Introduction
Types of Clinical Research

<table>
<thead>
<tr>
<th>Types of Clinical Research</th>
<th>Retrospective Reviews</th>
<th>Prospective Studies</th>
<th>Clinical Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>Observational</td>
<td>Observational or Interventional</td>
<td>To test safety and efficacy of a new drug, device, or treatment</td>
</tr>
<tr>
<td><strong>Principal Investigator (PI)</strong></td>
<td>Doctor, nurse, scientist, or other staff</td>
<td>Doctor, nurse, scientist, or other staff</td>
<td>Doctor (usually)</td>
</tr>
<tr>
<td><strong>Funding Source</strong></td>
<td>None</td>
<td>None or Grants</td>
<td>Pharmaceutical or device companies, grants</td>
</tr>
<tr>
<td><strong>Data Collection</strong></td>
<td>In the past</td>
<td>Current/ongoing</td>
<td>Current/ongoing</td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>Small to very large</td>
<td>Small to moderate</td>
<td>Moderate to very large</td>
</tr>
<tr>
<td><strong>IRB Approval</strong></td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>Informed Consent</strong></td>
<td>May be waived</td>
<td>Required (cover letter or written)</td>
<td>Required (written)</td>
</tr>
<tr>
<td><strong>HIPAA Authorization</strong></td>
<td>May be waived</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>Risk to Benefit Ratio to Patient</strong></td>
<td>Minimal risk (confidentiality), benefit to others</td>
<td>Minimal risk to some risk, may have direct benefit to patient</td>
<td>Moderate to high risk, may have direct benefit to patient</td>
</tr>
</tbody>
</table>

Other Types of Research

- **Basic science research** – provides a foundation of knowledge for the applied science we use in medicine; often a source for new tools, models, and techniques
  - Laboratory or "bench" research – occurs in a lab, usually involves working with tissues or cells (in vitro)
  - Preclinical research – occurs in a lab and often involves working with animals (in vivo)

Other Types of Research

- **Population health research** – focused on the health outcomes of groups of individuals
  - Characterize, explain and/or influence the levels and distributions of health within and across populations
  - Addresses health outcomes, health determinants, and policies and interventions that link the two
  - Purpose to improve health and eliminate health disparities

Kindig & Stoddart, 2003
Other Types of Research

- Social/behavioral research – study of people’s or animals’ responses to certain stimuli (external and internal)
  - Conducted by the following academic disciplines: sociology, psychology, anthropology, economics, political science, history
  - Often uses interviews or questionnaires to collect data
  - Observational or interventional

BHSF Stroke Research

- Ischemic Stroke
- Intracerebral Hemorrhagic Stroke
- Subarachnoid Hemorrhage and Aneurysms
- Carotid Occlusions
**Modified Rankin Scale (mRS)**

Commonly used scale to measure degree of disability or dependence in daily activities of people who suffered a stroke.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms at all</td>
</tr>
<tr>
<td>1</td>
<td>No significant disability despite having symptoms; able to carry out all usual duties and activities</td>
</tr>
<tr>
<td>2</td>
<td>Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance</td>
</tr>
<tr>
<td>3</td>
<td>Marked disability; unable to walk without assistance; unable to attend to own bodily needs without assistance</td>
</tr>
<tr>
<td>4</td>
<td>Severe disability; bedridden; incontinent; requires constant nursing care and attention</td>
</tr>
<tr>
<td>5</td>
<td>Dead</td>
</tr>
</tbody>
</table>

Score 0-2 considered a "good" functional outcome.

Typical results in the medical literature is 33.54% of patients score 0-2 at 90 days post IV t-PA or mechanical reperfusion.

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**Table 1: Purpose of Presentation and Publications**

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<tr>
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<td>Acute Stroke</td>
<td>Expand prospective study to characterize clinical and patient outcomes associated with interventional neuroradiological procedures.</td>
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<td>DEFeroxamine trial</td>
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<td>Randomized controlled trial of new generation high-flow coils vs. bare Pt coils to treat aneurysms.</td>
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<tr>
<td>Intracerebral hemorrhage (ICH)</td>
<td>Surpass IntraNeuroEndoGraft™</td>
<td>To evaluate the rate of stroke/death 33-54% in patients treated with the Surpass IntraNeuroEndoGraft™ system for intracranial aneurysms.</td>
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<tr>
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**Score 0-2 considered a “good” functional outcome.**

Typical results in the medical literature is 33.54% of patients score 0-2 at 90 days post IV t-PA or mechanical reperfusion.
Depression and Stroke

Stroke Population

- Hispanic
- Non-Hispanic

- Depression
- No Depression

ID by reported Hispanic ethnicity, may be able to characterize further by Mexican, Puerto Rican, Cuban, or other

ID by previous hx of depression, and/or admitted on antidepressants, and/or discharged with antidepressants

Effects of Ethnicity, Depression, and Initial NIHSS on LOS

- Hispanic
- Non-Hispanic

- Prior depression
- No prior depression

- NIH-D < H-D = H-ND = NH-ND (3.7 d vs. 6.3-6.9 d; *p=0.06)
- Effect lost when NIHSS used as covariate

Effects of Ethnicity and Depression on Disposition

<table>
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<tr>
<th>Disposition</th>
<th>Prior depression</th>
<th>No prior depression</th>
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<tr>
<td>Home</td>
<td>12 (57%)</td>
<td>93 (53%)</td>
</tr>
<tr>
<td></td>
<td>6 (67%)</td>
<td>60 (62%)</td>
</tr>
<tr>
<td>Rehab</td>
<td>4 (19%)</td>
<td>37 (21%)</td>
</tr>
<tr>
<td></td>
<td>2 (22%)</td>
<td>15 (16%)</td>
</tr>
<tr>
<td>SNF</td>
<td>3 (14%)</td>
<td>18 (10%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>9 (9%)</td>
</tr>
<tr>
<td>Hospice</td>
<td>0 (0%)</td>
<td>8 (5%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>5 (5%)</td>
</tr>
<tr>
<td>Expired</td>
<td>1 (5%)</td>
<td>14 (8%)</td>
</tr>
<tr>
<td></td>
<td>1 (11%)</td>
<td>7 (7%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (5%)</td>
<td>4 (3%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>

- Of the 301 patients, 171 (57%) were discharged home
- Hispanic patients were less likely to be discharged home (54%) than non-Hispanic patients (62%), regardless of depression
- Results not statistically significant (p=0.16)
Of 279 patients that had a discharge mRS score, 98 (35%) had a good clinical outcome (mRS 0-2).

Only 25% of H-D patients had mRS 0-2 vs. 30-40% of patients in the other groups.

Results not statistically significant (p=0.16).

Next Steps

- Request use of the FL-PR Collaboration to Reduce Stroke Disparities database.

- Re-submit AHA/ASA Young Investigator Database Research Seed Grant proposal.

Intracerebral Hemorrhage Deferoxamine Trial (iDEF)

- Prospective, multi-center, double-blind, randomized, placebo-controlled, Phase II Trial.

ICH on plain CT w/in 24 h of symptom onset, ages 18-80.

Randomization

32 mg/kg/d x 3 d IV deeroxamine mesylate

3 d IV saline placebo

90-d mRS ≤ 2 SAEs

90-d mRS > 2 SAEs

90-d mRS > 2 SAEs

90-d mRS > 2 SAEs

180-d all-cause mortality
Screened ~40 patients August-October 2016
No candidates

Reasons for excluding patients – Aug-Oct 2016

Research Collaboratives
Research Collaboratives

- NIH StrokeNet Miami Regional Coordinating Center
- Florida-Puerto Rico Collaboration to Reduce Stroke Disparities (UM)

NIH StrokeNet

National and Regional Coordinating Centers

https://www.nihstrokenet.org

Used with permission from Miami RCC
### NIH StrokeNet

**National Clinical Coordinating Center**
- University of Cincinnati

**National Data Coordinating Center**
- MUSC

**Miami RCC Sites**
- Jackson Health: JMH, JMH Rehab, Holtz
- University of Miami: UMH, Neur
- JFK Medical Center, JEM Research Inst.
- BHSF
- VA Medical Center
- Miami Children's
- University of South Fl
- University of Florida
- Sarasota Memorial
- Brooks Rehab Hosp.

**Training Program**
- Tatjana Rundek, M.D.
- Trainee

**Miami RCC Executive Committee**
- Ralph Sacco, M.D.
- Jose Romano, M.D.
- Tatjana Rundek, M.D.

**Program Manager**
- Iszet Campo-Bustillo

**Lead Coordinator**
- Andrea Escobar

**Program Manager**
- Tatjana Rundek, M.D.

**Trainee**
- Andrea Escobar

### Ongoing StrokeNet Trials

- CREST-2
- iDEF
- MISTIE III
- defuse 3
- Telehab Trial

### StrokeNet Website

[http://nihstroke.net](http://nihstroke.net)
Florida-Puerto Rico Registry

- Voluntary stroke registry
- Takes advantage of data already collected through the quality improvement initiative Get With The Guidelines-Stroke

Florida-Puerto Rico Registry

- Evaluate disparities in stroke care by race, ethnicity, and geographic region
- Analyze frequency of disparities at 30-d after a stroke in terms of outcomes (mortality, hospital readmission, stroke recurrence), medication adherence, and lifestyle modifications
- Evaluate frequency of disparities in longer-term outcomes (mortality, hospital readmission, stroke recurrence) among Medicare patients and the relationship of such outcomes with acute stroke performance metrics

Florida-Puerto Rico Registry

Implement education programs with a focus on identifying and implementing specific culturally-tailored quality improvement programs to address disparities.

Florida-Puerto Rico Collaboration to Reduce Stroke Disparities

http://reducestrokedisparities.org
Conclusions

**PI-Initiated Studies**
- Learn about your patient population and answer a specific scientific question
- Tend to be smaller scale to effect change in your institution
- Can be extrapolated to a larger population
- Tend to be less complex to carry out because you design the study

**Clinical Trials**
- Test safety and efficacy of new drugs and devices
- Tend to be large scale to see results in a wide population
- Tend to have complex protocols and procedures

Research is formalized curiosity. It is poking and prying with a purpose.

Zora Neale Hurston, Dust Tracks on a Road: an Autobiography (1940)