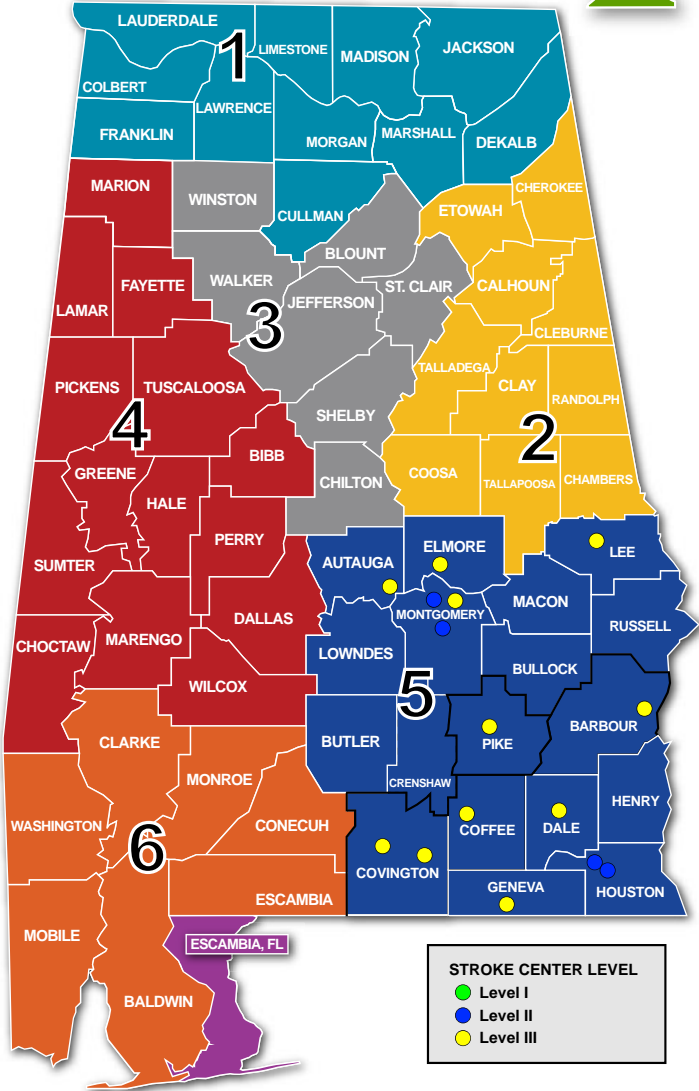


Pre-hospital Stroke Systems: A Tale of Two Regions

Sarah Nafziger, MD, FACEP

TRAUMA/STROKE REGIONS			
■	REGION 1 - North	■	REGION 5 - North Southeast
■	REGION 2 - East		REGION 5 DIVIDER
■	REGION 3 - BREMSS	■	REGION 5 - South Southeast
■	REGION 4 - West	■	REGION 6 - Gulf
■	FLORIDA	■	TENNESSEE



STROKE CENTER LEVEL	
●	Level I
●	Level II
●	Level III



Goals

- Primary Goal: To get lytic eligible patients with ischemic stroke to a center that can and will safely administer TPA when appropriate
- Secondary Goal: Facilitate transfers of stroke patients (both ischemic and hemorrhagic) when needed

Ground Rules

- Voluntary for hospitals, mandatory for EMS
- Patients identified by FAST Scale with allowance for EMSP Discretion
- Patient choice may override system IF patient is “competent to decide”
- Hospitals self-report availability in real time (red/yellow/green)



LifeTrac - Version 3.6.0.1996-2006 by LifeTrac Technologies LHM Highlands - Status

System: Trauma and Stroke System Runset Loc

System	T	S	C	ED-T	ED	ANES	OP	X-RAY	ICU	TS	SS	DS	NS	CF	SCU	Neuro	CAFO	CLAB
LHM Highlands	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Brookwood	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Caraway	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Children's	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
St. Vincent's East	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Providence	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Shelby	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
St. Vincent's Birmingham	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Treaty	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
LHM Medical West	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
University	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
VA (Shant)	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Walker	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Crestwood Med Center	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Cullman Regional	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Huntsville Hospital	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Helicopters:

Buttons: Change Status, Direct Patients, Shutdown

Bottom status: Last Contacted 04/09/2008 13:08:20

iTRAKpro

Workstation Display

Trauma/Stroke Emergency Resources Display																		
Level																		
Hospital	T	S	C	ED-T	ED	ANES	OR	X-RAY	TICU	TS	OS	NS	CT	SICU	NEURO	CCU	CARD	Clab
A	1	1																
B	3	2																
C	3	2																
D	2	1																
E	1	2																
F	2	3																

Numbers are color-coded: Green for available, yellow for resource unavailable (but still accepting some patients), red for not available.
 Hospital abbreviations are automatically color-coded for on-line status: Green for active, yellow for resource unavailable (but still accepting some patients)

Alabama Trauma Communications Center



Data Collection

- Paper form received by FAX in ED
- Paper form returned by FAX/email to communications center
- Patients identified by unique system generated number—NO NAMES

Stroke Patient Report



TCC ID: 88948
Report Date: 01/09/2013
Report Time: 09:15:31

Hospital: University of Alabama Hospital
System: Birmingham Region

5

Date/Time Last Updated : 10/27/2012 15:22:46	Transport Mode : Ground-Ambulance
Originating User Id : GJordan	Est. Departure Time :
1st Responder : RPS - St. Clair	Est. Arrival Time :
Transport Provider : RPS - St. Clair	
County of Incident : St. Clair	
Initial Contact Date/Time : 09/12/2012 17:18:46	Selected Hospital Status : Green
Age : 55 Gender : Male	Override : No
Contact Method : Phone	Hospital Selected by : Patient
Location : Ashville, RPS 603	
Incident Time : 09/12/2012 16:37:40	
Unit Dispatch Time : 09/12/2012 16:37:40	
Unit Arrived Scene Time : 09/12/2012 16:56:41	
Departed Scene Time : 09/12/2012 17:03:41	

Vitals / Medical History:

AVPU : Alert	<input type="checkbox"/> Hypertension
Estimated Time of Onset : 09/12/2012	<input type="checkbox"/> TIA
BP : 90 to 150	<input type="checkbox"/> Past Stroke
Resp : 16	<input type="checkbox"/> Birth Control Pills
Glucometer Reading : 60-299	<input type="checkbox"/> Past Head Injury
	<input type="checkbox"/> Family History

System Entry Criteria:

Level of Consciousness : Spontaneous arousal with sustained behavior
Visual Function : No deficit to visual threat
Facial Movements : Any lateralization
Arm/Leg Movements : Arm or leg weaker than contralateral
Language and Speech : Abnormal articulation or language content
Scale Total : 6.00 **GSS** : 15

BREMSS Patient Follow-up:		Hospital to Complete and FAX to 205.934.2621	
CT Performed -	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Stroke -	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If yes -	<input type="checkbox"/> Hemorrhagic	<input checked="" type="checkbox"/> Ischemic	
If Ischemic - TPA -	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Patient Admitted -	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
If Admitted -	<input checked="" type="checkbox"/> SICU	<input type="checkbox"/> Floor	
Outcome Alive -	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

*** Please do not place patient name on this report. ***

Regional Comparison

	Region A	Region B
Population	217 persons/sq mile	80 persons/sq mile
Design	Single tier with neurologist readily available	3-tiered with lower levels utilizing phone/telemed
Triage tool	Cincinnati stroke scale +EMS discretion	Cincinnati stroke scale +EMS discretion
Communication	ATCC	ATCC
Stroke Hospitals	11	15 (4 Level II, 11 Level III)

Outcomes

	Region A	Region B	P value
Patients	684	878	
Data Reports	461	533	
Accuracy	54.2%	40.7%	p<0.001
Hemorrhagic	20.9%	27.5%	p=0.19
TPA	18.7%	16.9%	p=0.78
Adverse Events	0	0	

Cost

- Central Communications Center
- Computer Workstation in Each Hospital
- ADPH Staff
- Regional Staff
- Site Visits/Travel
- NO \$\$ to hospitals
- NO \$\$ for robust data system such as GWTG

Current Challenges

- Telemedicine vs Telephone
- Some ED physicians still resistant to giving TPA
- Keep the neurosurgeons happy
- Statewide implementation

Pitfalls to Watch For

- Be inclusive in planning
- Legislative comfort
- Think through all the things could go wrong
- Consequences for Noncompliance
- Don't skimp on your education efforts
- Face time and relationships are priceless
- Struggling hospitals