

# **New Castle County EMS: A High Performance EMS System**

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# Medical Direction

- Employed by State Office of EMS
  - County Medical Director and Associate MD
  - Oversight for all EMS patient care
    - ALS and BLS including first responders and dispatch
    - QA
    - Case Reviews
    - Incident Review
- Both are full time clinical emergency physicians
  - State employment is “casual/seasonal”

# What is “High Performance” EMS

- Emerging term to describe the best EMS systems
  - Clinically sophisticated
  - Respond reliably
  - Perform efficiently
- Constantly working to improve
  - Quality Assurance and Performance Improvement
    - Major role of EMS Medical Directors
    - Commitment from NCC\*EMS Staff

# Is NCC\*EMS a High Performance System?

- County Paramedics have been among the top performers in the nation
  - Achieved national recognition
- Provide an essential service at the highest level
  - Able to bring “the hospital” to the patient
  - Requires full resourcing: staff, supplies, training
  - Paramedics make a critical difference in everyday life
- Support from Council is essential: wise investment
  - Must be supported as other Public Safety agencies

# Performance Measures

- Heart Attack patients
  - Accuracy of paramedic EKG interpretation
  - EMS time savings for patients with “heart attack”
- Trauma management
- Intubation and airway management
- Utilization of CPAP
- Cardiac Arrest survival
  - CARES registry

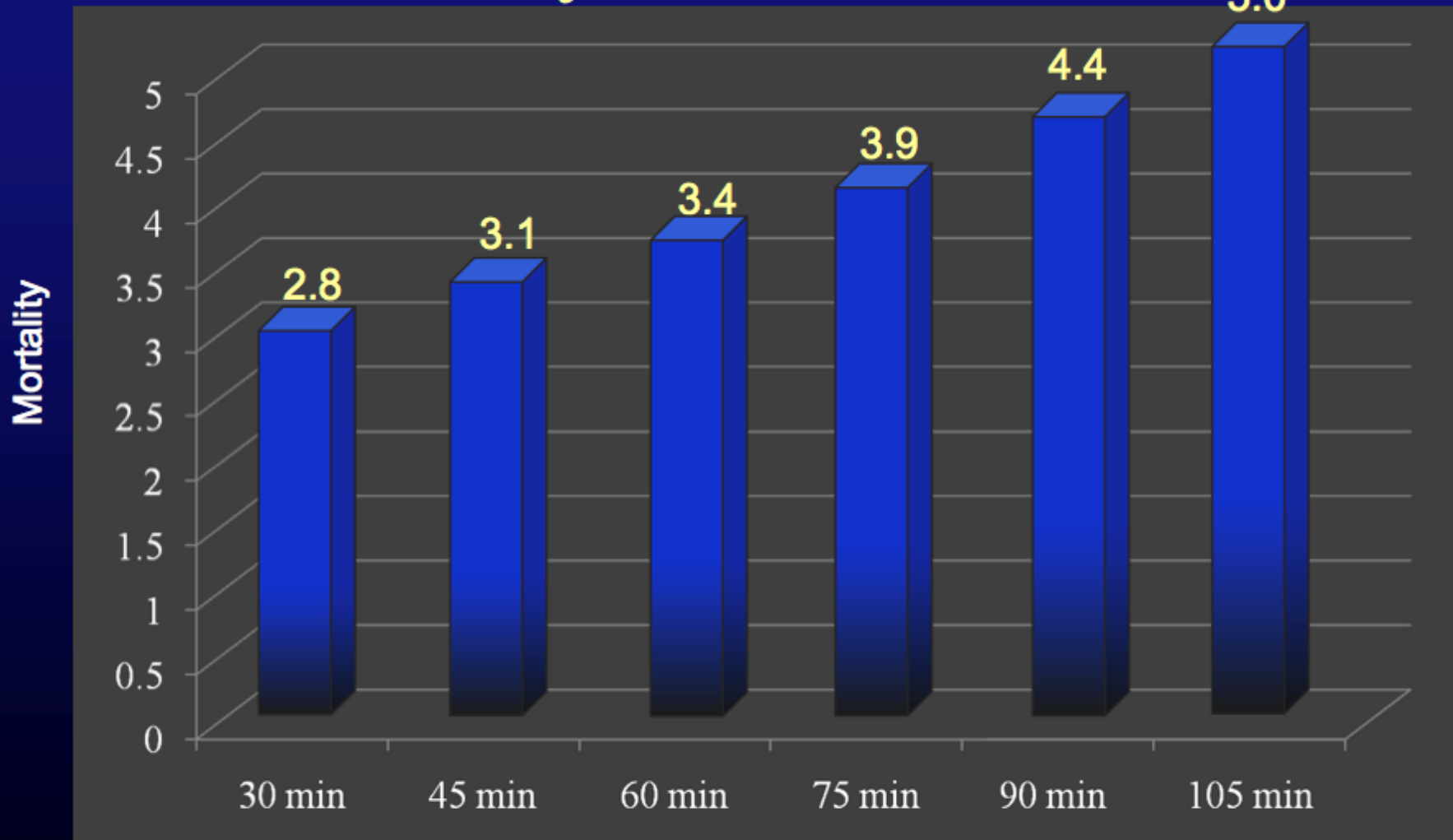
# Heart Attack: “Time is Muscle”

- Paramedics carry 12 lead EKG and perform them on patients with MANY complaints
  - NCC\*EMS was first agency in the state to use 12 Lead EKG
  - Estimated 6,000 EKGs last year
  - Capture more heart attacks than if only used for “chest pain”
- Accuracy of interpretation evaluated/presented
  - As accurate as an emergency physician
- Decisions made based on paramedic reading
  - TEAM of nurses, techs, cardiologist called in from home before patient arrives

# Heart Attack: “Time is Muscle”

- Time saved by EMS saves heart damage
  - Studying CCHS data for EMS arrivals with STEMI vs. those who walk in and are diagnosed
- EMS patients are saved almost 35 minutes on average to have blocked artery open
  - Savings is directly tied to EMS call before arrival
- High rate of correct activation and benefit to patients makes hospital and cardiologist act on paramedic call.

# Even with Short D<sub>2</sub>B Every Minute Counts

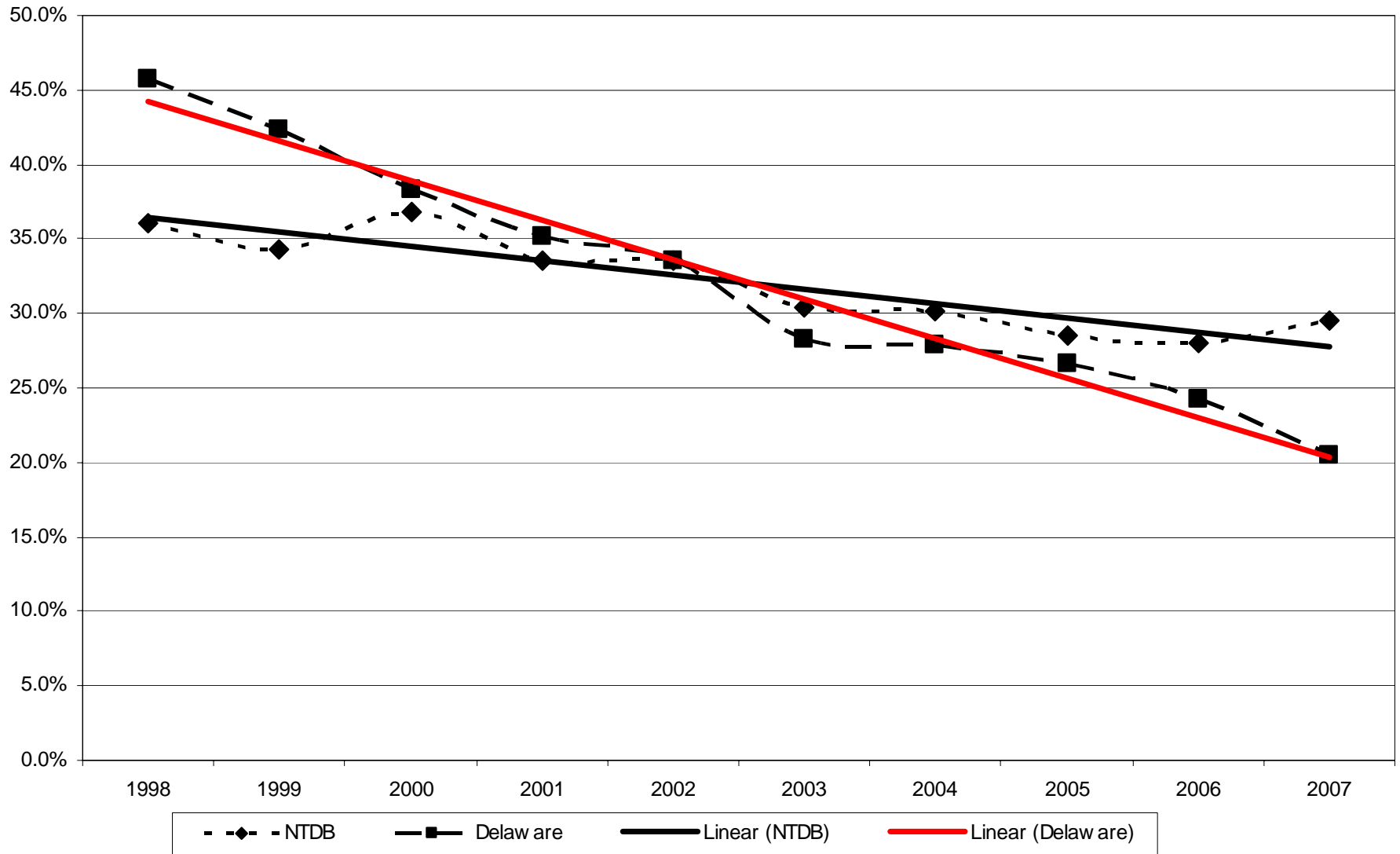




# Trauma Management

- Review cases with Trauma PI
- EMS saves lives
  - First Statewide system to demonstrate a major life savings benefit to integrated trauma system
  - Death rate of trauma patients with major to severe injuries has been cut more than in half
    - Statewide we are now well below the national average
    - NCC even lower and has been better than national average for years longer
- Airway management cases reviewed

# Delaware Trauma Mortality Data



# Intubation and Airway Management

- Paramedics have added Rapid Sequence Intubation to their practice since late 2007
  - Series of drugs to make intubation easier
  - Requires 2 paramedics because of complexity
  - Having a supervisor on scene adds to safety
- Critical skill for severely injured or those with deteriorating breathing
  - MANY systems withdrawing this procedure
  - Our view: opportunity to help the sickest patients

# Results of evaluation

- 2009 intubation success is now identical for non-cardiac arrest patients vs cardiac arrest.
  - This is our best measure to compare
  - Hits our goal; unexpectedly fast
- Airway management overall for 2009 patients was 100% successful
  - If not intubated, choice of other airway management was appropriate and done correctly

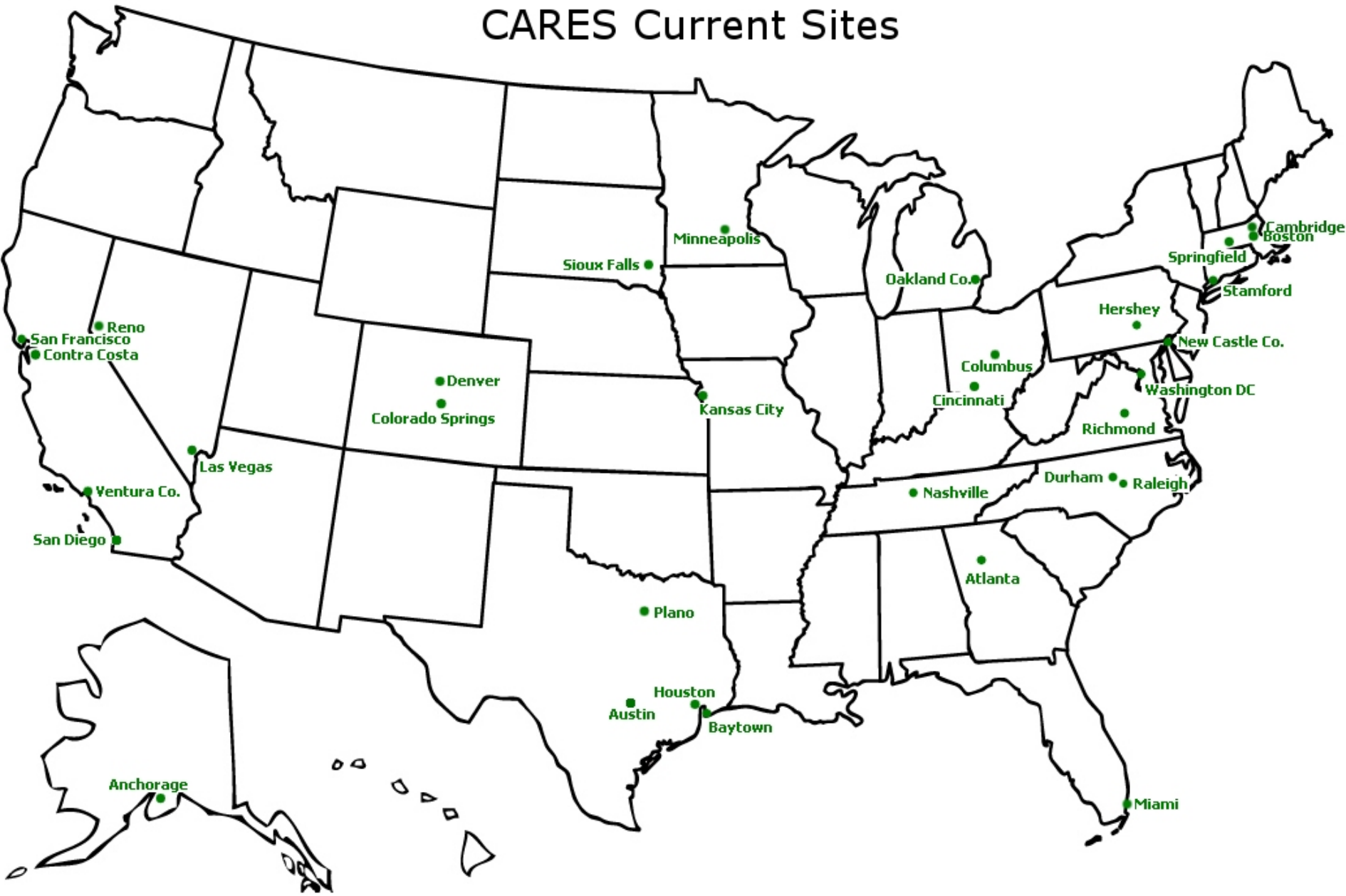
# CPAP respiratory support

- Dramatic improvement in patient care
  - NCC EMS was an early adopter
  - Often avoids the need for intubation
- Studies show early application saves lives
  - Our system uses for many causes of “shortness of breath”; some systems are more restricted
- Hospitals note fewer patients on ventilators, faster time to improvement, shorter admissions

# Cardiac Arrest evaluation

- Often hard to measure performance
  - Medical Directors and NCC\*EMS Administration pressed to be part of a national registry
- CARES: Cardiac Arrest Registry to Enhance Survival
  - CDC sponsored project
  - National project with 26 sites
  - Many other “high performance agencies”
  - NCC accepted quickly based on our data gathering and strong support of hospital partners

# CARES Current Sites



# CARES

- Data tied together from start of patient encounter through hospital discharge
  - Using measures of performance by dispatch, EMS, and hospitals
  - Overall survival rate can be followed
  - Opportunities for improvement can be identified
- RESULTS: NCC in upper 1/3 of peers
- Innovations: Hypothermia
- Opportunities: Increase bystander CPR



# What do others say?

- NHTSA: National Highway Traffic Safety Admin
  - Oversight of State EMS systems
  - Visited January, 2010
- Official report still to follow but comments were positive regarding commitment to excellent care.
  - The system design is configured to get the right resources to the right patients in the right time.

# What do others say?

- CAAS: Commission on Accreditation of Ambulance Systems
  - Voluntary evaluation for accreditation
  - ONLY non-transport/ALS chase system EVER accredited
  - 1 of 134 accredited out of over 22,000 national
  - First EMS agency in Delaware to achieve this
  - Raising the bar: Volunteer Fire agencies requesting information and may apply for CAAS accreditation.

# Opportunities going forward

- Improve community education
  - CPR and other bystander interventions
  - EMS resources could improve community survival
- Expand field supervision
  - Recent addition of 2 Sergeants; 6 total on 4 platoons
  - They add to paramedic and BLS oversight and pt care.
- Add to office QA oversight
  - Data management key to identifying opportunities
  - Automating many processes but others labor intense
- Maintain high level of training
  - Clinical skills performed and being added demand it

# Summary

- New Castle County EMS: amongst the elite paramedic services in the nation
  - Evidenced by documented internal performance reviews and outside evaluations
- Your system: your constituents should be proud
- NCC\*EMS constantly strives to improve
  - Excellent relationship with medical partners who support advanced practice and recognize EMS value to our patients
- A system that needs the capacity to grow so it can continue to meet the growing demands of NCC.