

# ***Maelstrom Medicine: Providing Telemedical-Based Care During Hurricane Florence***

**Jose G Cabanas MD, MPH, FAEMS**

**Director/Medical Director Wake County EMS System**

**Jeff Williams MD, MPH, FAEMS**

**Deputy Medical Director Wake County EMS System**



@wakegov    

wakegov.com

# Questions

- Can telemedicine preserve EMS System resources during emergency response efforts?
- Can you utilize telemedicine during shelter operations as part of a disaster response?

# ETHAN Houston Fire Department



**ETHAN Project**  
Emergency TeleHealth and Navigation  
City Of Houston, TX Fire Department

connected by  
**verizon**✓

# **Telehealth-Enabled Emergency Medical Services Program Reduces Ambulance Transport to Urban Emergency Departments**

Langabeer JR 2nd, Gonzalez M, Alqusairi D, Champagne-Langabeer T, Jackson A, Mikhail J, Persse D  
West J Emerg Med. 2016 Nov;17(6):713-720

- The HFD initiated the Emergency Telehealth and Navigation program in 2014
  - 56% absolute reduction in ambulance transports to the ED
  - EMS productivity (median time EMS notification to unit back in service) was 44 minutes faster for the ETHAN group (39 vs. 83 minutes)
  - No statistically significant differences in mortality or patient satisfaction

Fact sheet

# Emergency Triage, Treat, and Transport (ET3) Model

Feb 14, 2019 | Ambulances, Ambulatory surgical centers, Innovation models, Quality

Share



Emergency Triage, Treat, and Transport (ET3) Model

# Role of Telehealth in the Medical Response to Disasters?

## Virtual First Responders: the Role of Direct-to-Consumer Telemedicine in Caring for People Impacted by Natural Disasters

*Lori Uscher-Pines, PhD, MSc<sup>1</sup>, Shira Fischer, MD, PhD<sup>1</sup>, Ian Tong, MD<sup>2</sup>, Ateev Mehrotra, MD, MPH<sup>3</sup>, Rosalie Malsberger, MPH<sup>1</sup>, and Kristin Ray, MD, MS<sup>4</sup>*

- Administrative data from a private telemedicine vendor the 30 days following Hurricanes Harvey and Irma
- 2057 telemedicine visits provided to Harvey (69.0%) and Irma (31.3%)
  - 63% were first-time users of telemedicine
  - Acute respiratory illnesses (31.3%) most common diagnosis
  - 1 week post-event - Chronic conditions, counseling, refills, and injuries were more common
  - Physicians located outside of the affected states responded to 52.6% of visits



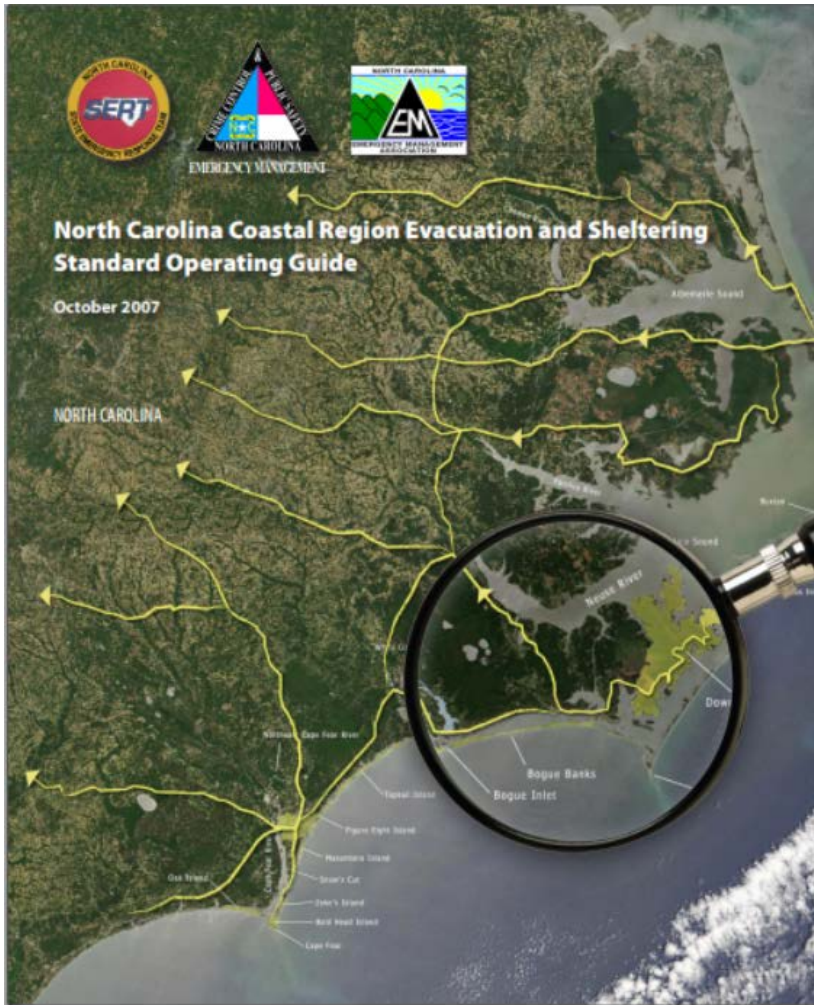


*Hurricane*  
**FLORENCE**

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WAKE COUNTY





# NC CRES PLAN

- 700 page document that outlines in detail the States plan for evacuation and sheltering for the coastal counties
- Counties designated as the first to receive residents determined that they were not capable of supporting the plan



# Shelter Operations



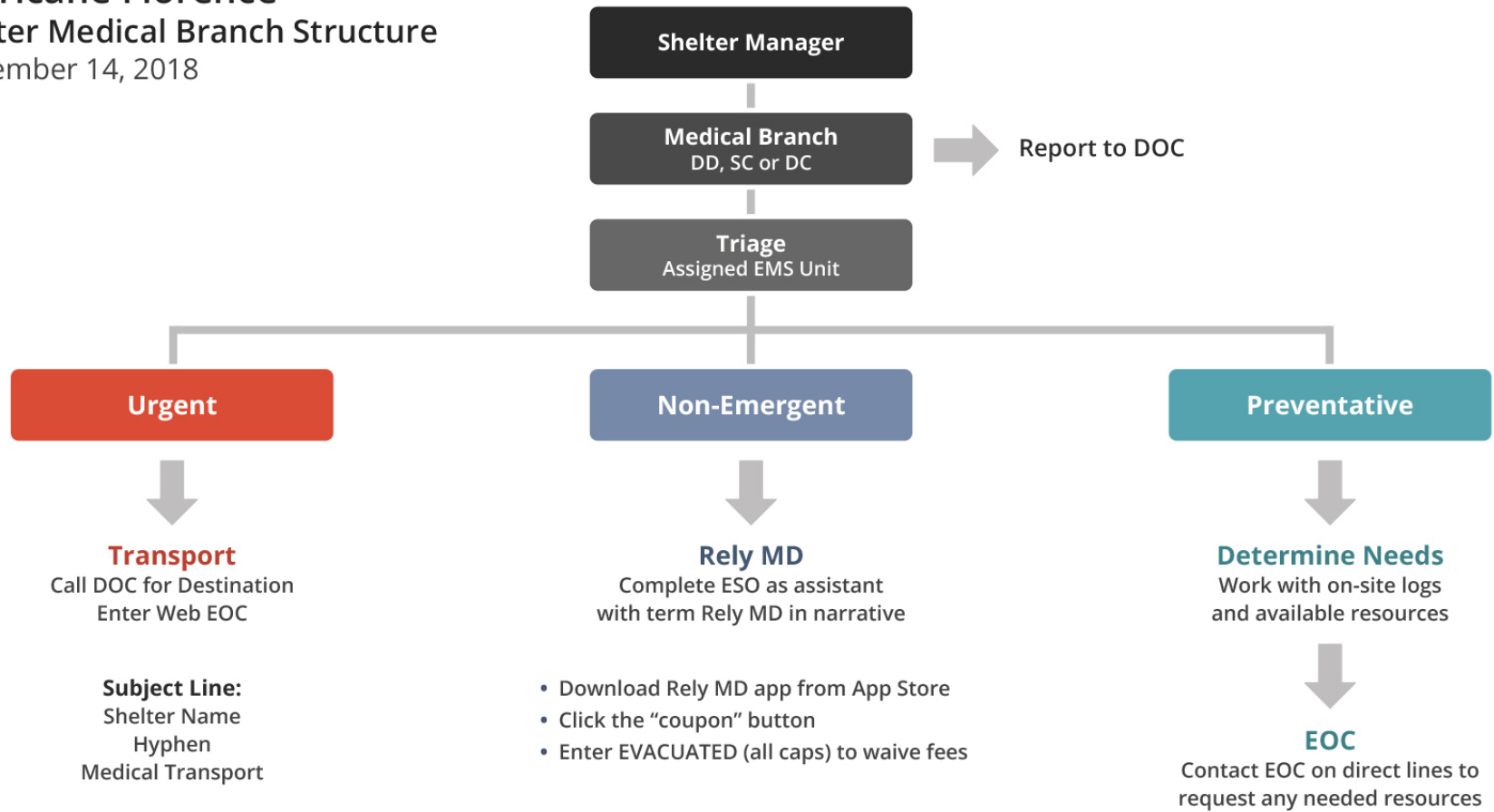
- Three Raleigh shelters receive multiple unannounced school buses of evacuees from Eastern North Carolina
- Many with healthcare needs
  - (oxygen dependent, chronic conditions)
- Limited mobility patients
- Requests from shelters for equipment, supplies and medical assistance including 911 calls

# Shelter Population



30% of the population in the shelters were patients with complex medical problems

**Hurricane Florence**  
**Shelter Medical Branch Structure**  
 September 14, 2018



# Top Conditions

- Upper Respiratory Illnesses
- Medication Refills
- Mental Health
- Chronic Medical Problems
- Musculoskeletal Problems



95 tele-health consults related to Hurricane

60 from shelters (med refills)

Average Wait Time to See a Provider

5.7 minutes

Average Consultation Length

7.1 minutes

**“The diversion rate from the ED of those who said they would have gone was 83%”**

## Take Home Points - Telemedicine

- Preserves capacity for the local healthcare system
- Underutilized in disaster response including shelter ops
  - Direct-to-Consumer
  - Provider-to-Provider
  - Virtual surge capacity
- Telemedicine was a valuable resource that helped manage patients and protect EMS System resources during Hurricane Florence



# Click & Point – Yearning for Learning: Advances in Tele-Education

David French, MD, FACEP, FAEMS  
Medical Director, Charleston County EMS

# Financial disclosures

- Dr. French – none to report



# Simulation

- Proven teaching method in medicine
- Limited access to equipment, experts
- Meeting ongoing operational needs
- Expensive

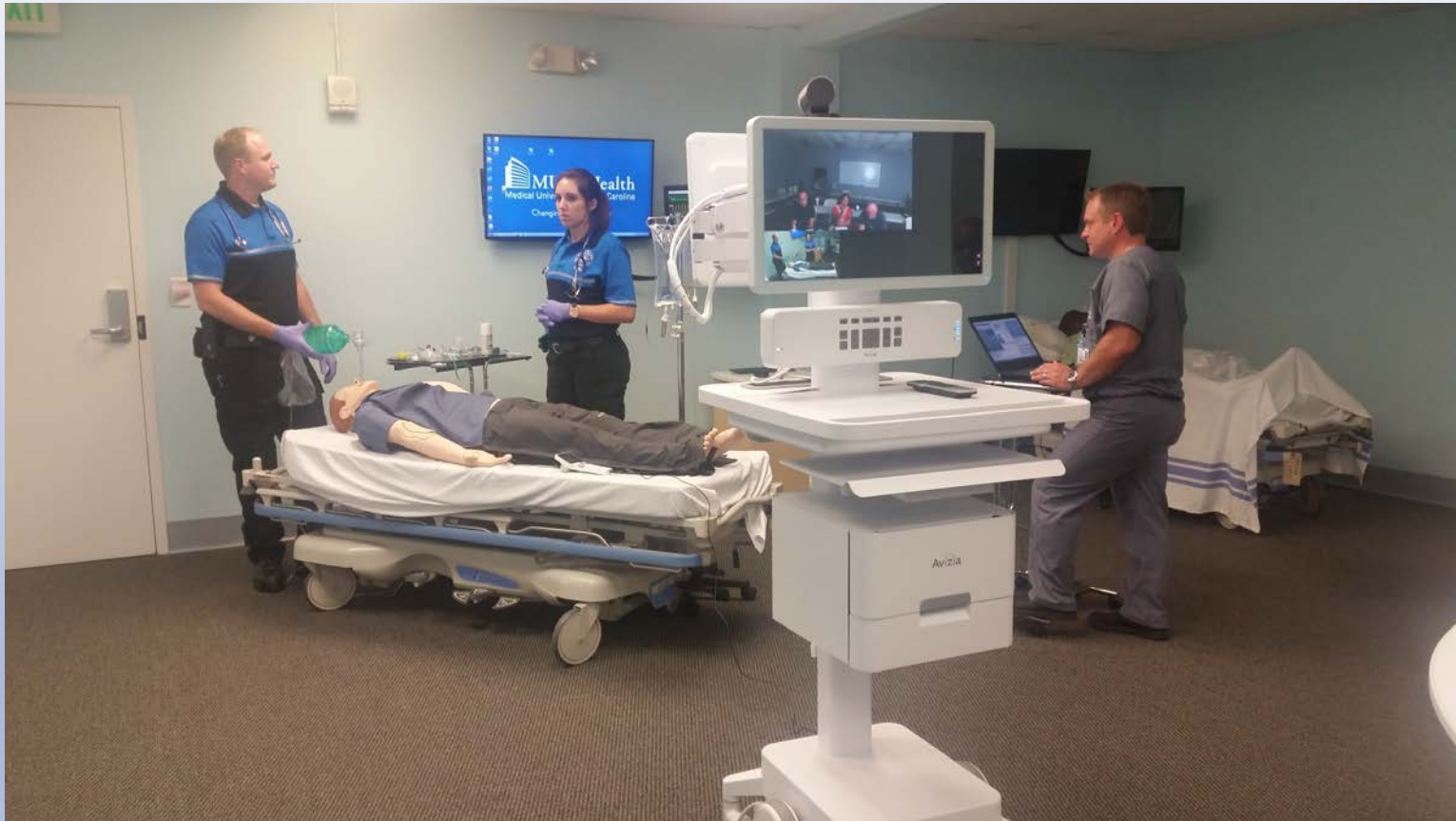


# Simulation

- Use of distance simulation
- Swap learners and facilitators
- Focus on decision-making
- Increase access and reduce cost
- Not a replacement for full simulation training

# Needs

- Partners
  - Education
  - Simulation
  - State and local
- Laerdal equipment
- LMS
- Facilitators/coordinators



# Intervention

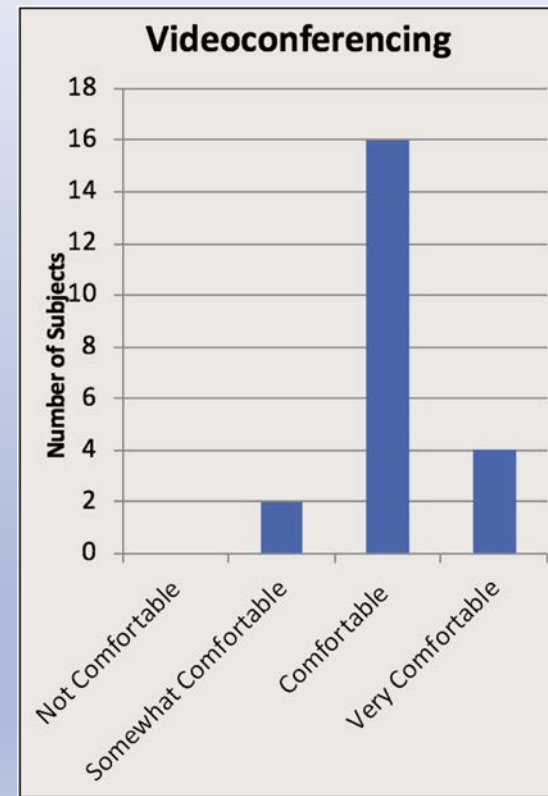
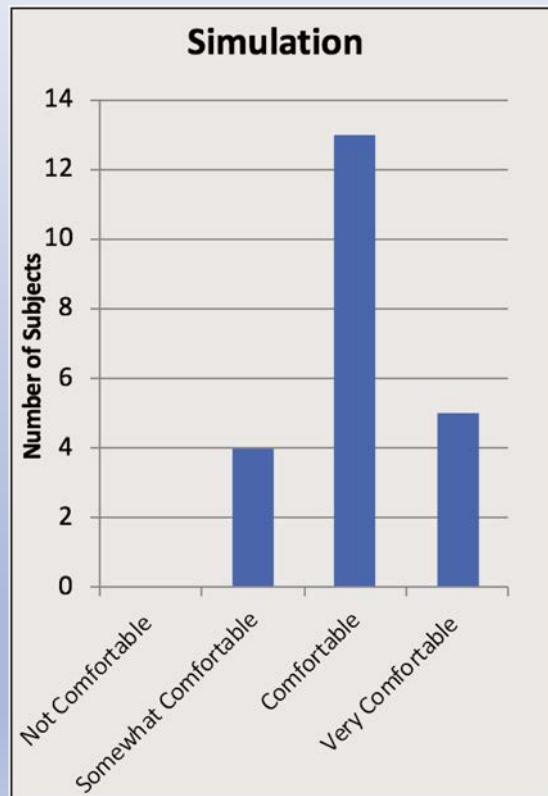
- Pre-test
- Recap lecture (~20 minutes)
- Welcome & overview
- Scenarios
  - Increasing difficulty
  - 2-person teams
- Debrief between and after scenarios
- Post-test

# Initial Findings

- Difficult airway scenarios
- 22 complete datasets
- 63% improved on test
  - Average +10%
- Better intervention time
- Improved confidence
- High training satisfaction

Learner Profiles: Intubation Attempts in the Past Year	
0-2	17
3-5	2
6-8	2
>8	1

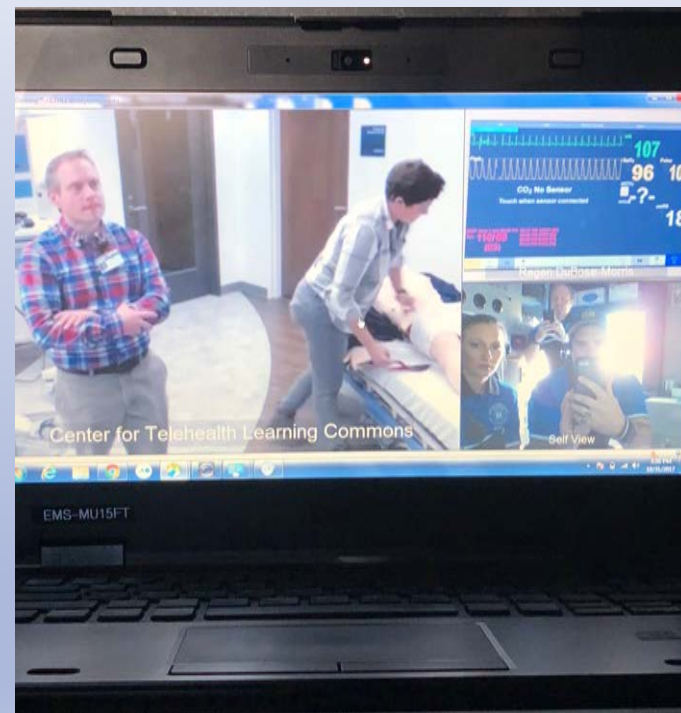
# Initial Findings





# Going Forward

- Train via laptop, desktop
- Additional scenarios
- More partnerships
  - EMS agencies
  - Multidisciplinary
- State training mandates
- Non-EMS programs



# Contact

[DFrench@charlestoncounty.org](mailto:DFrench@charlestoncounty.org)