Evaluating the Potential of REACH MUSC as a Research Network

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A Telemedicine Facilitated Network for Urgent Stroke Treatment in South Carolina

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What is REACH MUSC?

- Remote Evaluation of Acute ischemic stroke

- 100% web based service through which MUSC specialists deliver urgent consults to rural/community emergency departments to improve the care of acute stroke patients
Justification for Telemedicine

Telemedicine allows remote facilities to communicate with the HUB at MUSC to access vascular neurologists specially trained in stroke treatment—including the use of Alteplase (tPA)
A robust “hub and spoke” system that

- Facilitates rapid assessment of stroke patients
- Increases use of tPA and other therapies
- Expedites late revascularization using intra-arterial re-canalization techniques
- Enhances confidence in the remote facility
- Enhances community stature of remote facility
- Creates MUSC-Remote site partnerships that carry over into other areas (“halo effect”)

REACH MUSC
REACH Telemedicine Protocol

- Suspected stroke patient arrives the Spoke calls the MUSC Admit Transfer Center (ATC) to request a “REACH Stroke consult”
REACH Telemedicine Protocol

Consultant logs into the REACH secure website to access and control the REACH cart (mobile unit composed of a computer, LCD screen, and fully adjustable camera) to do the exam and NIHSS.
Consultant speaks to the patient and/or family, performs the NIH Stroke Scale, and views the CT scan that the site has previously uploaded to the REACHCall website.
REACH Telemedicine Protocol

The consultant examines the patient using the NIHSS with the help of the spoke nurse.
REACH Telemedicine Protocol Cont.
REACH Data
May 2008 – June 2010

- 10 Spoke Hospitals
- 1,857 Hospital beds
- 360,000 ED visits/yr
Future Plans

Overlay onto this clinical service network a “distributed translational research grid” capable of facilitating SCTR objectives.
Introduction

Translational research can be time sensitive, non time sensitive, observational or treatment studies.

We can find no examples using a telemedicine platform for time sensitive translational research.

But great potential exists to enroll subjects acutely or follow research subjects who live some distance from the academic hub.
What REACH Offers

REACH MUSC offers a novel way to expand translational research capacity

A research-ready REACH “distributed network” would add qualitatively & quantitatively to SCTR’s capacity for translational research.

**Added value:**
- **Qualitative improvements in capacity:**
  - Access and recruit patients earlier in the course of their symptoms
  - or before and shortly after they are treated
  - either with standard care or research therapies.

- **Quantitative addition to the pool of potential research candidates.**
What REACH Offers

- REACH MUSC offers a novel way to expand translational research capacity and could be used for routine follow ups

- Greatest contribution would be expansion of severely time limited observational or treatment studies
  - With REACH carts in emergency rooms, the current program is physically well placed for urgent evaluation
Methods: Assessment of Readiness

To assess the potential & challenges, accurate information needs to be obtained for each site from:

1. Hospital leadership
2. Key staff members including ED physicians & nurses
3. Patients and community
Assessment of Readiness

Key domains of interest

Interest
Experience
Infrastructure
Protocols
Processes
Needs
Methods: Assessment Scoring

From staff interviews:

a) Does the staff appear to support the idea of participating in clinical research involving acute and time sensitive protocols?
b) Is staff reluctance evident?

Community will be characterized as:

a) Enthusiastic about the idea;
b) Cautiously interested;
c) Without evident interest in, or trust of, participating in clinical research
Methods: Site Categories

Tier 1 -- ready, willing, able & experienced, (at least one study)
Tier 2 -- willing, but lacking experience, and some key elements
Tier 3 -- willing but lacking nearly all the key elements and without relevant experience
Tier 4---not interested or sees itself as unable to participate
Examples of Likely Projects

Minocycline for acute stroke
- Medical College of Georgia grant application with MUSC as a participant

“Sham Stroke Trial”
- Purpose: Test readiness/ability to conduct studies with IV treatments
- Subject: REACH stroke patient who is not a candidate for thrombolysis and who is expected to be transferred to MUSC.
- Method: Randomized; “drug” assigned, with dose and infusion rate.
- Expected Result: Protocol execution judged when subject arrives MUSC

Early biomarkers for stroke
First phase would require a few research related steps that should not slow down the clinical evaluation and treatment, including:
1) consenting
2) drawing blood into specified media
3) handling the specimen properly
4) recording the data
5) getting the sample and data to the hub
More Likely Projects

Clotting abnormalities after IV thrombolysis
- After consent the pre-treatment PT/PTT and INR as well as fibrinogen could be used for research, then labs drawn during/after the infusion.
- Possible funding opportunity: Genentech research foundation
- Potential case comparison of post infusion research behavior
  - At drip and keep sites
  - Hub site, when drip and ship patients/subjects are enrolled

Non time sensitive sample collection
- Seek/obtain gene samples from stable patients with common/rare conditions

Real time subject monitoring using “smart systems” and linked EMR
- “Smart systems” scan for subjects admitted to ED/hospital with desired conditions for research and alerts investigative teams in “real time”
- In keeping with state effort to develop RIO or HIE and growth in hospital EMR.
- Conceptual planning should be done to open this avenue of research recruitment
- Importance:
  - Research staff not likely to be present in partner sites when research candidates present at local sites.
  - A pop-up reminder or alerting system could assist, at least for simple studies.
Conclusions

A conceptual framework for evaluation, preparation, and testing of research capability at REACH MUSC sites has been described.

Considerable effort and resources will be needed to transform the REACH MUSC clinical stroke network into a research network.

- This cannot be carried out until/unless a real interest and need from the hub, or funding for a demonstration project, can be obtained.

Prudent to make an assessment of who needs such a network, and who might use it if it was developed.

- Perhaps SCTR and the Success Center can help
- Possible funding through the Genentech research foundation

Need input from experts outside the MUSC Stroke Center, such as research pharmacists, ED nurses and at least one interested spoke site.