivered to 59% of patients presenting with Acute Ischemic Stroke (147).
- **Clear and Future Opportunity:** tPA delivered to 19% of patients presenting with Acute + Subacute Ischemic Stroke (466).
- **Clear and Potential Opportunity:** tPA delivered to 24% of patients presenting with Acute Ischemic Stroke + Acute Threatened Stroke (356).
- **Total Clear, Potential, and Future Opportunity:** tPA delivered to 10% of patients presenting with Acute + Subacute Ischemic Stroke + Threatened Stroke (833)

Lessons Learned

- Most emergency neurology happens in the emergency department.
- Telemedical Neurology is different than but Complimentary to Bedside Neurology.
- Feedback from patients and families has been overwhelmingly positive.

Emergency Neurology

Client Expectations:

- Rapidly Available
- Reliable
- Easy to use
- Clinically Consistent
- Clinically Useful

Emergency Neurology

Physician Staffing Requirements:

- Clinically Excellent
- Clinically Experienced
- Rapidly Available
- Reliable
- **Redundant**
- Technologically Capable
- **Clinically Cohesive**

Emergency Neurology

SOC Practice Requirements:

- Geographically Distributed Physicians.
- Internet Based Connectivity.
- Location Limited Practice Venues.

"Getting the right doctor to the right patient at the right time."

Continuum of Care

Neuro-Critical Care Recommendations

ALLERGIES:

HEIGHT: ___________ WEIGHT: ___________

Patient Identification

DATE	TIME am/pm	tPA ACUTE ISCHEMIC STROKE RECOMMENDATION SET
		■ Checklist for Administration of Thrombolytic Therapy for Acute Ischemic Stroke completed ■ Admit to a Critical Care Unit □ Total Activase (tPA) dose ______________(0.9 mg per kg – not to exceed 90 mg) tPA bolus dose __________mg over one minute (10%) tPA dose __________mg continuous IV infusion over sixty minutes. When the volume alarm sounds, add 20 cc of N/S to the bottle and infuse at the rate of infusion (90%). ■ **No Anti-platelet agents, Coumadin or Heparin for 24 hours** ■ **Compression boots to both legs** ■ **Repeat head CT scan in 24 hours** **TREATMENTS:** ■ NPO until speech evaluation and recommendations have been made ■ Hourly intake and output ■ Neurological and Vital Signs checked q 15 minutes x 2 hours, sq 30 minutes for 6 hours, and q 1 hour for 16 hours using non-invasive methods ■ Notify physician • if systolic B/P > 160 or < 110 • if diastolic B/P > 100 or < 50 • if BP outside of above parameters, monitor q 5 mins until additional orders are received □ IV Fluids ______________________________ □ Guaiac all stools □ No Foley until __________ (date) __________(time) □ No NG tube until __________ (date) __________(time) □ No venipunctures or arterial punctures until __________ (date) __________(time) □ **CBC, PTT, PT,INR, BMP (indicate date/time)** ____________________ □ Oxygen ____________________ □ **Other labs** ______________________________ ■ Consult Neurology for stroke management post-tPA **ACTIVITIES:** ■ Bed rest **Physician's Signature Transcribed by RN Signature/Date/Time** Name ______________________________, MD (Please Print Physician Name) Name ______________________________, RN Date __________ Time __________

■ Required
□ Optional

Clinical Pathways

- Standardized care protocols.
- Decreased in-hospital morbidity.
- Early rehabilitation assessments.
- **Focused evaluations to reduce the risk of recurrent stroke.**

- (California Acute Stroke Pilot Registry Investigators, The impact of standardized stroke orders on adherence to best practices. *Neurology* (2005) **65:** 360.)

Benefit to Hospital System

- **SOC emergency consultation support in the ED delivers value for enterprise-wide stroke and neuroscience strategies**
  - allows rapid hub-spoke development and
  - qualifies all hospitals for stroke-center certification
  - provides effective on-site stroke treatment in all ED's
  - allows spoke hospitals to keep uncomplicated patients
  - provides very accurate transfer decisions as well as sophisticated notification of the need and basis for transfer, to the receiving doc
  - allows neuroscience director, supporting neurologists to focus upon advanced procedures and post-ED care

SOC Structure

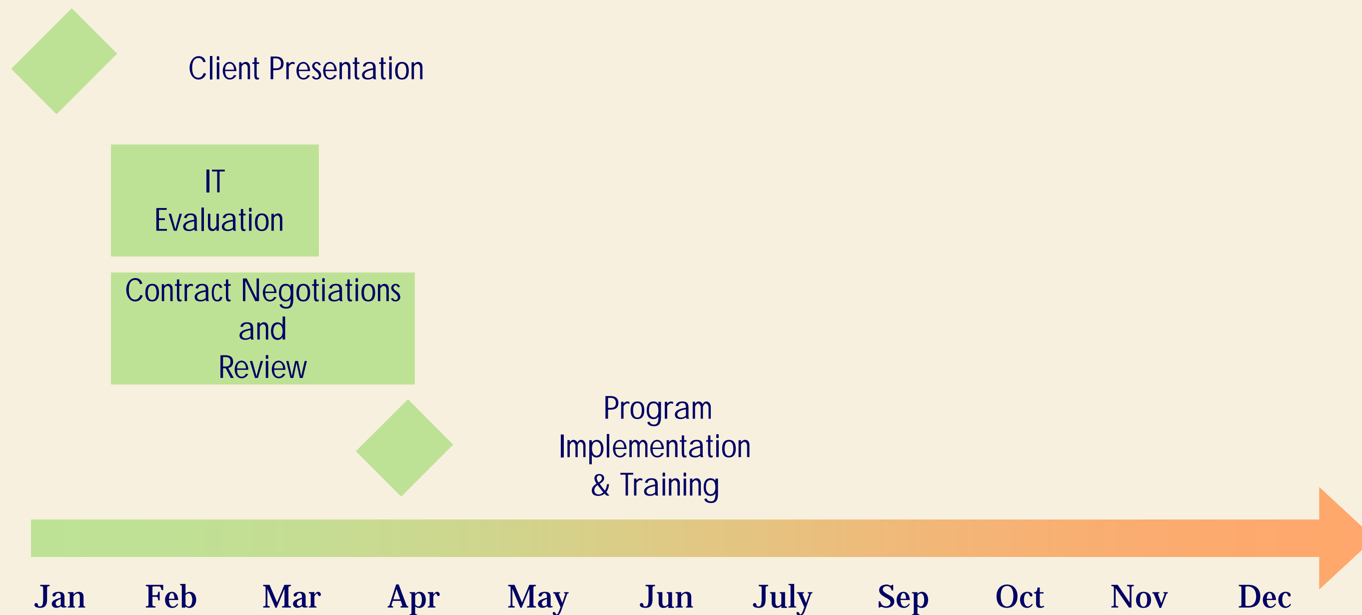
- Executive
- Finance
- Sales
- Operations
  - Licensing/Credentialing
  - Implementation
  - Physician Scheduling
  - Physician Paging (24/7)
  - Information Technology (24/7)
  - Clinical Support (24/7)
  - Quality Assurance
  - Physician Services

Client Implementation

- Executive Buy In/Go-Letter
- Contracting
- Physician Education
- Credentialing
- Medical Records
- Information Technology
  - (Videoconferencing & Radiology)
- Staff Education/Go-Live

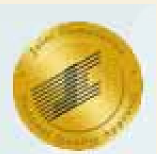
Timeline For Most Programs

Most programs take 60-90 Days from start to implementation (including credentialing in most cases)



SOC 2009/2010

- Emergency Neurology
- Emergency Pediatrics
- Emergency Psychiatry
- Emergency GI
- Network Consulting (**Ironworks**™)



The Future of Emergency Neurology

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