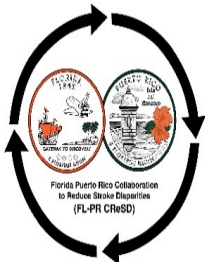


# Taming the Stroke Registries

Quality Improvement Through  
Collaboration and Innovation

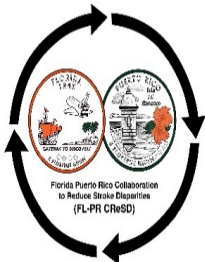
**Broward EMS Stroke Coalition**

**Peter Antevy**



# Disclosures

- One important one



# The Question

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- Which hospital deserves to receive this patient?

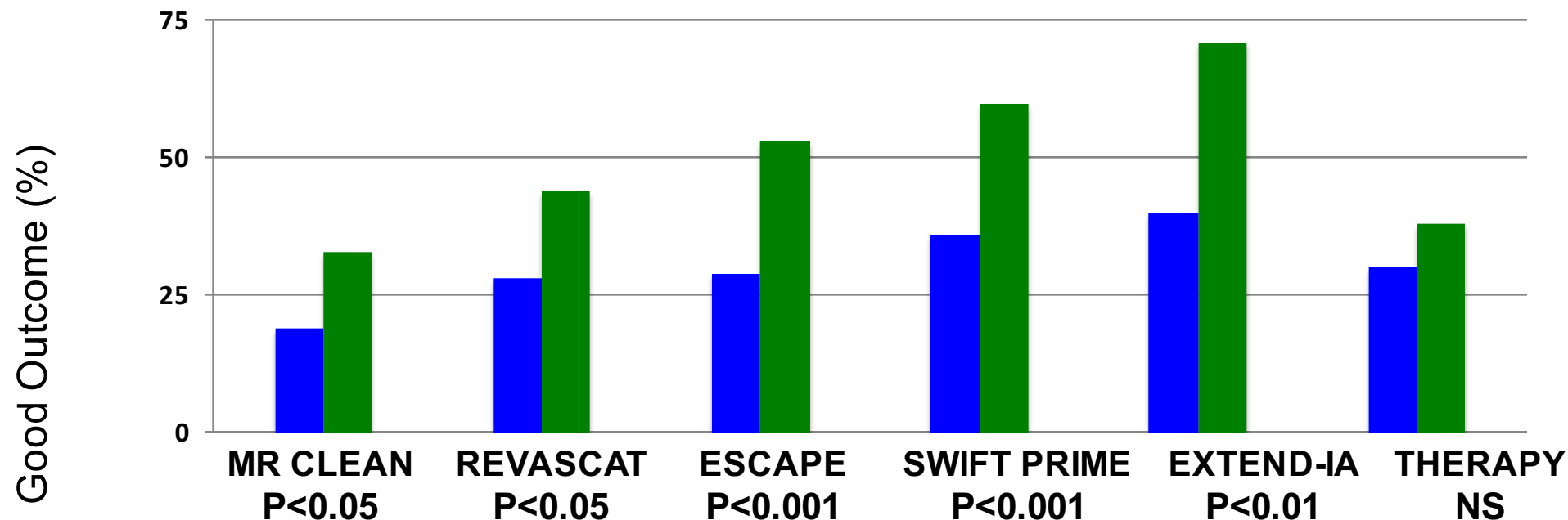
PSC



CSC



# Positive Endovascular Stroke Trials 2015



**Endo-vascular**

**33%**

**44%**

**53%**

**60%**

**71%**

**38%**

**Control**

**19%**

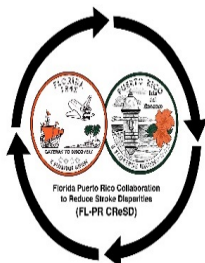
**28%**

**29%**

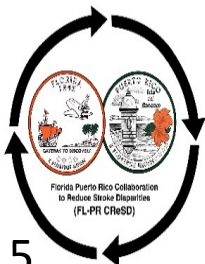
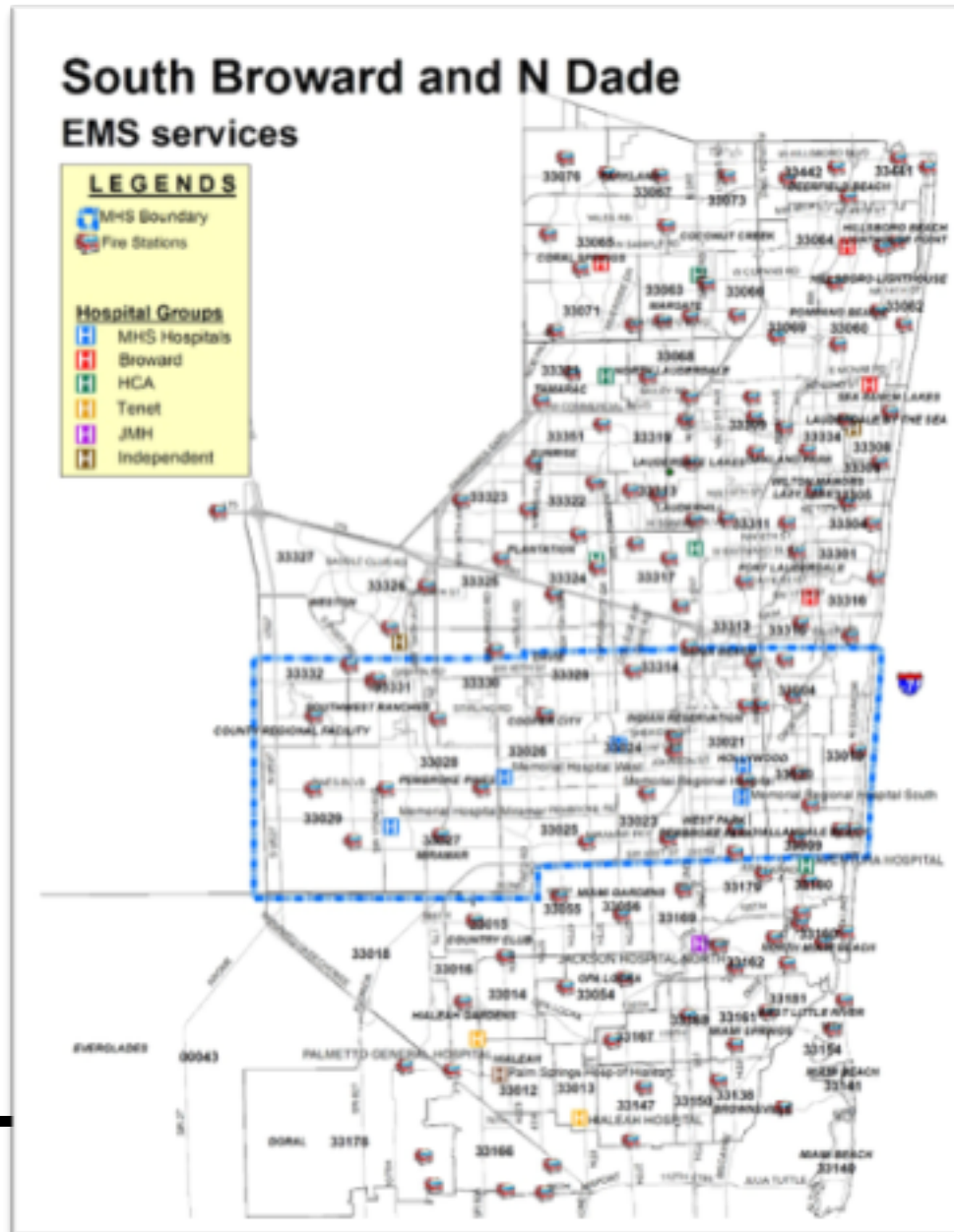
**36%**

**40%**

**30%**

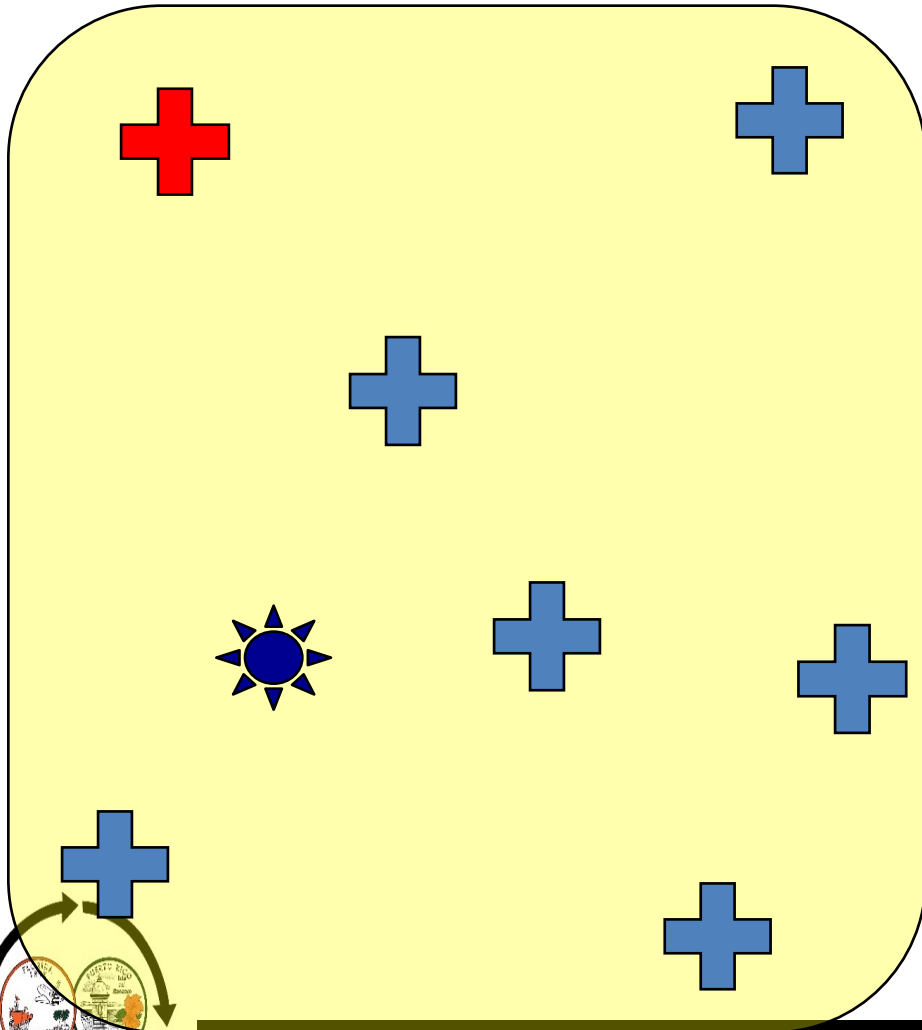


# EMS and Hospital Landscape

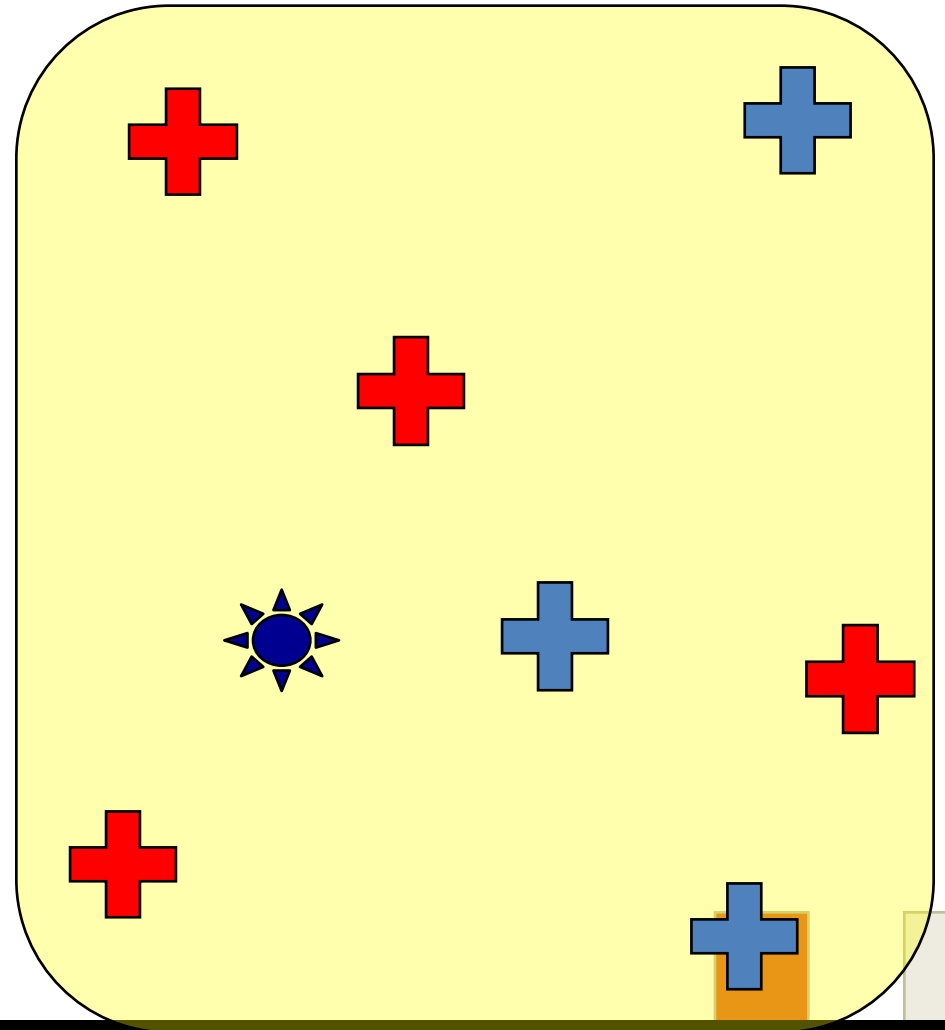


# EMS Stroke Triage in Modern Era

Rural United States



South Florida

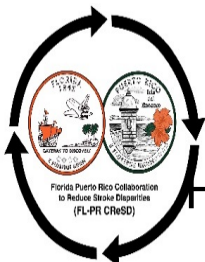


# PSC vs CSC?

**Unless there are compelling mitigating circumstances, when there are several acceptable hospitals (ASRH, PSC, CSC) in a well-defined geographic region, extra transportation times to reach another facility should be limited to no more than 15 to 20 minutes.** When sev-

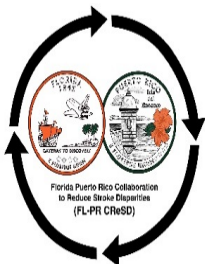
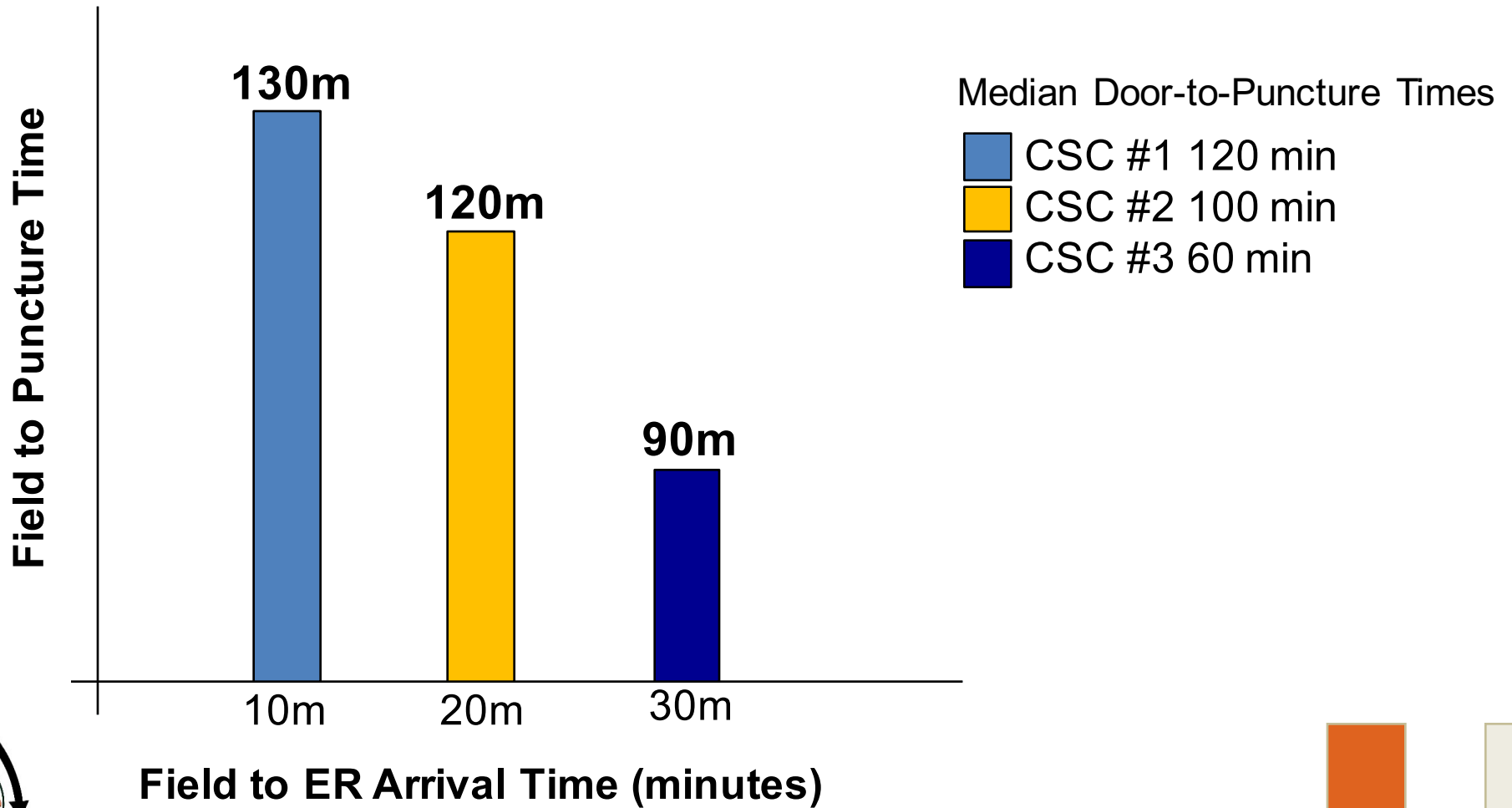
eral hospital options exist, EMS should seek care at the facility capable of offering the highest level of stroke care. This is based in part on concerns that although a patient may initially appear to be appropriate for PSC-level care, they might deteriorate and need transfer to a CSC, which would lead to further treatment delays.

- a. Protocols that include prehospital EMS notification that a stroke patient is en route should be used routinely.**



# EMS Nomogram for Triage to CSCs

## Triage Based on Distance + In-Hospital Process



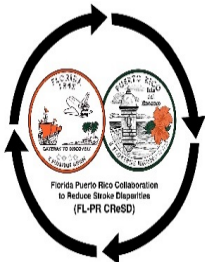


# Collaboration

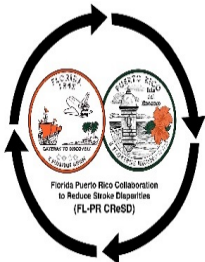
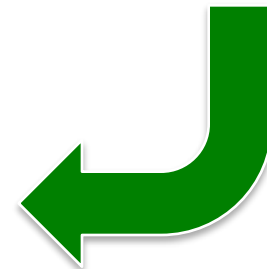
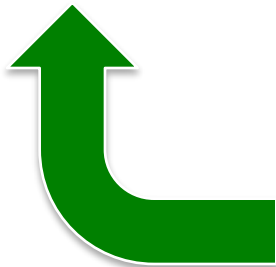
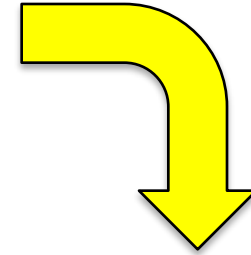
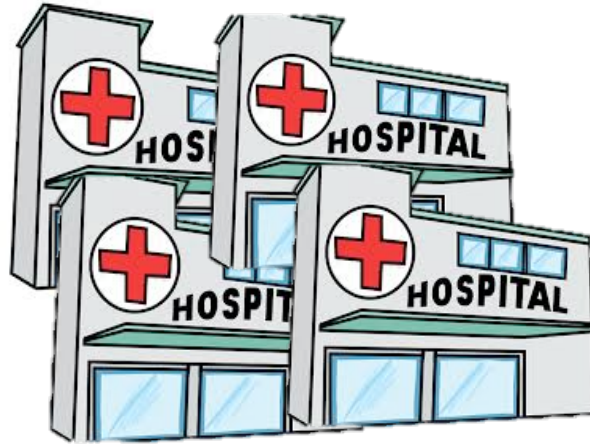
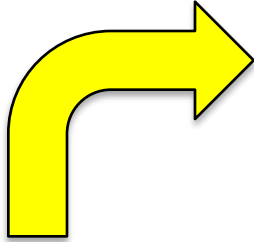
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1. EMS Agencies
2. Hospital Systems
3. AHA/ASA – GWTG

**Florida-Puerto Rico  
Registry**



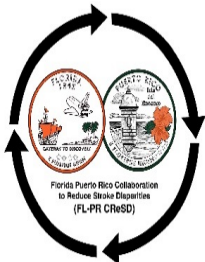
# Collaboration



# FL-PR Registry

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- Evaluates disparities in stroke care amongst different groups:
  - Gender
  - Race
- NIH Funded (until 2018)



# FL-PR Registry Team – NIH Funded

## Core A: Administrative Core



## Consultants:



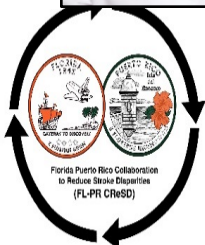
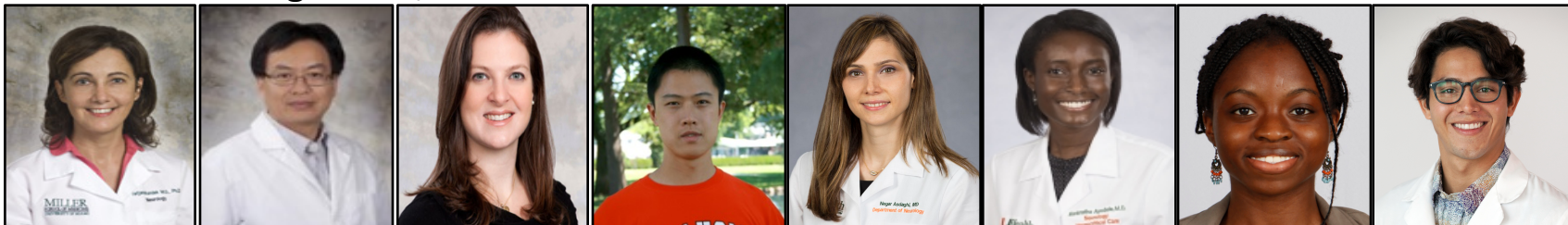
## Core B: Research/Education Training Plan Core



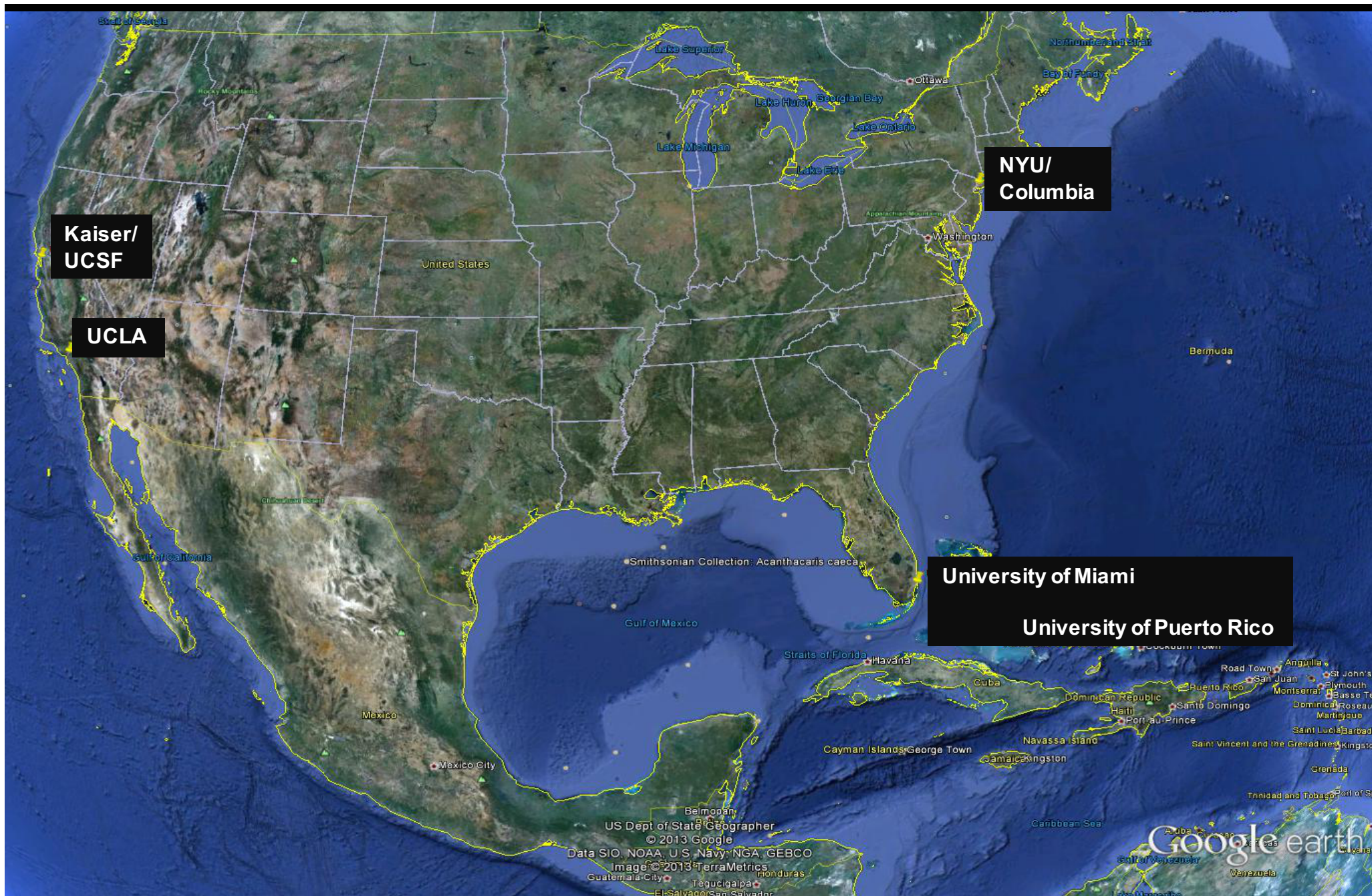
## AHA Staff:

Dianne Foster  
Rhoda Saunders  
Kay Johnson  
Kathy Fenelon  
Sandra Diaz-Acosta  
Jeffrey Walker

## Core C: Data Management/ Biostatistics Core



# NINDS Stroke Prevention Intervention Research Program (SPIRP) Centers

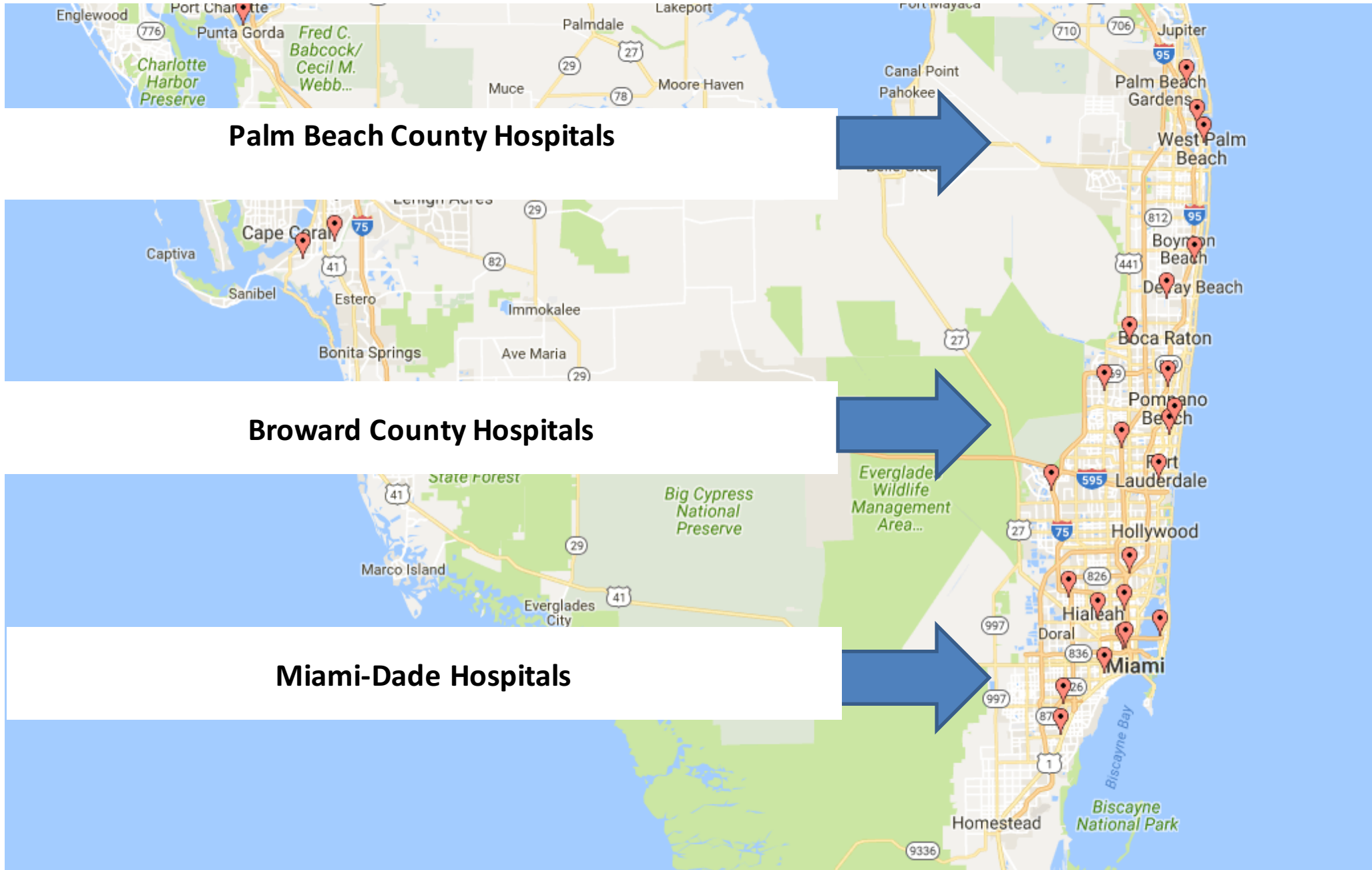


# FL-PR Stroke Participating Hospitals in the Tri-County Area

## Palm Beach County Hospitals

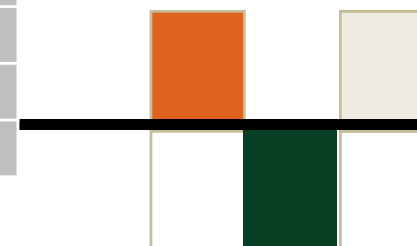
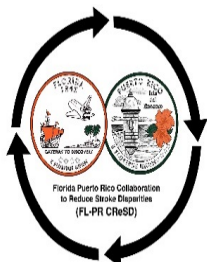
## Broward County Hospitals

## Miami-Dade Hospitals



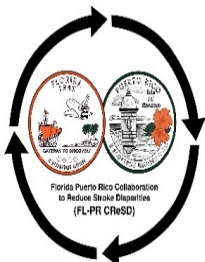
# Tri-County Hospitals Not Participating in the FL-PR Stroke Registry/GWTG-S

GWTG-S /Not in Registry	County
<b>Boca Raton Regional Hospital</b>	<b>Palm Beach</b>
Jupiter Medical Center	Palm Beach
Wellington Regional Medical Center	Palm Beach
West Palm Hospital (Columbia Hospital)	Palm Beach
Memorial Hospital Miramar	Broward
Memorial Hospital Pembroke	Broward
<b>Memorial Hospital West</b>	<b>Broward</b>
Northwest Medical Center	Broward
Plantation General Hospital	Broward
University Hospital & Medical Center	Broward
<b>Aventura Hospital</b>	<b>Miami-Dade</b>
<b>Kendall Regional Medical Center</b>	<b>Miami-Dade</b>
Mercy Hospital	Miami-Dade
Veterans Affairs Medical Center	Miami-Dade
Not in GWTG-S	County
Broward Health Imperial Point	Broward
<b>Westside Regional Medical Center</b>	<b>Broward</b>
Bethesda Memorial Hospital	Palm Beach
<b>JFK Medical Center</b>	<b>Palm Beach</b>



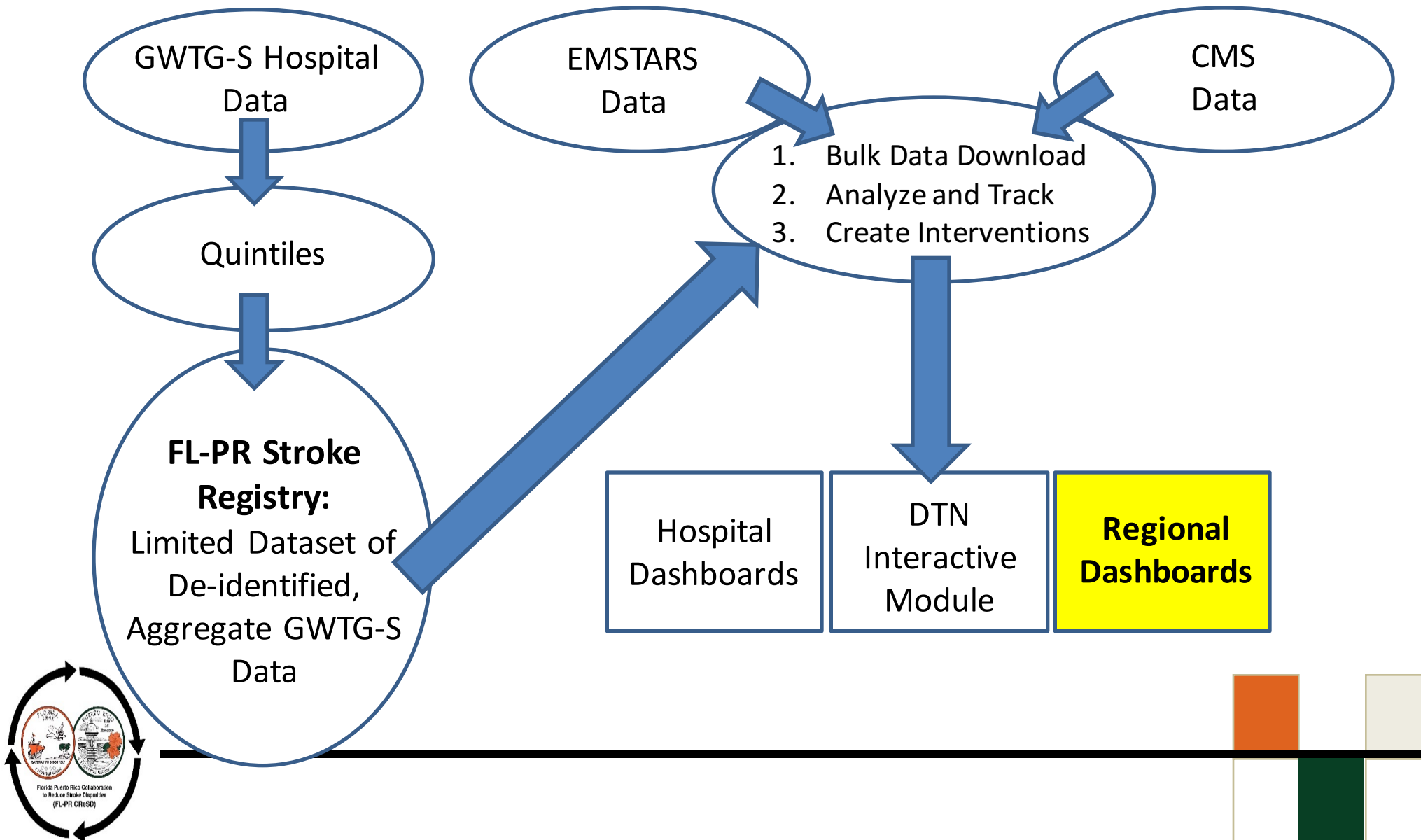
# Hospitals Participating in the Registry

GWTG-S /In Registry	County
Boca Raton Regional Hospital	Palm Beach
Jupiter Medical Center	Palm Beach
Wellington Regional Medical Center	Palm Beach
West Palm Hospital (Columbia Hospital)	Palm Beach
Memorial Hospital Miramar	Broward
Memorial Hospital Pembroke	Broward
Memorial Hospital West	Broward
Northwest Medical Center	Broward
Plantation General Hospital	Broward
University Hospital & Medical Center	Broward
Aventura Hospital	Miami-Dade
Kendall Regional Medical Center	Miami-Dade
Mercy Hospital	Miami-Dade
Veterans Affairs Medical Center	Miami-Dade
Broward Health Imperial Point	Broward
Westside Regional Medical Center	Broward
Bethesda Memorial Hospital	Palm Beach
JFK Medical Center	Palm Beach





# FL-PR Registry Data Receipt and Use Flowchart



# FL-PR Registry Measured Outcomes

PSC Core Measures



## 7 GWTG- S Predefined Performance Measures

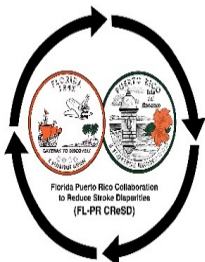
- 1) IV t-PA 2 Hour
  - 2) Early Antithrombotics (2 days)
  - 3) VTE Prophylaxis
  - 4) Antithrombotics at discharge
  - 5) Anticoagulation for AF at discharge
  - 6) LDL <100 or ND-Statin
  - 7) Smoking Cessation Counseling
- ❖ **Defect-Free Care Measure**

## Treatment Performance Metrics

- Door to CT w/in 25 min
- tPA Arrive by 3.5hrs, treat by 4.5 hrs
- Door to Needle Time w/in 60 and 45 min

## Outcome Metrics

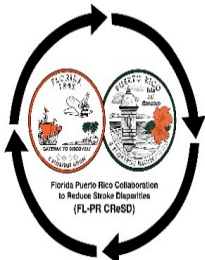
- In-Hospital Overall Mortality
- Ambulatory Status at Discharge
- Modified Rankin Score
- Discharge Disposition



# CSC Core Measures

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1. CSTK-01: National Institutes of Health Stroke Scale (NIHSS Score Performed for Ischemic Stroke Patients)
2. CSTK-02: Modified Rankin Score (mRS at 90 Days)
3. CSTK-03: Severity Measurement Performed for SAH and ICH Patients (Overall Rate)
4. CSTK-04: Procoagulant Reversal Agent Initiation for Intracerebral Hemorrhage (ICH)
5. CSTK-05: Hemorrhagic Transformation (Overall Rate)
6. CSTK-06: Nimodipine Treatment Administered
7. CSTK-07: Median Time to Revascularization
8. CSTK-08: Thrombolysis in Cerebral Infarction (TICI Post-Treatment Reperfusion Grade)



# BPB Regional Dashboards – Requested Elements Crosswalk

Data Element	Dataset
Symptom onset / Last know well time	*GWTG-S PMT
911 call	EMSTARS
Stroke location nearest intersection	EMSTARS (We have “Incident Zip Code”)
Scene Arrival	GWTG-S PMT
RACE score	Not available
Scene Departure	EMSTARS
Hospital Door	GWTG-S PMT
NIHSS – several time points available	GWTG-S PMT and CSC Tab
Door to Needle	GWTG-S PMT
90 day mRS	**GWTG-S CSC Tab
Door to Needle	Derived from GWTG-S PMT
Door to CT	Derived from GWTG-S PMT
% IV tPA Overall for ISC	Derived from GWTG-S PMT
% IA tPA Overall for ISC	Derived from GWTG-S PMT and/or CSC Tab
% symptomatic ICH for All	Derived from GWTG-S PMT and CSC Tab
Door to Groin	Derived from GWTG-S CSC Tab
Door to IA tPA	Derived from GWTG-S CSC Tab
Door to Device (1 <sup>st</sup> Pass)	Derived from GWTG-S CSC Tab
Door to Revascularization (Same as 1 <sup>st</sup> Pass in GWTG)	†Derived from GWTG-S CSC Tab (see below)
Door to Recanalization OR Door to Reperfusion	ΔSee notes below
TICI score	GWTG-S CSC Tab
% patients not transported by EMS – IV tPA	Derived from GWTG-S PMT
% patients w/ no EMS pre-notification – IV tPA	Derived from GWTG-S PMT
% EMS Stroke Pre- alerts patients without RACE – IV tPA	Not available
% patients not transported by EMS – IA tPA	Derived from GWTG-S PMT and/or CSC Tab
% patients w/ no EMS pre-notification – IA tPA	Derived from GWTG-S PMT and/or CSC Tab
% EMS Stroke Pre- alerts patients without RACE – IA tPA	Not available
Run Number/Sequence	Could be the identifier used to link EMSTARS and GWTG-S EMS Tab

\***GWTG-S PMT** = Get With The Guidelines-Stroke Patient Management Tool

\*\***GWTG-S CSC Tab** = Get With The Guidelines-Stroke Comprehensive Stroke Center Tab

† **Joint Commission CSTK-07 Measure** defines **Median Time to Revascularization** as: “Time (in min) from hospital arrival to the start of an IA tPA infusion or the 1<sup>st</sup> pass of a mechanical reperfusion device in patients with AIS who undergo revascularization therapy”

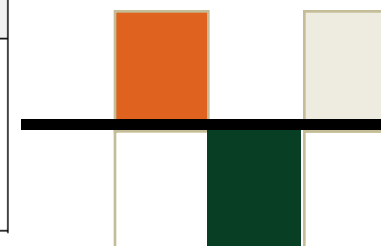
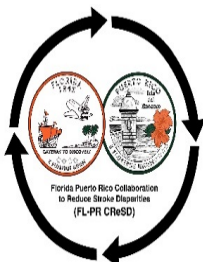
Δ - There are no discrete variables for: “Recanalization or Reperfusion Time” or “TICI Time” documented in GWTG-S

# GWTG EMS Special Initiatives Tab

Additional EMS data elements

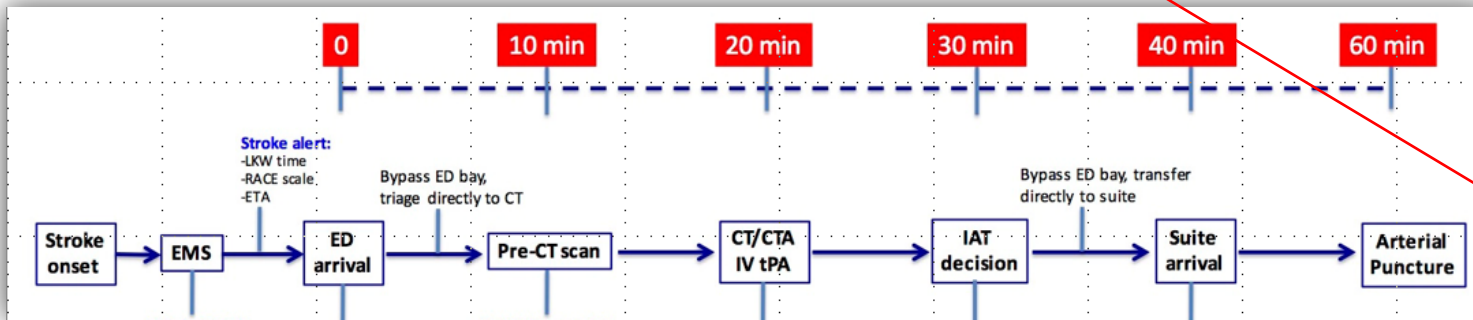
Oct 2012

<b>Patient ID:</b>		
Patient care record available at time of patient arrival?	<input type="radio"/> Yes <input type="radio"/> No/ND	
Patient care record available at a later time during hospitalization?	<input type="radio"/> Yes <input type="radio"/> No/ND	
<b>EMS agency name or number</b>	_____ <input type="checkbox"/> Unknown	
<b>Run/Sequence number</b>	_____ <input type="checkbox"/> Unknown	
Date/Time call received by responding EMS agency:	__/__/____ __:____ <input type="checkbox"/> MM/DD/YYYY only <input type="checkbox"/> Unknown	
Dispatched as suspected stroke?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not documented	
Arrival at scene by EMS responding agency, Date/Time:	__/__/____ __:____ <input type="checkbox"/> MM/DD/YYYY only <input type="checkbox"/> Unknown	
Blood Glucose level (mg/dL):	_____ <input type="radio"/> Not Documented <input type="radio"/> Glucometer Not Available	Blood Glucose value <input type="radio"/> Too High <input type="radio"/> Too Low
Date/Time patient last known to be well as documented by EMS:	__/__/____ __:____ <input type="checkbox"/> MM/DD/YYYY only <input type="checkbox"/> Unknown	
Date/Time of discovery of stroke symptoms as documented by EMS:	__/__/____ __:____ <input type="checkbox"/> MM/DD/YYYY only <input type="checkbox"/> Unknown	
Pre-hospital stroke screen performed?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not documented	
Suspected stroke?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not documented	
Was a Thrombolytic Checklist used?	<input type="radio"/> Yes <input type="radio"/> No/ND	
How was destination decision made?	<input type="radio"/> Directed to designated stroke center by protocol <input type="radio"/> Directed to nearest facility by protocol <input type="radio"/> Patient/Family choice <input type="radio"/> Online Medical Direction <input type="radio"/> Closest facility <input type="radio"/> Other _____ <input type="radio"/> Unknown/Not Documented	

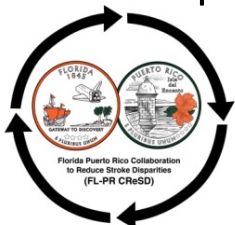
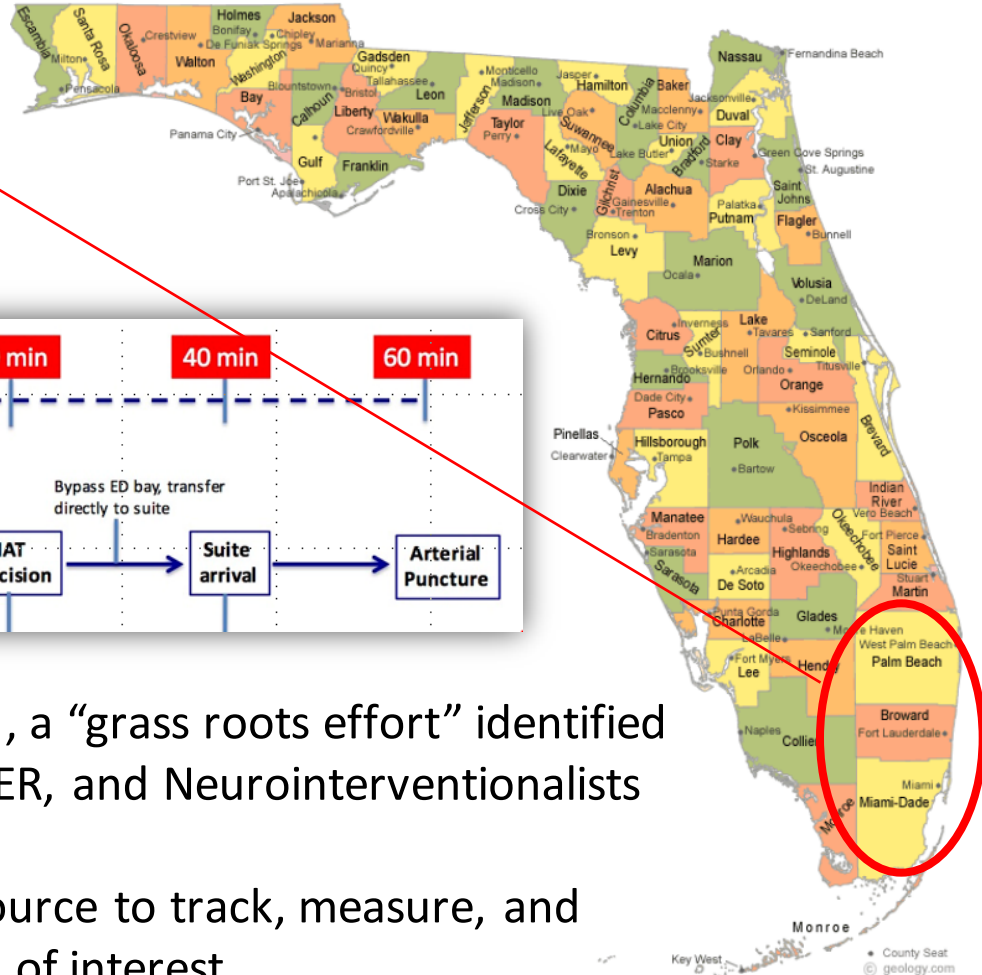


# FL-PR CReSD Interventions- Regional Disparities Dashboards

- Broward and Palm Beach  
Neurointerventionalist seeking to improve stroke care through endovascular stroke therapies

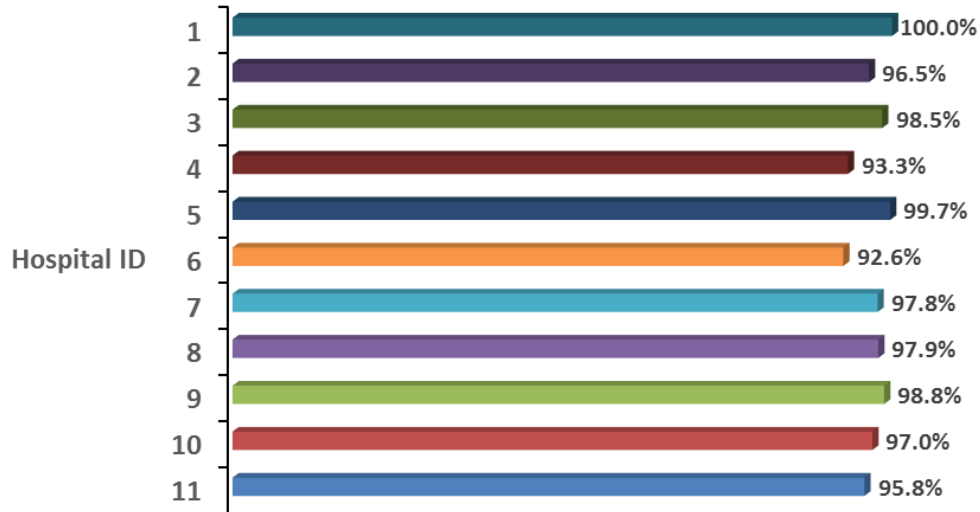


- The Broward EMS Stroke Coalition (BESC) , a “grass roots effort” identified the need for collaboration between EMS,ER, and Neurointerventionalists
- BESC defined the Registry as the best resource to track, measure, and improve each of the performance metrics of interest

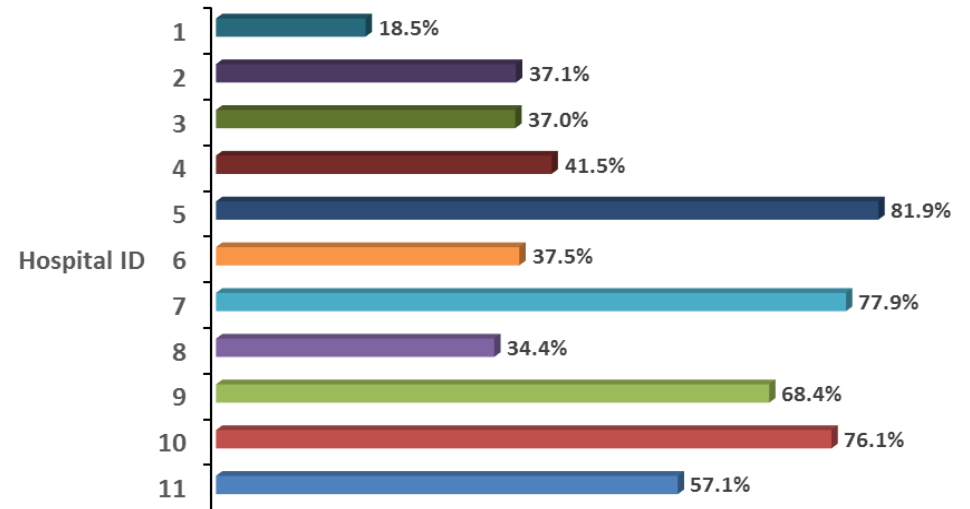


# Sample Regional Dashboard

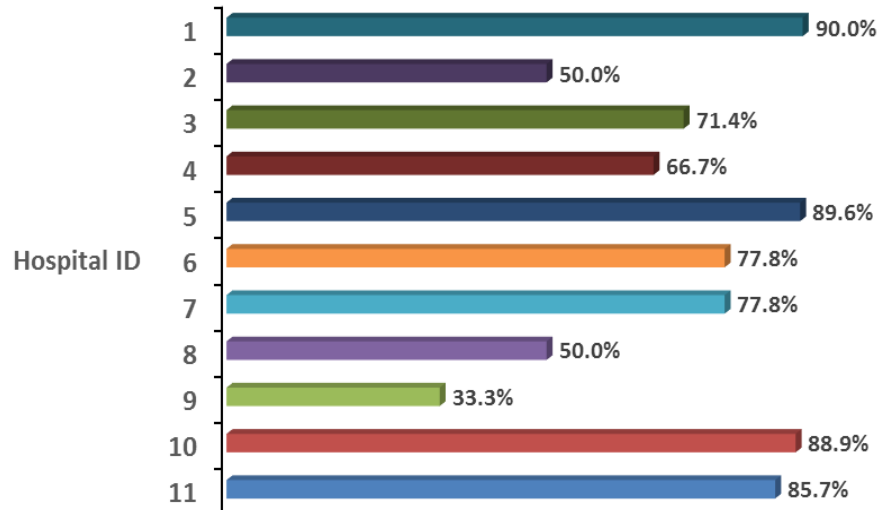
## Defect Free Care



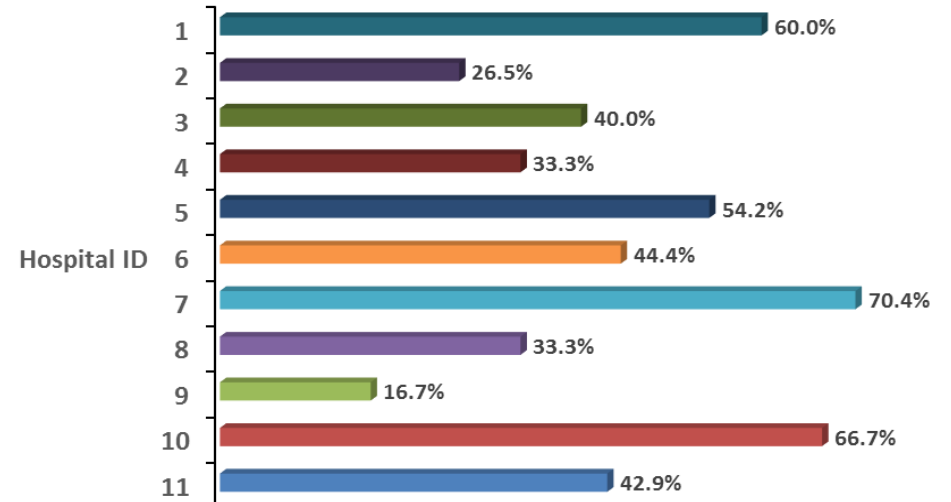
## Door to CT Time within 25 minutes



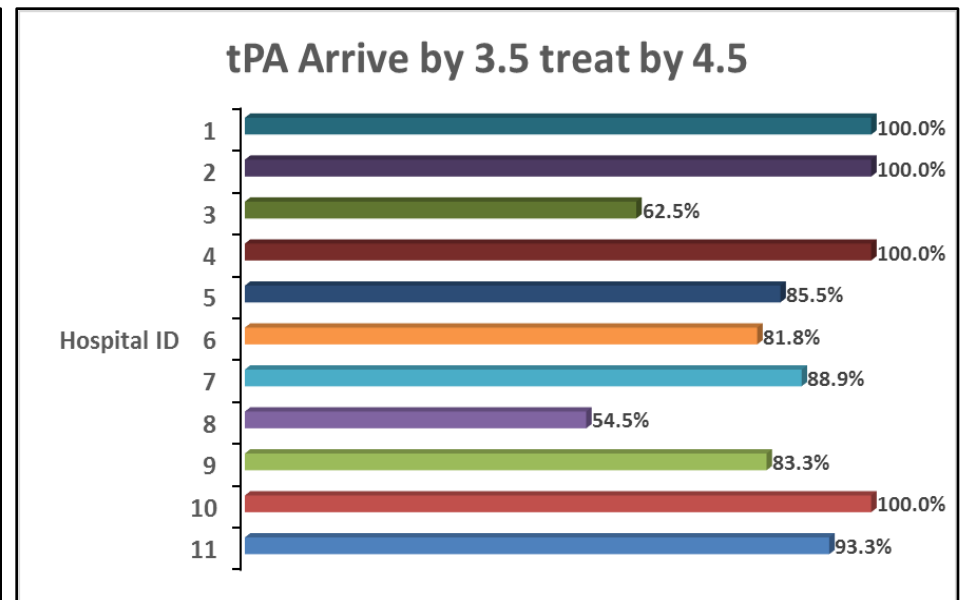
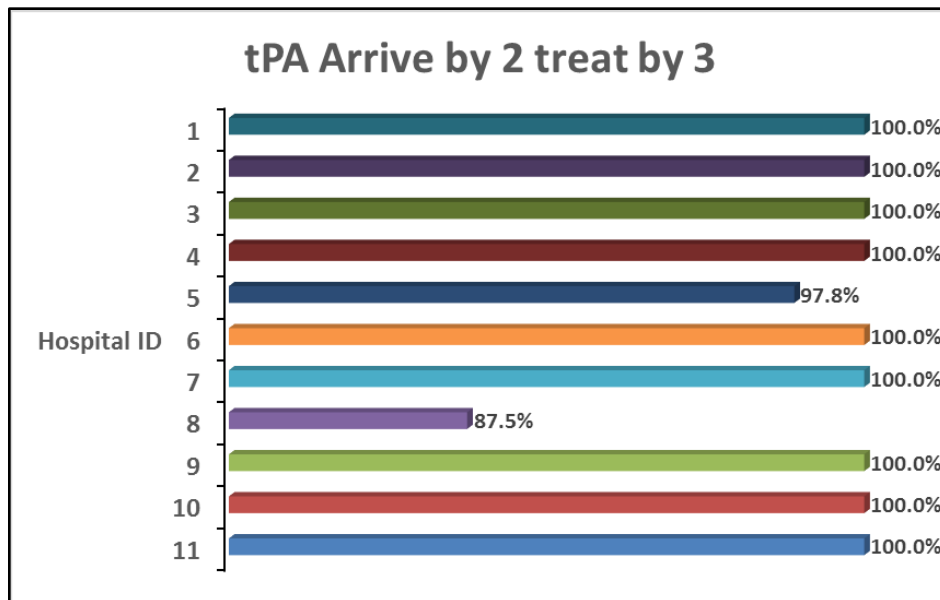
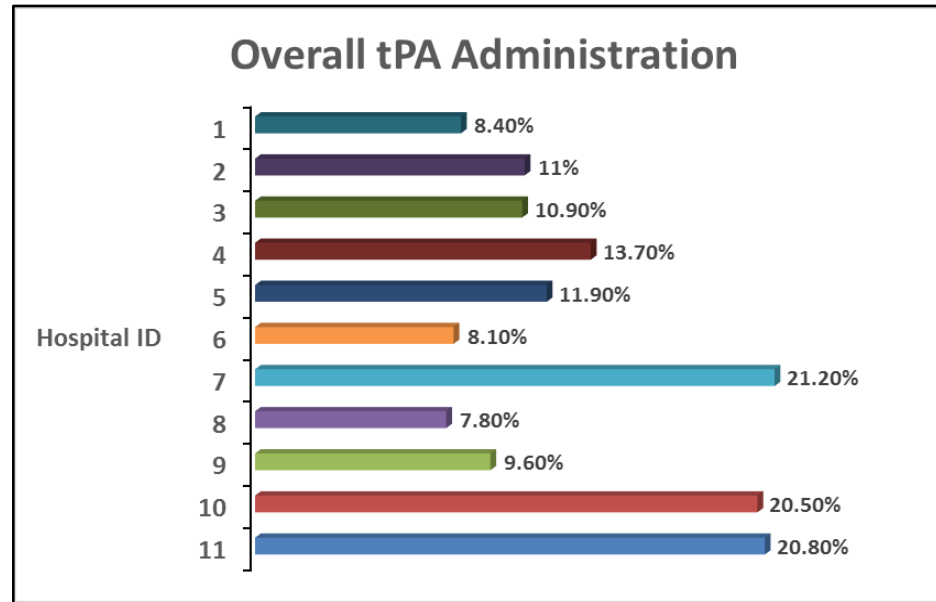
## Door to Needle Time within 60 minutes



## Door to Needle Time within 45 minutes



# Sample Regional Dashboard

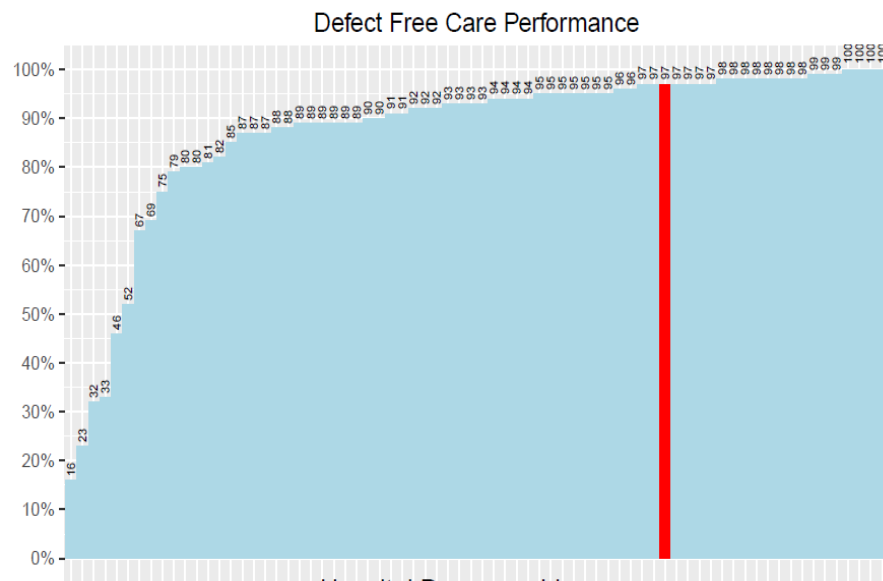




# WHAT THE HOSPITALS SEE

## Self-Tracking Tool

Based on your overall “Defect Free Care” performance, your hospital ranked **54th** among **70** participating hospitals in the **FL-PR Stroke Registry in 2015**



Hospital Demographics:

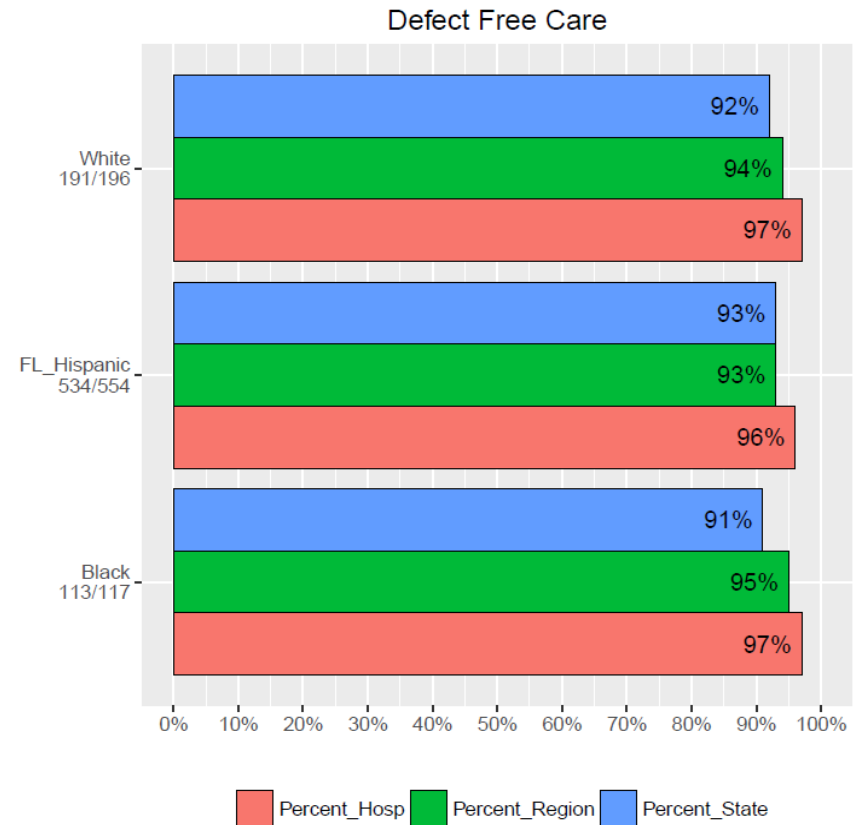
Hospital ID 12345 Total Ischemic Strokes:  
1035 of 16832 Total Ischemic Strokes in the FL-PR Stroke Registry

Hospital ID 12345 Strokes by Race-Ethnicity:

Non-Hispanic Black: 141 ( 14 %)

Non-Hispanic White: 228 ( 22 %)

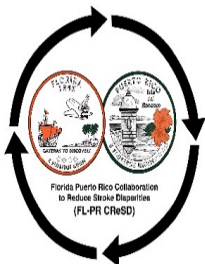
Hispanic: 666 ( 64 %)



# 5 Rights of Stroke Destination

---

- Which hospital deserves to receive this patient?
  - Right Patient
  - Right Scale
  - Right Hospital
  - Right Process
  - Right NOW



# 5 Rights of Stroke Destination

---

- Which hospital deserves to receive this patient?
  - Right Patient
  - Right Scale
  - **Right Hospital**
  - **Right Process**
  - Right NOW



# How to Join the FL-PR Stroke Registry

## Hospital Requirements:

1. Be an actively participating GWTG-S Hospital

## To Begin Formal Registry Participation:

1. Contact Registry Project Manager: Maria Ciliberti, MPH
2. Sign contract addendum to your existing GWTG-S Participating Hospital Agreement (PHA)

### AMENDMENT TO THE PARTICIPATING HOSPITAL AGREEMENT

#### Instructions for completing the Amendment

1. Print out **two (2)** copies of the Amendment to the Participating Hospital Agreement (Amendment).
2. Fill in your hospital's information and sign the Amendment.
3. Mail **two (2)** copies the signed Amendment to:  
Quintiles - Outcome, Attn: AHA/ASA Program, 201 Broadway, Cambridge, MA 02139
4. Quintiles will return a copy of the fully-executed Amendment to your hospital's primary contact person designated below:

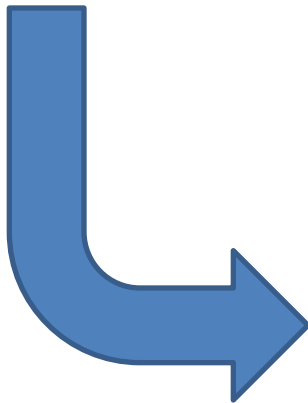
#### **Hospital Primary Contact Person:**

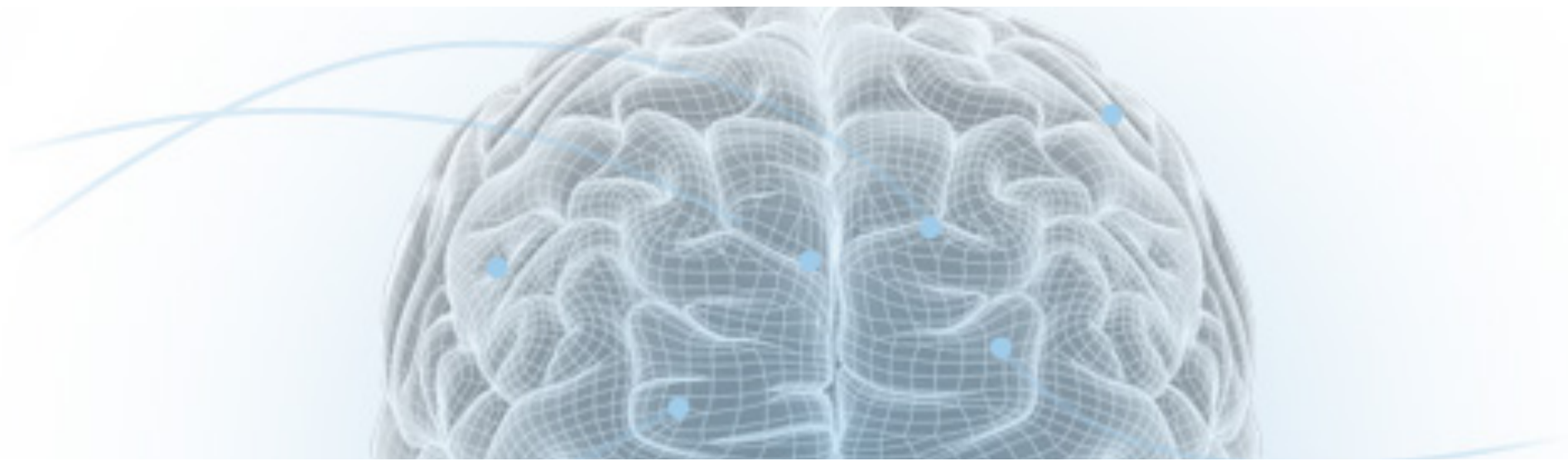
Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Hospital: \_\_\_\_\_

Address: \_\_\_\_\_





# Taming the Stroke Registries

Quality Improvement Through  
Collaboration and Innovation

**Broward EMS Stroke Coalition**

**Peter Antevy**

