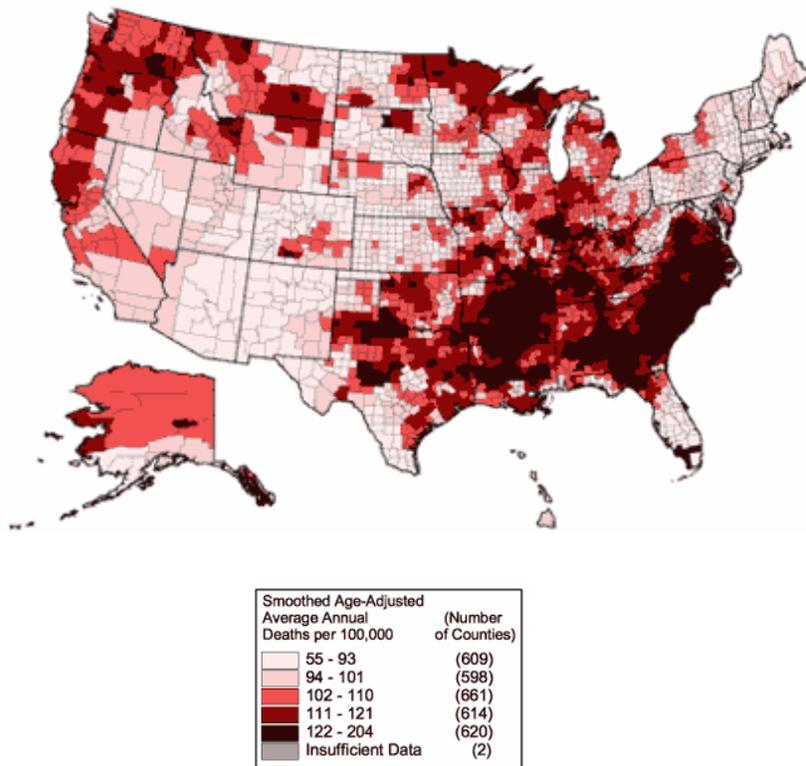


The GRU Neuroscience Center – Stroke Program

Neurological diseases are the most disabling diseases to Georgians and Americans. Four of the most disabling neurological diseases are stroke, dementia, Parkinson’s disease, and Epilepsy. Stroke is the second leading cause of death worldwide, the fourth leading cause of death in the US and the leading cause of adult disability in Georgia and the U.S. Georgia has one of the highest stroke rates in the U.S. The coastal southeastern U.S. lies in the ‘Stroke Belt’ where the incidence and mortality from stroke is the highest in the U.S. African Americans are at particularly high risk of stroke and recurrent stroke.<sup>1</sup>



## Stroke

There is a strong tradition and foundation for high quality clinical stroke care and stroke research at MCG-GRU

- 1.) The affiliated Georgia Regents Medical Center (GRMC) is a Joint Commission Advanced Comprehensive Stroke Center, the first in Georgia and the second in the Southeast.

- 2.) ***We already have the largest Hub and spoke rural telestroke system in the U.S.*** This system, known as the REACH system was pioneered at MCG -GRU

and provided the first clinical use of telemedicine to provide state-of-the-art stroke care to a rural-underserved population.<sup>2-10</sup> While Georgia is the 9<sup>th</sup> most populous state, much of the population resides in rural regions encompassing 159 counties (second only to Texas for the number of counties) with little access to current stroke care therapies. To meet these clinical needs, we developed the REACH system telemedicine network in 2003 through a web-based telestroke program known as REACH that now serves 27 spoke hospitals linked to the Hub, GRMC (Figure 1). Nearly half of the patients we treat with intravenous (IV) tPA in our rural hospitals are African American. REACH was commercialized in 2006 and a company REACH Health, Inc was spun out of MCG-GRU. Based in Alpharetta, Georgia, REACH provides the technology infrastructure to more than 140 hospitals in the U.S. including such academic health systems such as Penn State, MUSC, University of Pennsylvania, Oschner, Northwestern, and Beth Israel-Deaconess in Boston.

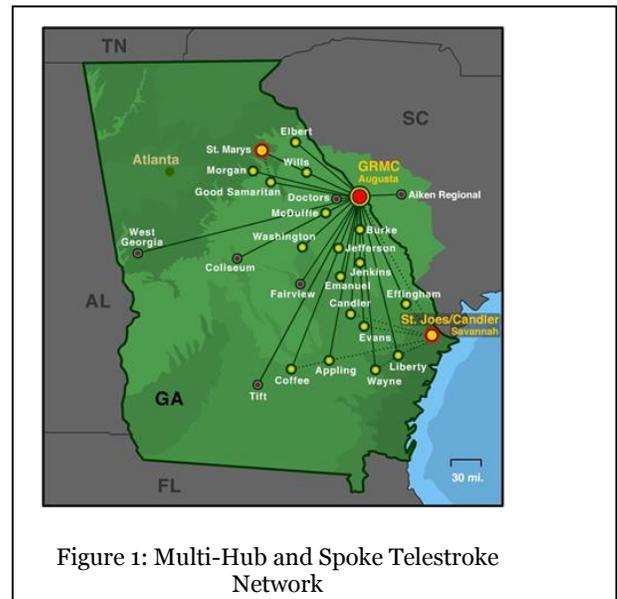


Figure 1: Multi-Hub and Spoke Telestroke Network

*Importantly, REACH can serve as a telemedicine platform for other neurological diseases and non neurological diseases. It provides a “Trojan horse” to get GRMC specialists inside hospitals in Georgia, South Carolina and beyond.*

- 3.) We have a proud tradition in developing novel treatments for stroke. *MCG-GRMC has a long tradition of investigator-initiated stroke clinical stroke trials, translational stroke research, and both leading and participating in NIH-sponsored cooperative trials.* Our activities have spanned the phases of clinical trial activities from a strong pre-clinical “translational” program that has developed the scientific rationale and premise for clinical trials, to phase I and II trials that have established dosing, safety and pharmacokinetics, and finally to phase III trials designed and initiated to establish efficacy. Specific relevant accomplishments include:

- a.) Pivotal trials funded by NHLBI to prevent stroke in children with sickle cell anemia (Nichols)- the STOP I, II, and III trials of using transcranial Doppler to detect children at high risk for stroke and then randomizing them to transfusion therapy or standard of care and showing the superiority of transfusion therapy.<sup>11-12</sup>

- b.)** Pre-clinical work with minocycline in stroke that led to an NINDS-sponsored exploratory clinical trial of minocycline in acute ischemic stroke (MINOS – Hess, Fagan).<sup>13</sup> We completed patient enrollment in this dose escalation trial ahead of schedule and successfully used pharmacokinetics and biomarkers, including plasma MMP-9, to select a dose.<sup>13-14</sup> With our biostatistician (Waller), we utilized the continual reassessment method to determine the maximally tolerated dose. This work also led to an ongoing American Heart Association (AHA) funded trial of intravenous minocycline in intracerebral hemorrhage (ICH) (MACH trial Switzer, Fagan).
- c.)** The NINDS-sponsored GRASP and now SHINE trials for glucose regulation in stroke. GRASP was an exploratory trial of intensive glucose regulation conducted at UVA and MCG and enrollment was completed ahead of schedule.<sup>15</sup> GRASP and the THIS trial, an exploratory clinical trial designed and led by Askiel Bruno, formed the basis and rationale for the NINDS-sponsored SHINE trial. SHINE is an ongoing multicenter, multi PI (A Bruno), phase III trial of intensive vs standard glucose regulation in acute ischemic stroke.<sup>16-17</sup>
- d.)** We performed the NINDS-funded pre-clinical work to help establish the scientific rationale, and in collaboration with Athersys Inc, obtained an IND from the FDA for the Multistem trial, the first allogeneic intravenous stem cell trial in the U.S. (Clinical trials.gov identifier NCT01436487.) We were the highest enrolling center in the dose escalation phase (Hess, P.I.). This trial is ongoing in the “proof of concept stage”.<sup>18</sup>

September 2013

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