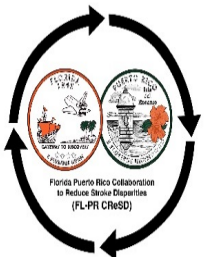


# Numbering Our Blessings

Data-Driven Improvements in Stroke Care  
(Florida Registry)

**Broward EMS Stroke Coalition**

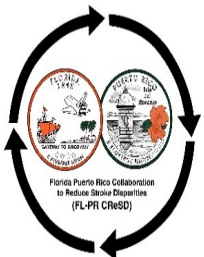
**Peter Antevy MD**



# Questions to Consider?

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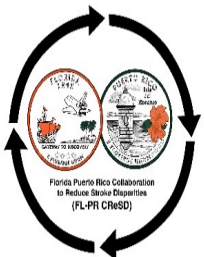
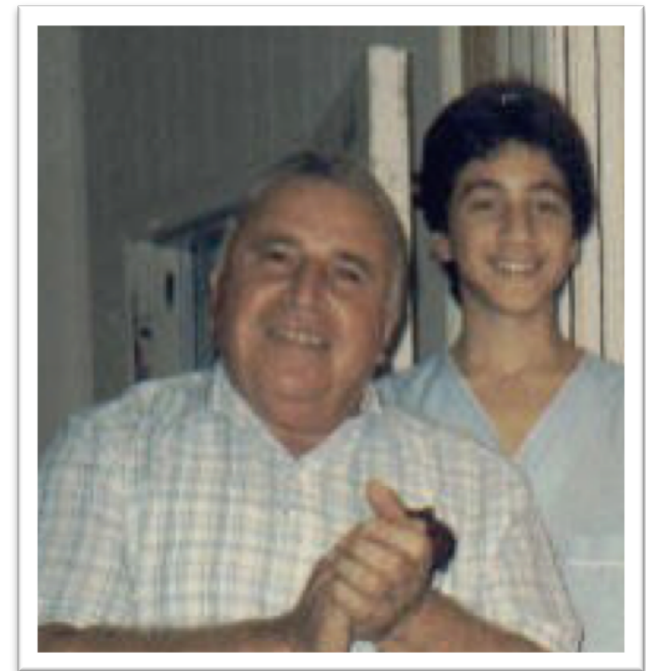
- Who two entities can make the biggest impact in stroke outcomes?
- How can you get your hospital's stroke data outcomes (sans humans)?



# 5 Rights of Stroke Destination

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

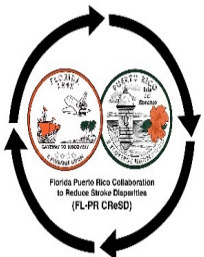


# A New Type of Stroke Center

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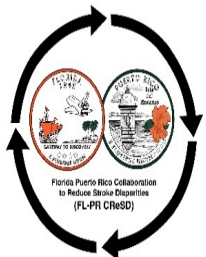
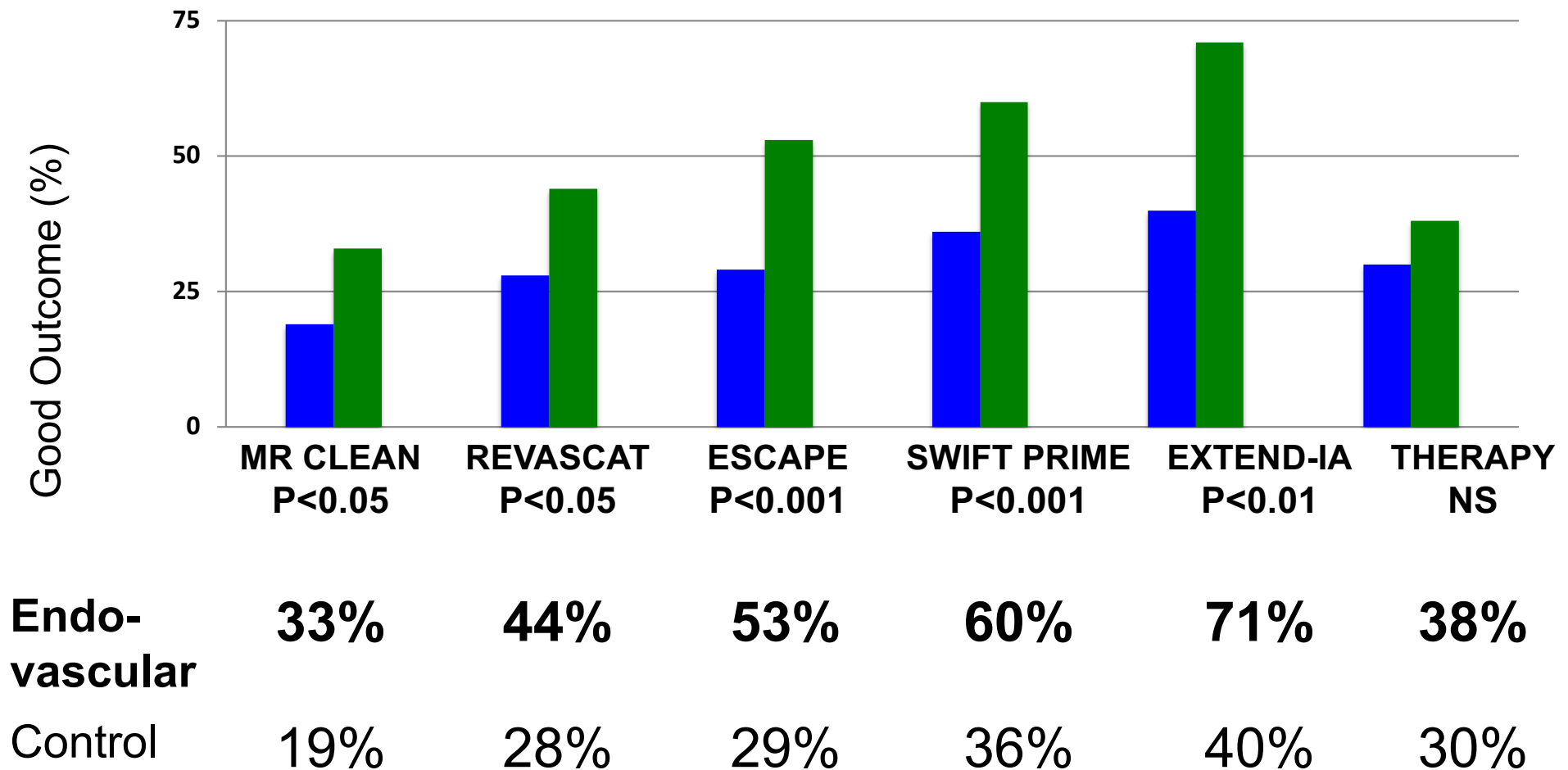
1. Primary Stroke Center (PSC)
2. Comprehensive Stroke Center (CSC)

**3. Thrombectomy Stroke Center (TSC)**



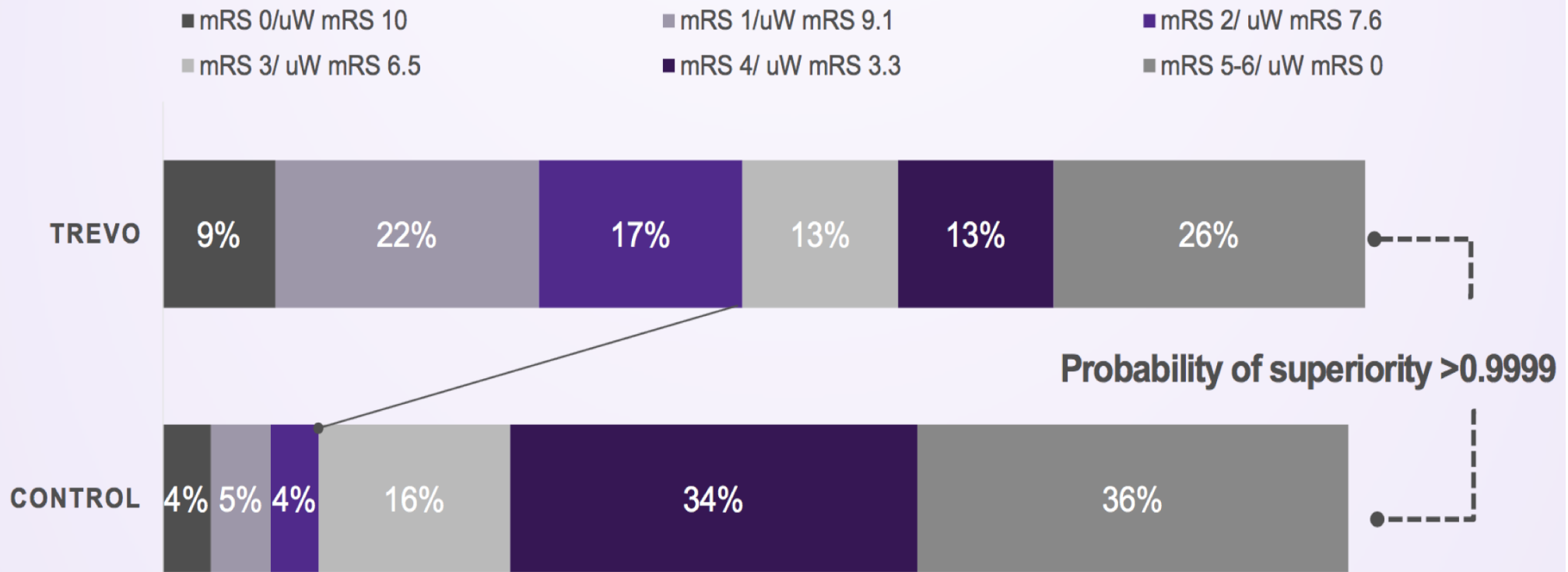


# Positive Endovascular Stroke Trials 2015



# Wake Up Strokes / Unknown Onset Time

## Primary outcome



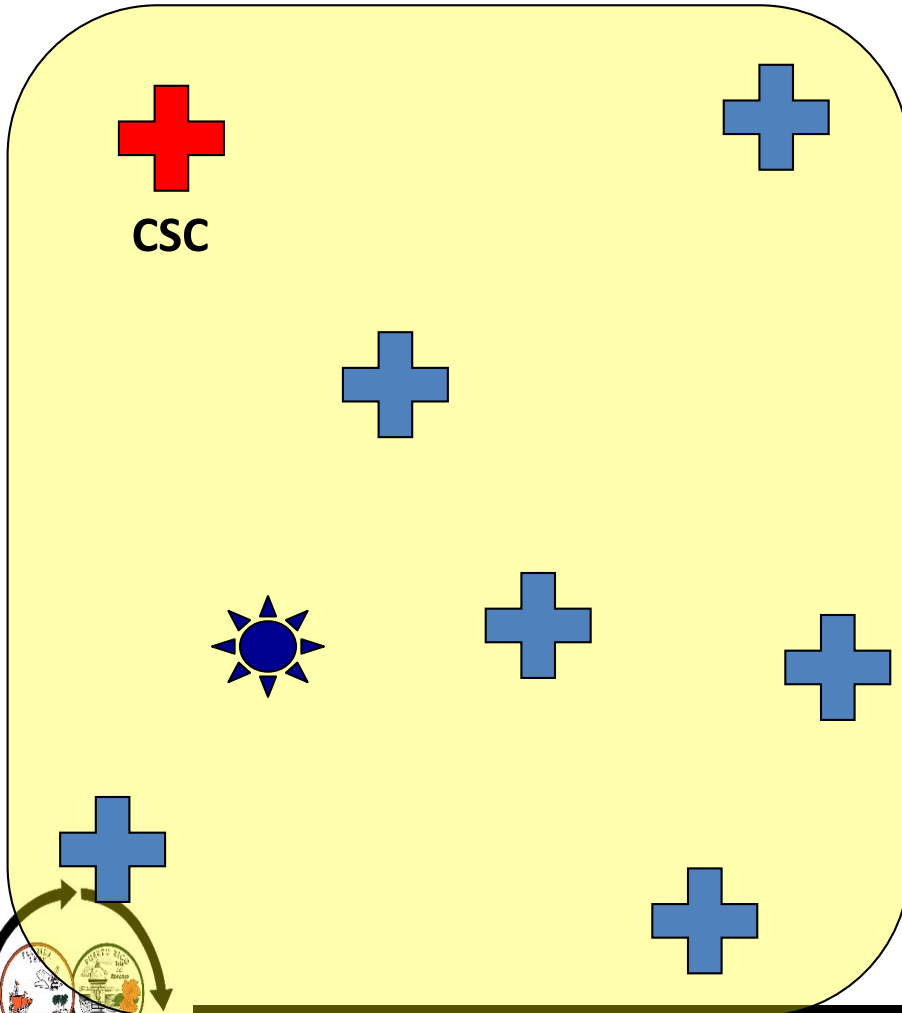
**73% relative risk reduction of dependency in ADL's  
NNT for any lower disability 2.0**

Nogueira et al. ESOC 2017.

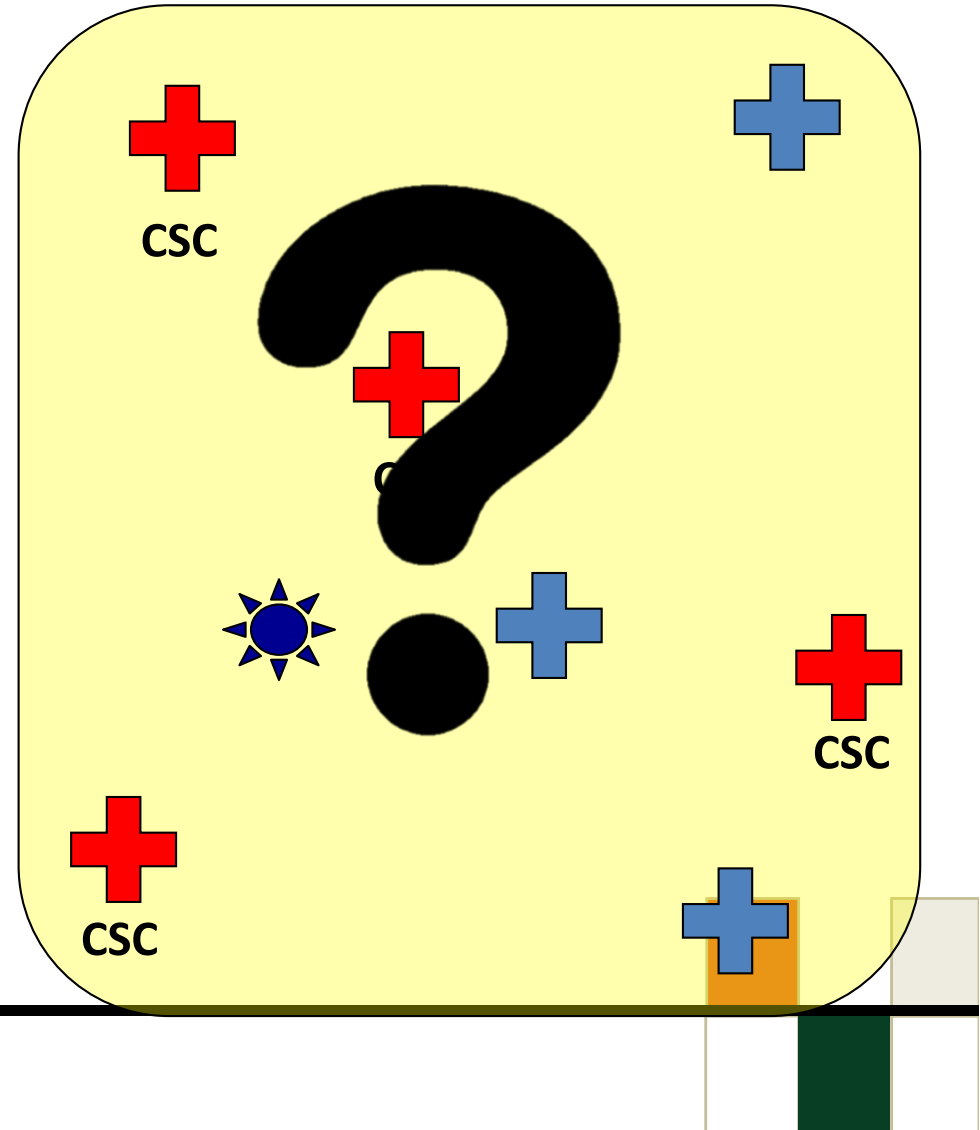


# EMS Stroke Triage in Modern Era

Rural United States



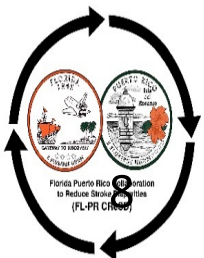
South Florida



# Certification Matters

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- How are PSC's Certified?
  - **73.8% JC, 3.7% DNV, 1.2% HFAP, 21.3% State**
- **State-based centers underperformed Joint Commission hospitals**
  - tPA administration rates
  - Door-to-needle times
  - In-hospital mortality



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Man et al. Hospital Certification,  
Measures, and Outcomes. Stroke 2017.



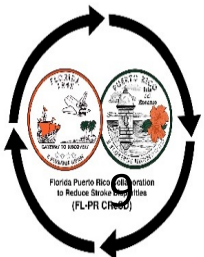
# Is Onsite Visit Required?

## For State-level certification (Attestation)

- **Yes**
  - Massachusetts Department of Health
  - New York Department of Health
- **No**
  - Maryland Institute for Emergency Medical Services
  - Georgia Department of Public Health
  - Texas Department of State Health Services
  - **Florida Agency for Health Care Administration**
  - Oklahoma State Department of Health
  - Connecticut Department of Public Health



**2019**



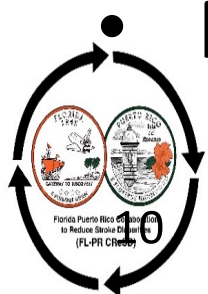
Man et al. Hospital Certification,  
Measures, and Outcomes. Stroke 2017.



# Information on Stroke Care Difficult to Find

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- Get With The Guidelines
- Target Stroke Honor Roll
- Joint Commission
- State Certifying Organizations
- Mission Lifeline



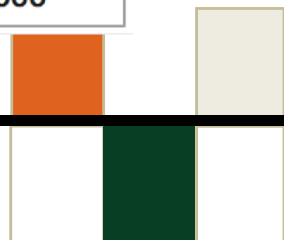
# Higher Volume of CSC Matters

**Table 2. Comparison of Demographics and Outcome of Low-, Medium-, and High-Volume Centers**

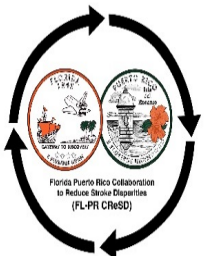
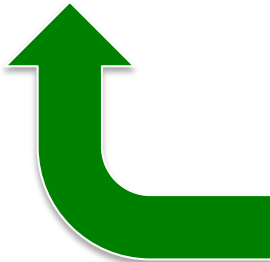
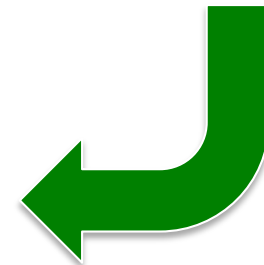
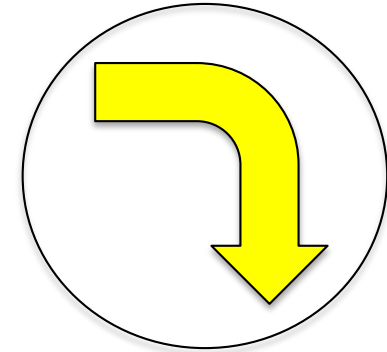
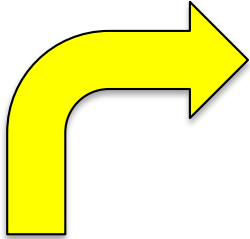
Variable	Low	Medium	High	P Value
Age ≥65, % (SD)	58.1 (18.0)	61.9 (8.7)	63.1 (8.6)	0.274
Female, % (SD)	49.4 (16.2)	48.7 (7.4)	50.4 (4.7)	0.849
Transfers, % (SD)	23.4 (24.3)	38.4 (24.3)	51.3 (25.8)	0.004
<b>Volume</b> (SD)	<b>1015</b>	<b>1699</b>	<b>2632</b>	<0.001
% endovascular, mean (SD)	1.9 (1.3)	4.8 (2.2)	8.9 (4.9)	<0.001
tPA, % (SD)	42.8 (19.8)	34.8 (15.0)	26.4 (13.0)	0.011
tPA among all strokes, % (SD)	6.8 (2.4)	6.7 (3.2)	6.1 (3.4)	0.804
Hemorrhage rate, % (SD)	18.2 (12.0)	18.0 (7.1)	18.2 (4.5)	0.924
<b>Mortality</b>	<b>19.7%</b>	<b>14.9%</b>	<b>9.8%</b>	0.003
Mortality index (SD)	1.5 (0.9)	1.1 (0.5)	0.8 (0.3)	0.004
Discharge to home, % (SD)	16.1 (11.5)	16.9 (6.5)	21.5 (6.7)	0.155
Discharge to SNF, % (SD)	21.6 (12.5)	19.5 (8.4)	21.4 (8.0)	0.566



Rinaldo et al. Stroke 2017.



# Florida Stroke Registry

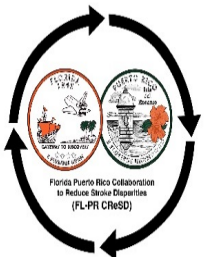




# Florida Stroke Registry

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- Signed into law 2018
- Requires hospital participation in a Stroke Registry



# FL Registry Measured Outcomes

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## General Performance Measures

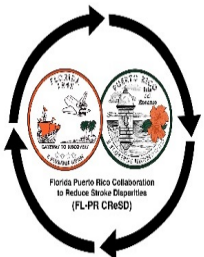
1. Percent IV tPA Overall
2. Median DTN among those receiving IV tPA
3. Percent mRS 0-2 at discharge if received IV tPA
4. Percent mRS 0-2 at 90 days if received IV tPA
5. Percent symptomatic ICH after IV tPA
6. Percent symptomatic ICH 36 hr after IV tPA

## Endovascular Performance Measures

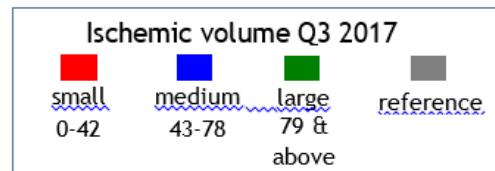
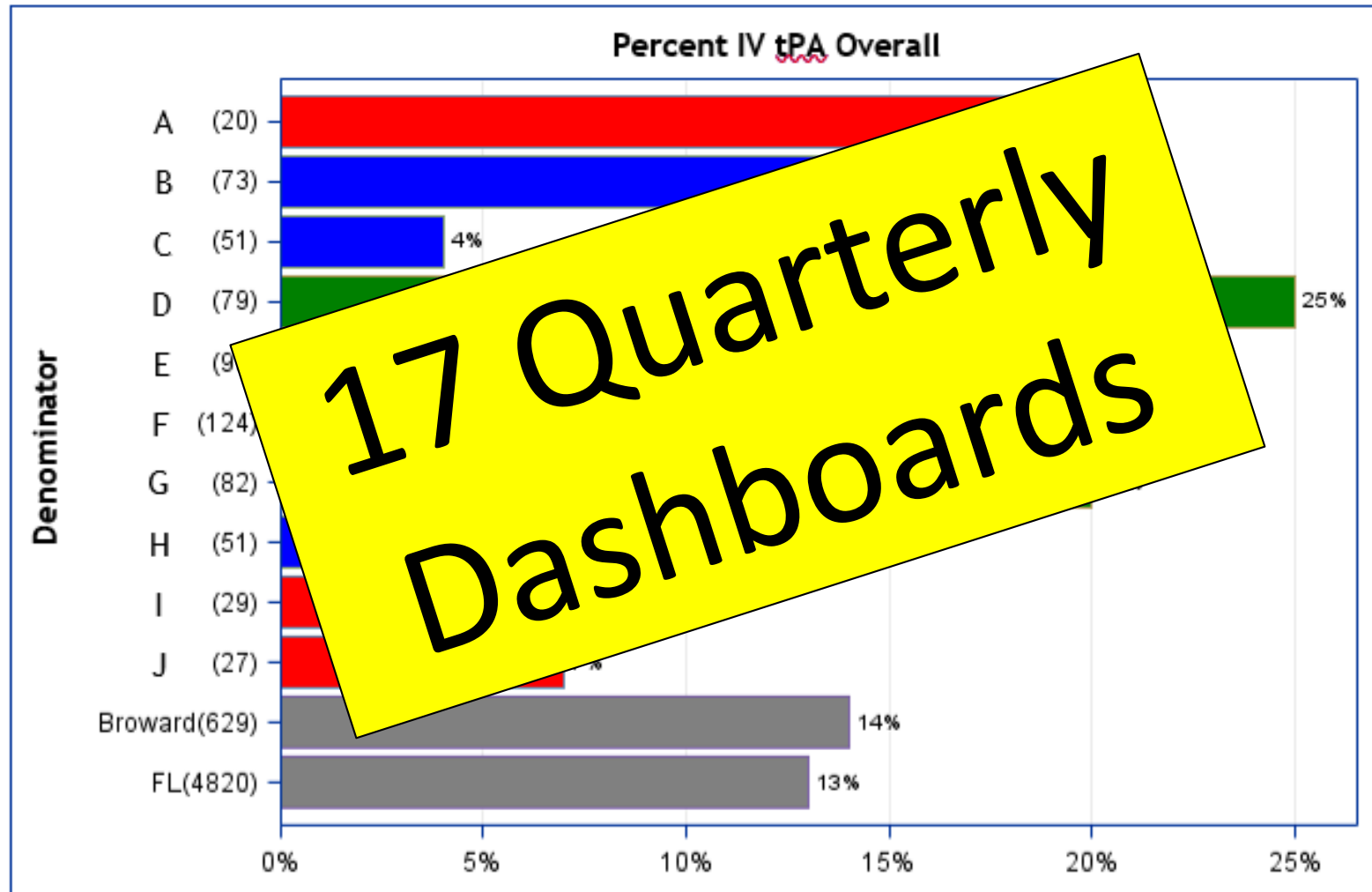
1. Percent thrombectomy if arrive < 24 hr
2. Percent thrombectomy if arrive < 6 hr
3. Percent thrombectomy overall
4. Median DTG if received EVT
5. Median DTG if arrive < 6 hr & received EVT

## Endovascular Performance Measures

6. Median DTG if b/w 6-24hr & received EVT
7. Percent mRS 0-2 at d/c if received EVT
8. Percent mRS 0-2 at 90 days if received EVT
9. Percent symptomatic ICH after IA tPA or EVT

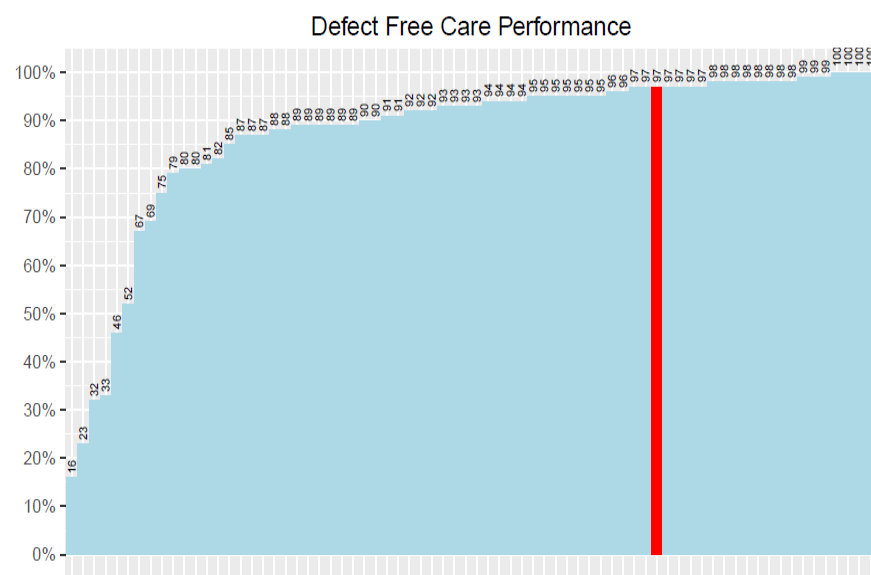


# [SAMPLE] Percent IV tPA Overall



# What The Hospitals See

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:

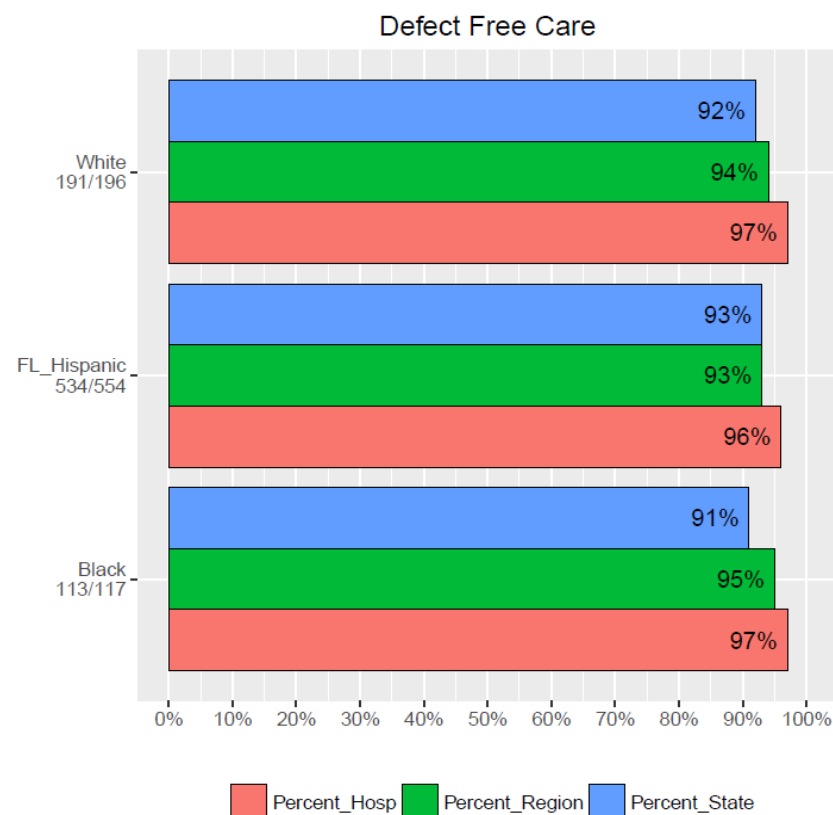
1035 of 16832 Total Ischemic Strokes in the FL-PR Stroke Registry

Hospital ID 12345 Strokes by Race-Ethnicity:

Non-Hispanic Black: 141 ( 14 %)

Non-Hispanic White: 228 ( 22 %)

Hispanic: 666 ( 64 %)



# 2 Most Important Entities

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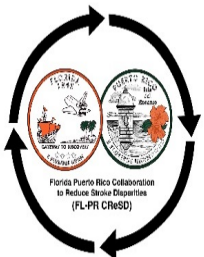
EMS

+

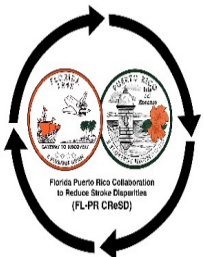
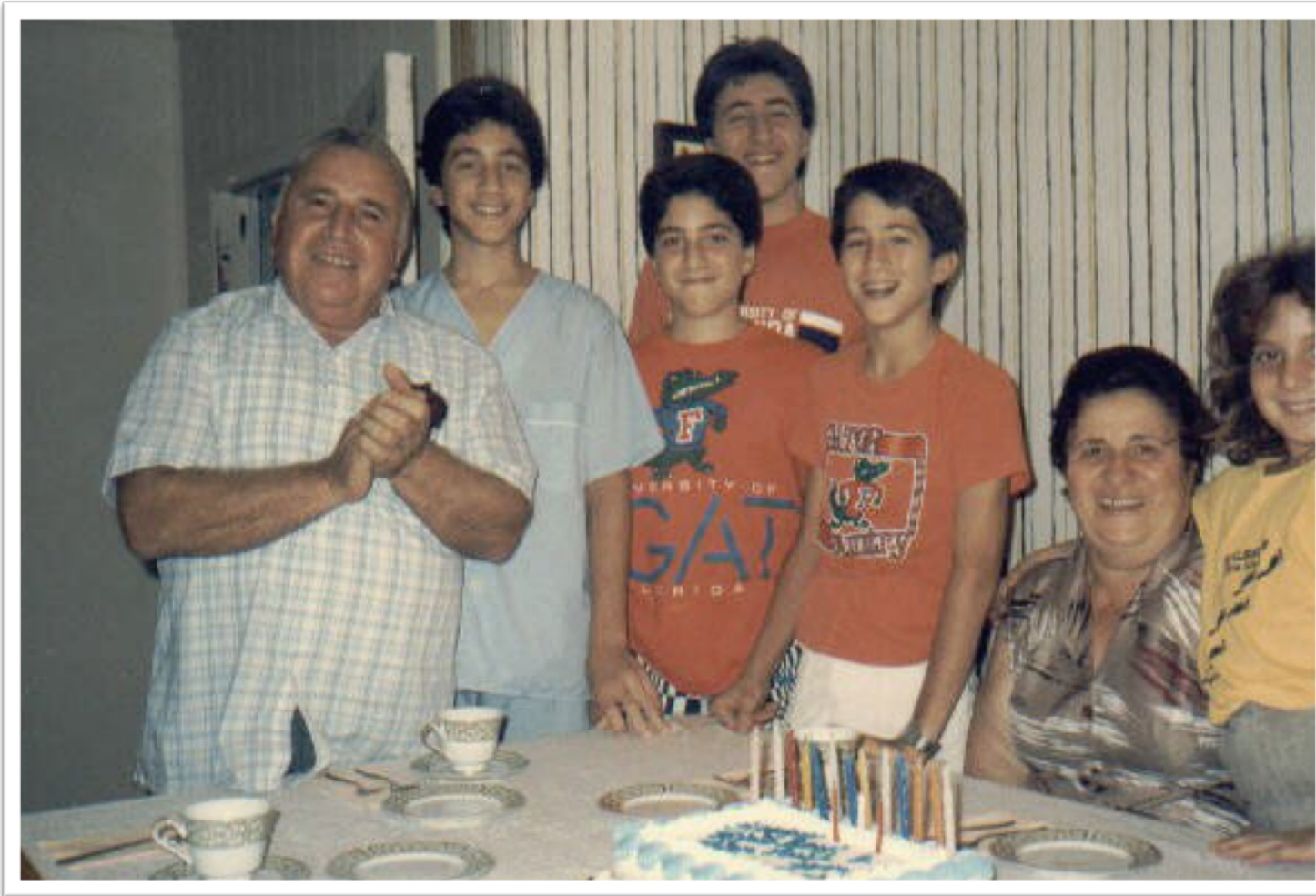
NI

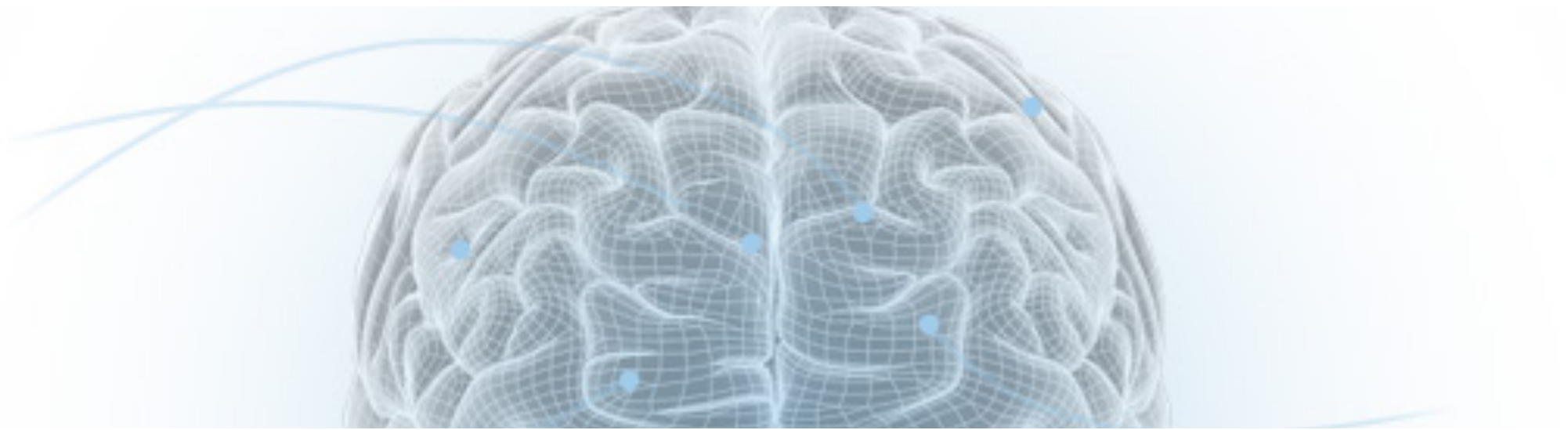


## Start a Conversation



# What's in a Name?





# Taming the Stroke Registries

Quality Improvement Through  
Collaboration and Innovation

**Broward EMS Stroke Coalition**

**Peter Antevy MD**

