

ALL- RACE Meeting
Greensboro, NC
October 5, 2006
Minutes/Supplemented with Power Point Presentations

Charles Wilson, MD, the Medical Director for Moses-Cone Heart Center and Co-Medical Director for the Durham/Greensboro/Chapel-Hill (DGC) RACE Region welcomed the state RACE working group to Greensboro and invited all who would like a tour of the new Heart Center to join him after the ALL-RACE Meeting.

The meeting agenda and collaborative culture of the RACE program was reviewed by Mayme Lou Roettig, RN, MSN, Executive Director, RACE. Attendance for this meeting was predominantly the RACE Phase 2 PCI steering groups across the state, invited Phase 3 teams and EMS and transport leadership. Number of attendees-74.

The preintervention data collection is complete and RACE is well into the intervention phase. The theme for this meeting, "Time is Muscle" and "Timely Reperfusion Therapy: How Can We Achieve Optimal Treatment Time Goals".

Ideal World Case Study

Jenny Underwood, RN, BSN- DGC Regional RACE Coordinator

Jenny presented a STEMI case study from a Durham County EMS team directly into Duke University Medical Center. This case highlighted the prehospital ECG, the paramedic's ability to determine STEMI and activate a hot-line call, streamlining the patient directly to the Cardiac Catheterization Lab at Duke University Medical Center. In this ideal 'actual' case study the time from the paramedic's call to balloon up was 45 minutes. (PPT, minus cath films, available for review)

Acute Coronary Syndromes: Clinical Update & Q/A

Christopher Granger, MD- Director, Coronary Care Unit, Duke University Medical Center, Co-PI for the RACE Project

Dr. Granger provided an ACS clinical trial update for the group including:

- Update on the importance of bleeding as associated with worse long term outcomes and the necessity to minimize and prevent it.
- Importance of quality improvement programs and continually monitoring outcomes. Sweden's RIKs HIA national registry was featured.

(PPT slides available for review)

State of the RACE Project

James Jollis, MD- Director, Cardiac Diagnostic Center, Duke University Medical Center,

Co-PI for the RACE Project

Dr. Jollis reviewed the RACE objectives of increasing the number of STEMI patients receiving reperfusion therapy and meeting national guidelines for STEMI reperfusion goals. The RACE project is currently completing the intervention phase and it is critical for sites to finalize system processes prior to the close (December 31' 2006).

The final data collection period will be January 1-March 31, 2007. Given the focus on improvement, he reiterated 3 principals:

- 1) Now is the time for hospital team plans to move from the discussion phase to the funding and implementation phase. Timely fiscal and logistical support from senior hospital leadership is critical.
- 2) The greatest progress will be made by focusing on each step / 5 minute intervals. Lytics should be given within 30 minutes (6 x 5 minute intervals) and Primary PCI should be provided within 90 minutes (18 x 5 minute intervals). Steps that “just take 5 minutes” likely represent opportunities for improvement.
- 3) The combination of clinical trials data, guidelines, RACE recommendations, and local conditions should be combined to identify the most effective interventions.

Phase 3 of RACE for existing regions and proposed regions was reviewed. The Raleigh Region should be ready to go in 2007 with the steering group from Wake-Med and Rex Hospitals. The Wilmington Region has been proposed to leadership at New Hanover and RACE Central awaits a response. In addition, the remaining PPCI centers, moderate in size and volume have either approached RACE Central or are being approached to be involved with the project for the 3rd Phase.

The publication and dissemination plan for the RACE data and process is underway. The study design of the RACE project is in press and will be available soon in the American Heart Journal on line. RACE Central is making plans for a national model launch in mid to late 2007--Exploration of the best platform for this launch is still under discussion. (PPT slides available for review)

Preintervention Data Phase Complete

Non-PCI Aggregate Data

PCI NRMI-5

Mayme Lou Roettig, RN, MSN- Executive Director, the RACE Project

The aggregate non-PCI preintervention data has been completed and is available by PPT.

Highlights include:

- 55/58 non-PCI RACE Centers across the state of NC allowed data abstraction from 10 consecutive STEMI charts in the 3rd quarter 2005 (some centers did not have 10 and a second quarter was necessary); n=519
- Data is limited but representative of non-PCI center care.
- ~60 % of our STEMI patients arrive by self transport instead of utilizing EMS.
- Patients delayed a median of 1 hour and 36 minutes from symptom onset to arrival at ED.
- 35% that arrive by EMS had a documented prehospital ECG.
- Arrival to first hospital ECG- median 11 minutes
- A 1/3 of the patients did not have documentation of symptom onset.
- 46% of patients received fibrinolysis as their reperfusion strategy & only 34% received drug in < 30 minutes.
- 37% of patients were listed as intent for PCI as their reperfusion strategy and the median time delay from first ED door to first ED door transfer was 89 minutes.

- The NRMI 5 Transfer-in report demonstrates 156 minute median time from first door to balloon up in PPCI center. Only 2.9% of transfer patients make the goal of < 90 minutes.
- Of the total population, 18 % received no initial reperfusion strategy for various reasons (see PPT slides). Of those eligible for reperfusion, per NRMI 5 definition, 7% did not receive reperfusion therapy.
- There are currently 12 PPCI centers included in the NC State report. Door to balloon times yield 86 minute median for direct EMS and self transport STEMI patients to these specialized centers.
- For any questions or clarifications. Please contact, mayme.roettig@duke.edu.

(PPT slides available for review)

Please contact Mayme Lou for details of data- mayme.roettig@duke.edu

Intervention Phase

Primary PCI Center Focus

Moderator-*Bruce Brodie, MD- LeBauer Cardiology, Moses-Cone*

Dr. Brodie, one of the pioneer investigators and supporters of primary PCI in the STEMI population, provided opening commentary and moderated our PCI intervention session.

Featured PCI Center Focus Topic- Optimizing Door to Balloon Time

Carolinas Medical Center

Hadley Wilson, MD-Assistant Director, Cardiac Cath Lab

Co-Medical Director, Charlotte RACE Region

Dr. Wilson gave an outstanding presentation on how to decrease the door-to-balloon Times for PPCI centers. He provided tips that have yielded the Code-STEMI process at Carolinas Medical Center one of the fastest in the state and nationally. He highlighted key success factors:

- EMS and ED physician initiate Code STEMI
- Single page activates the entire team
- A multi-disciplinary approach
- Establishing a specific goal to meet or exceed the ACC/AHA standard
- Continuous process improvement philosophy-with ongoing monitoring and modification
- Intensive EMS education on performance of ECG and STEMI identification
- Recognition that a cultural change is necessary as key to success of the program.

(See slide 6 & 8 for detail)

(PPT slides are available and abstracts are available on the internet)

Contact Kevin Collier RN, Supervisor Cardiac Cath Lab for questions:

Kevin.Collier@carolinashealthcare.org

Q/A-

The question in regards to the safest process for performing the PCI & how quickly to intervene on the infarct artery was raised again. Discussion followed regarding approaching the suspected infarct related artery first with a guide catheter and PCI, followed by diagnostic imaging of the remaining coronary circulation and

ventriculogram. Dr. Wilson indicated that this was the process followed by many of the interventionalists at CMC, with the final decision left to the discretion of the operator, dependent on the patients' presentation and condition at the time of the procedure. Dr. Brodie felt that PCI should be performed after completing the diagnostic catheterization.

-A question about how much time the patient should spend in the ED, when brought in by EMS. Dr. Lee Garvey, Director Chest Pain Center, CMC replied that an abbreviated MD exam should be conducted, mainly to stabilize critical presenters and rule out mimics (aortic dissection, etc), but non-critical time delaying labs and X-rays need not be done as outlined in the ACC/AHA guidelines for STEMI. The main point is to get the patient to lab as quickly as possible.

Featured Region **Focus Topic-EMS ECG Transmission**

Winston-Salem RACE Region

Stephanie Starling Edwards, RN BSN/ Lisa Monk, RN, MSN

Winston-Salem RACE Regional Coordinators

Stephanie presented for the Winston-Salem RACE Region. This region consists of 2 larger primary PCI centers, Forsyth Medical Center and Wake Forest University/Baptist, 10 non-PCI centers, and a moderate size PPCI center that lies between the Winston-Salem and the DGC RACE Regions (Highpoint Regional is engaging in Phase 3 of RACE). The two large PCI centers have collaboratively designed an algorithm for the non-PCI centers for one standard reperfusion regimen. They have assisted in outfitting their EMS and adjacent county EMS with ECG transmission equipment. This has facilitated expedited care for patients arriving via EMS to their centers. As reviewed in the PPT presentation, the evolution in transmission of ECGs for EMS in their part of the state started with Wilkes County EMS and their desire to utilize prehospital lysis for their rural county. Now 6 counties are able to obtain and transmit ECGs. Assistance with grant options are being provided to those w/o ECG capability.

Winston-Salem kicked off RACE in January of 2006 with EMS/ED nursing RACE Launch programs and ECG training. Lisa and Stephanie recently hosted an EMS Medical Director Meeting for the counties serviced by their PCI centers. RACE and Medtronic have co-funded a basic and advance ECG training opportunity for EMS in November, 2006.

Winston-Salem physician and nurse leadership have engaged nursing and physician leadership in all their non-PCI centers and continue to tag onto the Regional RAC meetings with trauma. Hats off to Winston-Salem for racing for the checkered flag in improvement of outcomes for their STEMI population..

(PPT slides available for review) Please contact Stephanie or Lisa for any questions regarding their presentation. sedwards@wfubmc.edu, lmmonk@novanthealth.org

How to Improve EMS Capability to Participate in AMI Care

Personnel Training, Equipment, and Data Collection

Greg Mears, MD, State Medical Director EMS, NC

Dr. Mears, a key leader in North Carolina and national emergency medical systems, presented data on EMS performance improvement in North Carolina, and how RACE may fit in with this effort. First, Dr. Mears indicated that statewide implementation of STEMI systems need to take into account geography. There are a number of counties, particularly in the east that lack EMT-paramedics or emergency medical dispatch systems. Significant features and improvements in the system include a suspected cardiac event chest pain protocol with “thrombolytic checklist” in the algorithm, and recent changes to the NC EMS such that ECG performance has been extended from EMT-paramedics to all EMTs. ECG interpretation remains with EMT-paramedics.

Next, Dr. Mears reviewed the EMS Performance Improvement Center. Funded by the Duke Endowment and the NC Office of Emergency Medical Services, the Center has developed EMS Toolkits designed for continuous improvement of specific EMS issues with 25 to 30 specific recommendations per topic. The kits included detailed reports of quality, performance and outcome, benchmarking with state and similar systems, and recommendations for improvement. The first two years focused on local EMS response, state EMS system design and performance, cardiac arrest care, and trauma care. Year 3 will dovetail with RACE efforts, as a specific toolkit topic is being developed for acute cardiac care. More details can be obtained at www.EMSPIC.org or from Cindy Raisor (cindy.raisor@ncmail.net) or Joe Fraser (jfraser@med.unc.edu).

Intervention Phase

Non-PCI Center Focus

Reducing Time to Treatment in Non-PCI Center EDs

Moderator- *James Jollis, MD* Introductory Comments/Objective Review

Dr Jollis reminded those present that some of the non-PCI centers were designating themselves with a “Transfer-for PCI” reperfusion strategy. Currently, our times in this state for transfer for AMI and the transfer of those lytic ineligible patients is too long (median door to transfer balloon time of 3 hours) as Mayme Lou reviewed. The following presentations by RACE leaders will highlight both “transfer for PCI” systems and “lytic” systems.

Direct to PCI

Feature PCI Center Focus Topic- RACE for Reperfusion from the Non-PCI Center
Presbyterian Hospital

Sidney Fletcher, MD, Director, Emergency Department/Charlotte RACE Steering

Dr Fletcher presented Presbyterian Hospital’s philosophy for transfer for PCI from their non-PCI facilities in Mecklenberg County. Presbyterian is a large tertiary PCI facility in Mecklenberg County with two owned non-PCI centers that are ~ 20 minute travel transport time away (10 miles from Mathews and 16 miles from Huntersville- see PPT slide 5). In addition to being in the top 10% of fastest door to balloon times at the PPCI

center, their two owned facilities in Mecklenberg County have a record of fast transfer-in times for PCI compared to state and national data (see slide 15).

Dr Fletcher outlined the keys for successful implementation of transfer-for PPCI:

- Leadership
 - The Decision to consistently treat STEMI patients with PPCI 24/7
 - Administration, ED Physician/Cardiology, Managers, Cardiology & ED Best Practice Teams
- Commitment
 - ED MD empowered to activate Cath Team, interventionalist, and transport
 - Cardiology 24/7 availability, direct contact to interventionalist
 - ED staff focus on initiating care and expediting patient transfer
 - Cath Lab-Quick response, focus on receiving patient
 - Critical Care Transport-dedicated teams on site, focus on continuing patient care and fast transport of STEMI patient
- Communication- Several Levels
 - Best Practice teams-multidisciplinary approach
 - Case by Case between all care team members (EMS, ED, Transport, Cath Lab) Case Review Feedback
 - Early Activation
- Seamless Process
 - EMS or ED Identifies patient
 - ED MD immediate simultaneous activate team/Cath Lab, Call to cardiologist Bat Phone, Call to Critical Care Transport/EMS
 - ED staff initiates patient care (standard orders)
 - Keep it simple (AMI Med Pack. Avoid IV Drips-infusions)
 - EMTALA Forms Signed, by nursing supervisor
 - Documentation with patient, report to Cardiac Cath Lab
 - Synchronized wireless clocks for the same time for all sites
- Critical Care Transport
 - Dedicated CCT at both facilities & Rowan Regional 800-1600 Mon-Fri
 - After hours transport/ able to transport within the Cath Lab call time timeframe
 - Goal time- in and out of facility in 12 minutes
 - Staffed with RNs
 - Pre-registers patient/Cath Lab has a medical record number allowing receipt of patient
 - Participates in best practice teams and process of track/analyze/adjust
- The Goal- timely reperfusion
 - Door to Depart Ed
 - Door to reperfusion
 - Consistency
 - Same process whether in Charlotte or from Mathews or Huntersville

Dr Fletcher warns against the pitfalls of complacency, rigidity, lack of follow through, leadership or staff changes, blaming culture, lack of accountability, and a “process that depends”.

It was decided after hearing Dr Wilson & then Dr Fletcher's presentation that Mecklenberg County is where many of us want to have our myocardial infarction for expedited care.

Discussion followed in regards to EMS bypass and the goal of 'time' for transfer-in patients. Many present agreed that 2 hours or less, from first door to reperfusion at the PCI center, might be a more realistic goal than 90 minutes or less for transfer for PCI strategy. However, the median would still need to be about 90 minutes for the patient data set for treatment to be under 2 hours for most patients. The consensus was that 90 minutes should remain the goal.

Questions and follow-up can be obtained from Rosanne Short, RN-CV Outcomes Information Analyst- rcshort@novanthealth.org

Featured Presenters

Pardee Hospital/Non-PCI ED Time Reductions

Lourdes Lorenz, RN, BSN, Asheville RACE Coordinator

The Asheville region features challenges of vast geography, mountains that can effect ECG transmission capability and speedy ground transfer, and weather (fog, snow/ice that can prohibit flight). The steering committee has approached the reperfusion regimen that marries the necessity of thrombolysis in rural non-PCI centers and transfer-in for PCI in the non-PCI centers closer to Mission Hospital (the sole primary PCI facility).

Lourdes reviewed her successful approach to Pardee hospital in Hendersonville, NC, a non-PCI hospital in the Asheville / Mission region. The key to success involved the collaboration of a multidisciplinary team at Pardee, as well as a coordinated approach by Ms. Lorenz and her Mission team. RACE interventions at Pardee hospital included improved communication between the ED and EMS, a new STEMI protocol, a shift in reperfusion strategy, refining order sets, and implementing a feedback mechanism for the AMI team. These interventions allowed for a 12 minute reduction in door to transfer times and a median first door to balloon time of 128 minutes. Thanks to Lourdes and her mountain team mates!

Contact info for Lourdes Lorenz- nsglxl@msj.org

Care Link- Advances Transport RACE Initiatives

Mark Young, RN, BSN, EMT, Assistant Director, Care Link

Cheryl Somers, RN, MSN, CNAA, Director, Care Link

Mark Young and Cheryl Somers reviewed the Care Link, the mobile critical care transport service operated by the Moses Cone Health System that supports RACE in the Greensboro region. By focusing on moving the patient to the catheterization laboratory, rather than care prior to transport, significant improvements in timeliness of reperfusion have been achieved. A specific example included a patient who would have previously undergone additional testing not related to STEMI diagnosis or treatment prior to transfer. Other RACE interventions within CareLink included in-servicing staff on the RACE project, continuing education and case reviews, the development of minimum treatment guidelines and minimum documentation requirements for inter-facility transports, and the creation of a "Code STEMI" hotline. The goal of the interventions was

to have a mean on-site treatment time of 10 minutes. Current mean time is 11.7 minutes (down from 18 minutes).

Union County-EMS Support in a Non-PCI County

Scott Starnes, NREMT-P, Training Officer

Scott Starnes presented the Union County approach to STEMI reperfusion, developed by the Union County EMS. Union County, adjacent to Mecklenberg County, is one of the fastest growing counties in North Carolina. For STEMI reperfusion, patients must be transported an average of 25 miles to one of three Charlotte hospitals, Presbyterian, CMC-Mercy, or CMC, or to their county hospital, CMC Union (a non-PCI hospital). Mr. Starnes attended the Emergency CV Care 2006 Conference in Durham and the All-RACE meeting in March this year, and indicated that the concept of organizing a STEMI response “just clicked” in his mind at the meeting. He presented the standard STEMI approach and regimen in Union County that includes in-the-field ECG and diagnosis, and transfer to a PCI center. Union County is also supporting rapid transport from self presenting patients to CMC-Union.

Barriers to rapid AMI care were outlined. RACE interventions included paramedic-driven decision making, 12-lead and STEMI guideline training for medics, in-house STEMI protocol at CMC, and grant funding for equipment upgrades. The goal of the Union County EMS was to reduce EMS scene time to < 15 minutes. Current mean time is 19.5 minutes. Patients entering the PCI system from Union EMS are meeting the goal of first medical contact to balloon up in < 90 minutes. He felt his greatest need was for the 3 Charlotte hospitals to agree on a standard STEMI regimen / approach for EMS direct into PCI.

Lytic Time Goals/Issues

Mary Printz, RN, MSN, FNP, East North Carolina RACE Coordinator

The East North Carolina RACE Region varies from others in vast geography and as mentioned in Dr Mears report, it faces critical EMS needs in some counties (equipment and paramedic level response). Due to large transport times and system issues, this region encourages a reperfusion regime of thrombolysis to eligible STEMI patients presenting to non-PCI centers. The region is diligently working on time issues and hopes to move a few centers, closer in distance to Pitt Memorial, to PPCI in the next year.

Mary reviewed the various time decision issues with thrombolysis (see PPT). She highlighted an approach to a remote non-PCI hospital in her region that did not have thrombolytics stocked. She indicated the need for basic training and assistance with STEMI recognition and thrombolytic administration. She also reminded the audience that physicians may not be trained in thrombolytic administration during their residency. As a result of her efforts, the targeted hospital that had not offered a reperfusion strategy prior to RACE, successfully administered lytics to a STEMI patient. Way to go Mary! One life saved and many more to come in East North Carolina!

For more information, contact Mary Printz-- Mprintz@PCMH.COM

Achieving RACE Objectives

Christopher Granger, MD

Dr. Granger closed the formal meeting with a reminder to keep the “car on the RACE track” and claim the checkered flag at the close of Phase 2. He encouraged Regional RACE teams to meet following the ALL-RACE and make final preparations to achieve objectives. Each region is encouraged to host their RACE non-PCI and EMS Teams in their primary city. This will allow an end of year or January Blitz meeting to empower the teams to focus on treating all eligible STEMI patients and decreasing time to treatment to below national guideline targets. Lastly, please support your RACE Regional Coordinator with individual non-PCI and EMS needs. Our final data collection period for PPCI NRMI 5 RACE Centers will be Q1 2007(Jan 1 through March 31 discharges). RRCs will collect final Non-PCI data beginning in Feb/March 2007 and may need to use April to reach 10 patients per participating center.

Regional Roundtable

Comments/Discussion of success or barriers from Phase 2 RACE Regions RACE Teams

Next Meeting January, 2007

Adjourn