



June 29, 2022

Public Safety Staff,

The Perquimans County Emergency Medical Services and Perquimans County 911 divisions will be participating in the **R**Anomized **C**luster **E**valuation of **C**ardiac **A**Rrest **S**ystems trial being overseen and managed by the Duke Clinical Research Institute. This is a pragmatic cluster-randomized trial that is designed to evaluate communities, emergency responders, and health system interventions in North Carolina to improve outcomes of out-of-hospital cardiac arrests.

The rationale for this trial is, "The main barrier preventing progress is not the lack of knowledge, but the effective systematic implementation of what works." Based on this rationale and current out-of-hospital cardiac arrest statistics, the greatest opportunity for improving cardiac arrest outcomes is an intensified strategic focus on improved 911 recognition of out-of-hospital cardiac arrest, the delivery of telephone CPR, more rapid deployment of first responder defibrillation, and improved use of bystander CPR.

These are all areas in which Perquimans County Emergency Services has worked tirelessly to improve by utilizing Emergency Medical Dispatch in the 911 Communications Center, applying for and receiving grant monies to purchase AED's which have been placed in public buildings and all Perquimans County Sheriff's Office patrol vehicles. We are also working to teach hands-only CPR at community events, group settings, and in local businesses.

This trial will last for 7 years and will include approximately 2,100 survivors with data being collected from 50 counties in our state that have been randomly divided into two groups, an interventional group, and a control group. The objectives of this trial are to improve survival to hospital discharge with good neurologic function, increase bystander rates of CPR, and increase rates of bystander or first responder defibrillation prior to EMS arrival on-scene.

Primary data for the trial will be collected from cardiac arrest calls and will be entered into the Cardiac Arrest Registry to Enhance Survival (CARES) website. Data collected from the CARES website will provide an assessment of EMS agencies, 911 centers, fire/law enforcement first responders, and the community. It will also provide an assessment of implemented interventions and how these interventions contribute to patient outcomes, which will include long-term follow up of cardiac arrest survivors.

Patient criteria for this trial include patients who have experienced sudden cardiac arrest that is non-traumatic in etiology. EMS must perform CPR, or the patient must be defibrillated by an AED. Cases that are not included in the trial include traumatic cardiac arrest, arrest terminated by EMS because of obvious death or injuries not compatible with life; arrests that occur during private or non-emergency transports, bystander CPR cases with a pulse upon EMS arrival, DNR patients, and patients who are able to refuse EMS service.

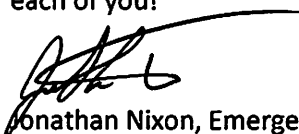
Documentation of cardiac arrest calls is a large part of this study. The following data elements are entered into CARES for EMS:

- Baseline characteristics – age, gender, race/ethnicity, medical history
- Arrest information – location of arrest, witnessed event, arrest before or after first responder, resuscitation information, first responder resuscitation attempts, who initiated CPR, dispatch CPR instructions provided, AED applied before EMS arrival, who first applied AED, who defibrillated patient, and 911 responder CPR performance
- Initial rhythm and ROSC information – first rhythm, sustained ROSC of 20 minutes, hypothermia provided, event termination, first occurrence of ROSC, time of arrest, time of first defibrillation, time of first CPR, EMS interventions, mechanical CPR device used, ITD used, automated CPR feedback used, advanced airways used in the field, medications administered, 12 lead ECG performed, and STEMI
- Response and treatment times – time call received at 911 center; time first responder dispatched, enroute, and on-scene; EMS interventions, ER outcomes, hospital outcomes, discharge destination, hypothermia in hospital, neurological outcomes at discharge; time ambulance dispatched, enroute, and on-scene; time EMS arrived at patient, time ambulance left scene and arrived at ED

Data elements for 911 Communications entered into CARES includes:

- Preliminary – Cardiac arrest before arrival of EMS, CPR already in progress, recognition of need for CPR, CPR instructions started, if compressions were started, and barriers to CPR being performed by bystander
- Patient – Age classification of patient, consciousness, breathing normally
- Time measurements – transfer call, time elapsed before telecommunicator first addresses the caller, telecommunicator recognizes need for CPR, telecommunicator begins instructions, time to first compressions by caller

It's important everyone does their best on every cardiac arrest call from the time the call comes in to the 911 center to coaching the caller to perform hands-only CPR, to first responders arriving on scene to use an AED, to EMS arrival and the initiation of advanced life support. For the difficult/uncooperative 911 callers, please continue to do the best you can to coax them to start CPR. The importance of good and thorough documentation of cardiac arrest calls is critical for this trial. Our citizens are counting on each of you!



Jonathan Nixon, Emergency Services Director