

# The CPAP Initiative

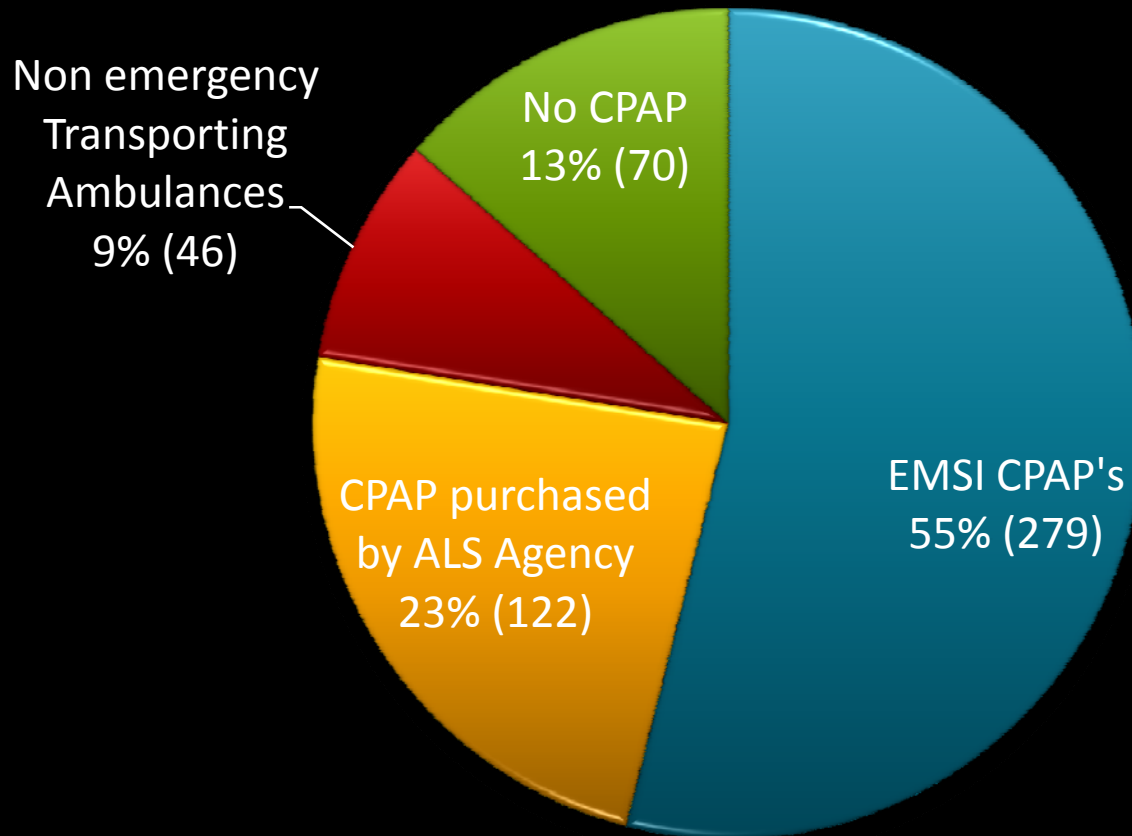
## EMSI Region 4



***The Total Quality Management Committee***  
Chairperson- Richard J. Wadas, MD, FACEP  
EMSI                      James Husar NR-EMT-P

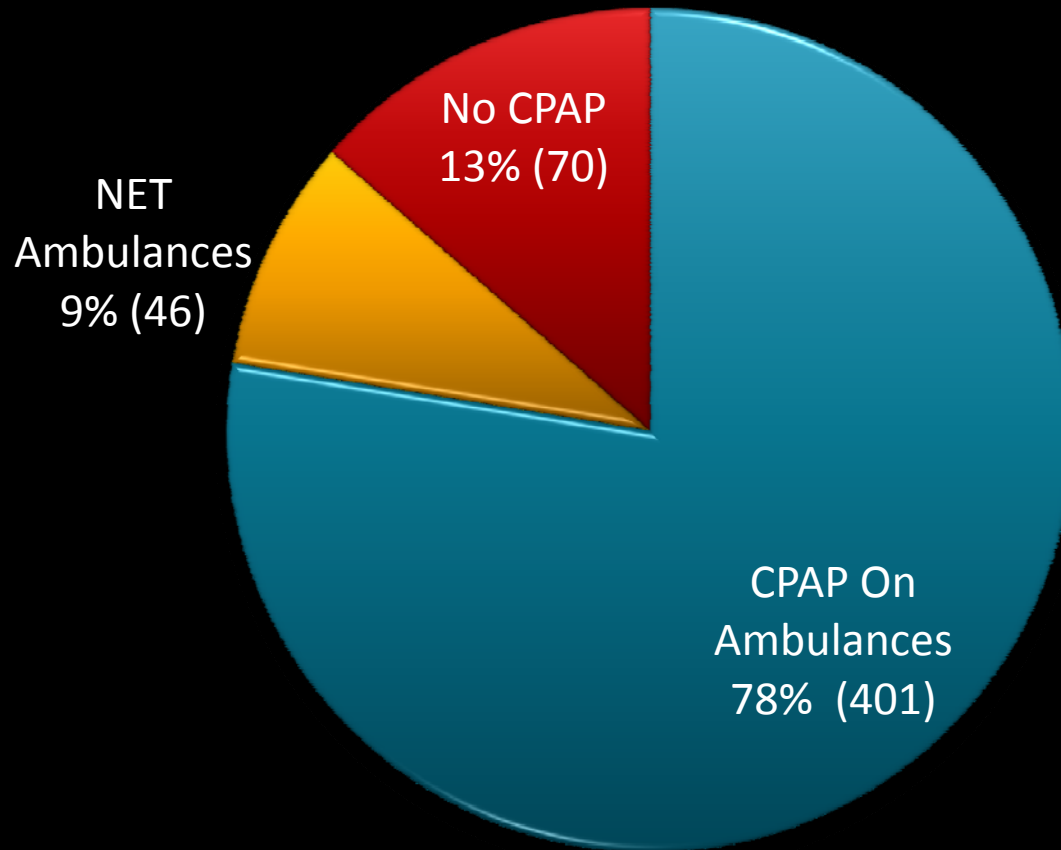
# CPAP On ALS Ambulances

517 ALS Ambulances

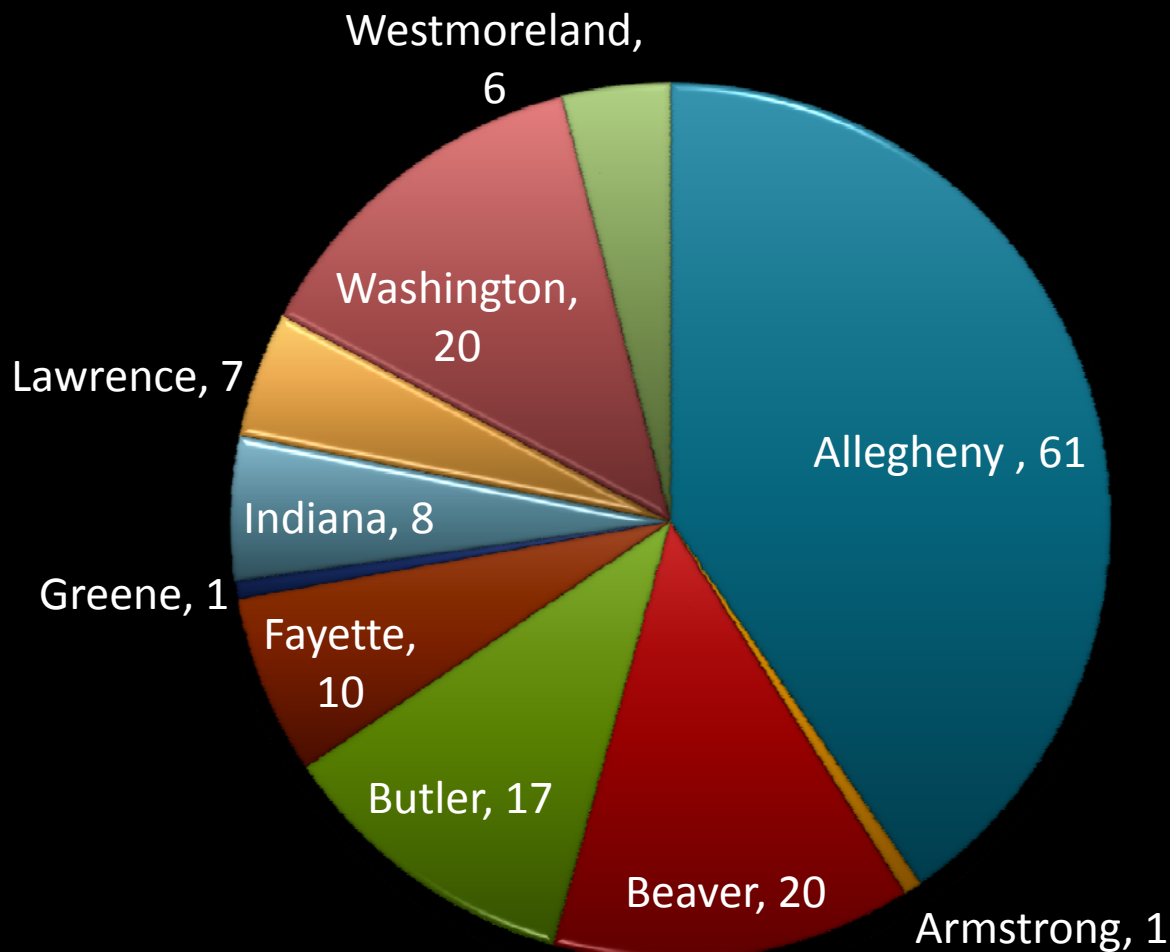


# CPAP On ALS Ambulances

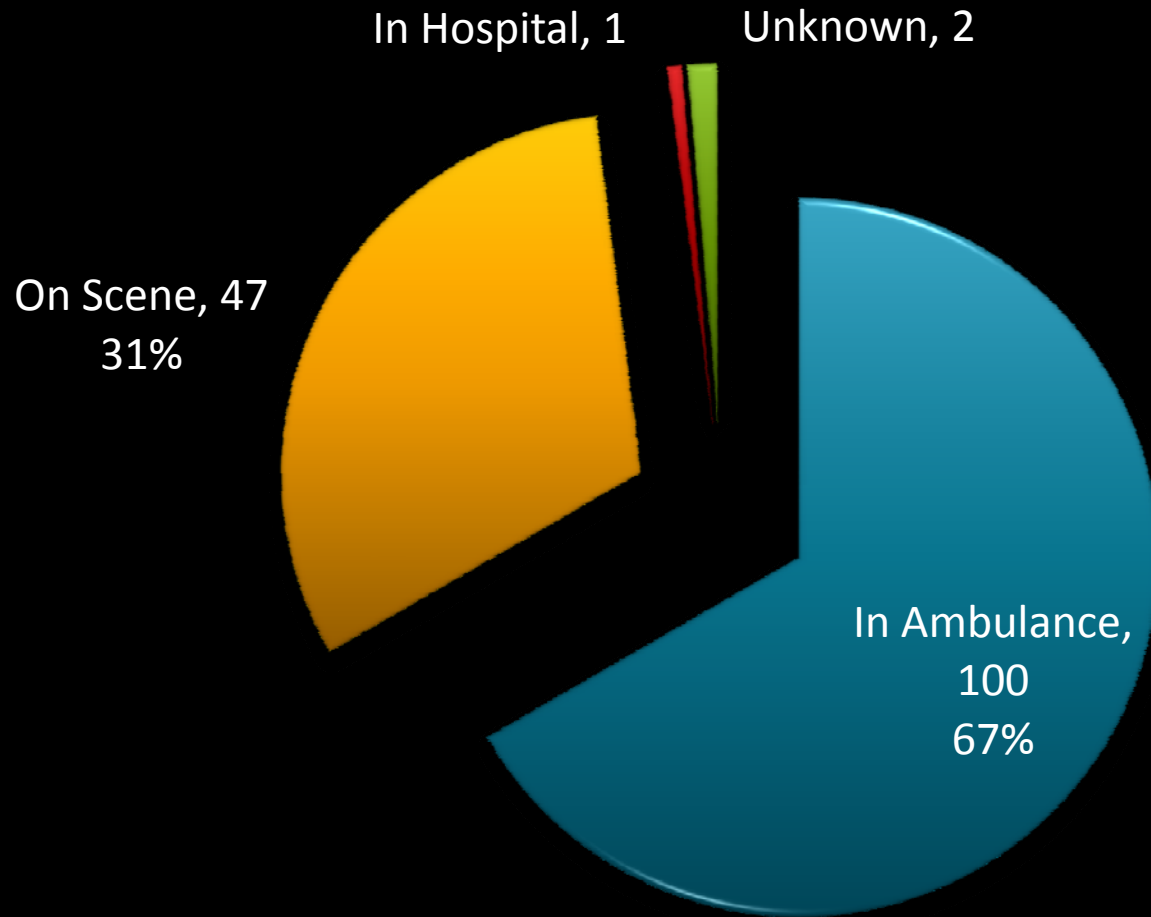
517 ALS Ambulances



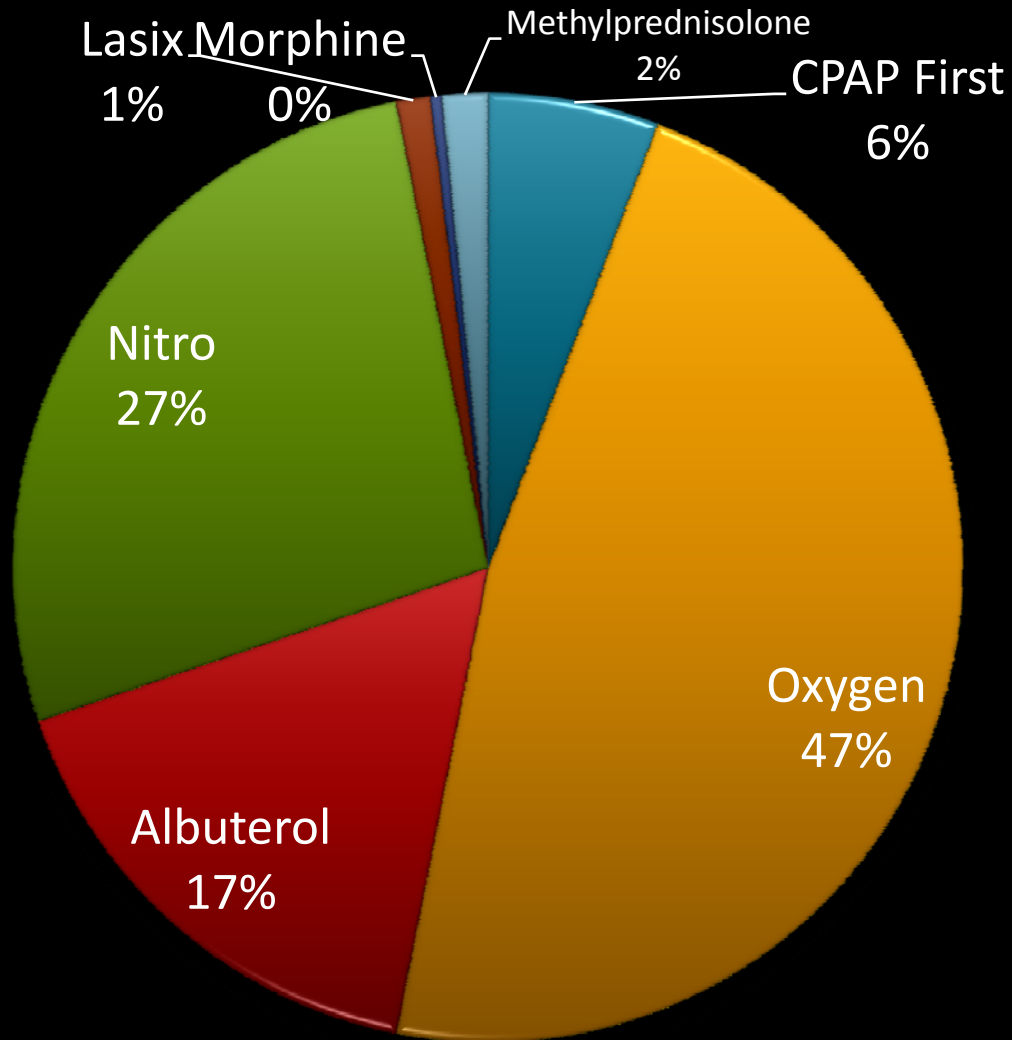
# CPAP Use Reported from December 1st 2007 to February 29th 2008



# Where was CPAP Placed on the Patient?



# Treatment Before CPAP





# Complications of CPAP

No Complications – 115

**Intolerance of CPAP – 15**

Run out of Oxygen – 7

No Information – 6

Worsening Dyspnea – 3

Equipment Failure – 2

Vomiting – 1

Improper Mask Fit – 1



# Intolerance of CPAP (crew comments)



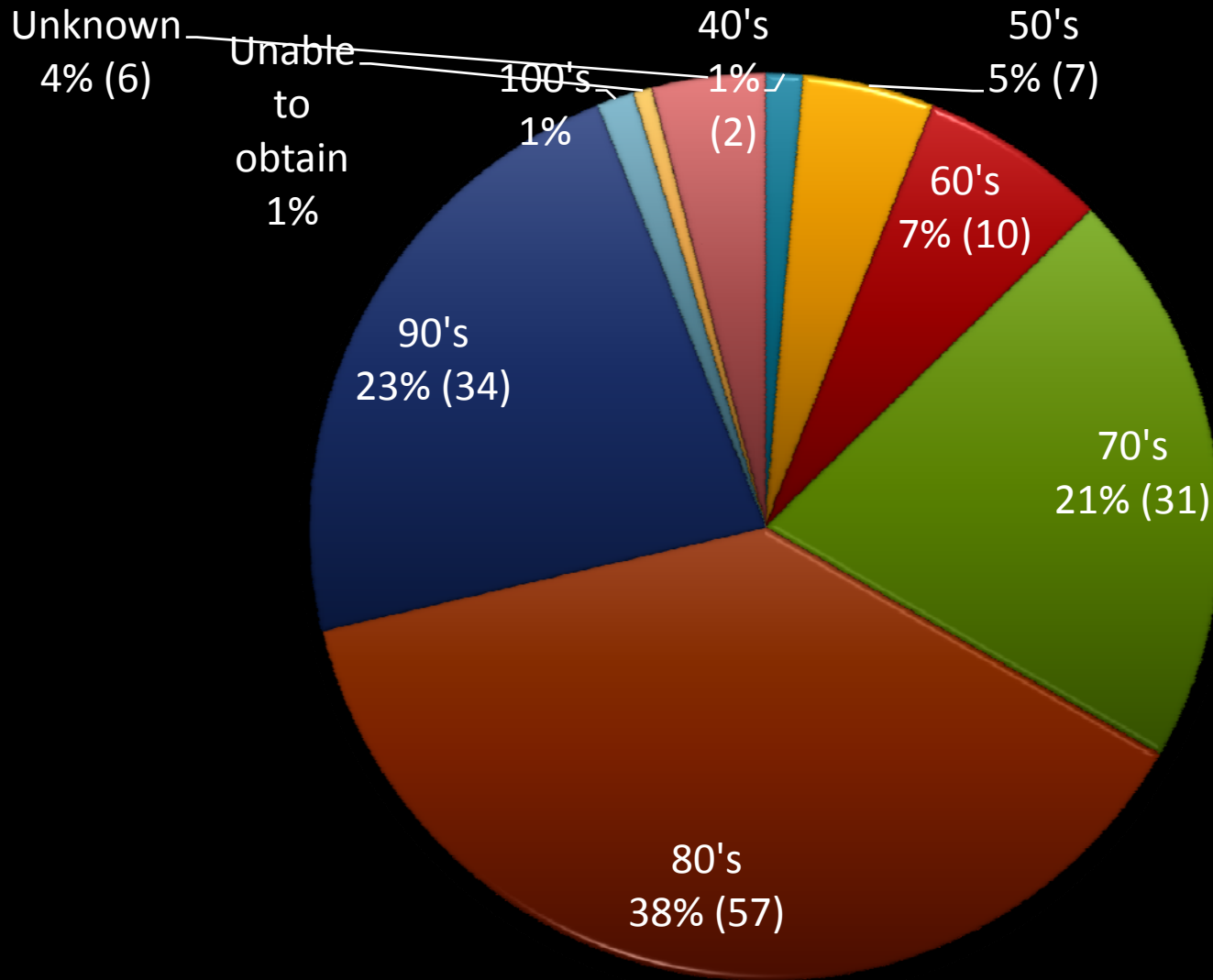
- Patient would not keep the CPAP on. She tolerated a mask non re-breather but not CPAP. PCR describes the difficulty that the crew encountered when attempting CPAP treatment.
- Patient pulling at CPAP mask; would not allow mask to seal
- His pulse ox immediately improved but he was anxious with mask
- Patient did not tolerate at all even with attempts at trying to hold to patient
- Patient tried CPAP and coached through use but refuses stating it was making it worse
- It did not feel right were his words. I attempted to make him understand the need and develop a tolerance but not able to convince that to patient
- Patient intolerant of CPAP initially but with coaching patient tolerated it and was breathing much easier
- Patient had started to calm down and indicated CPAP was helping. Just prior to arrival at ER, he became distressed stating the machine was not working, no equipment problems noted.



# Equipment Failure

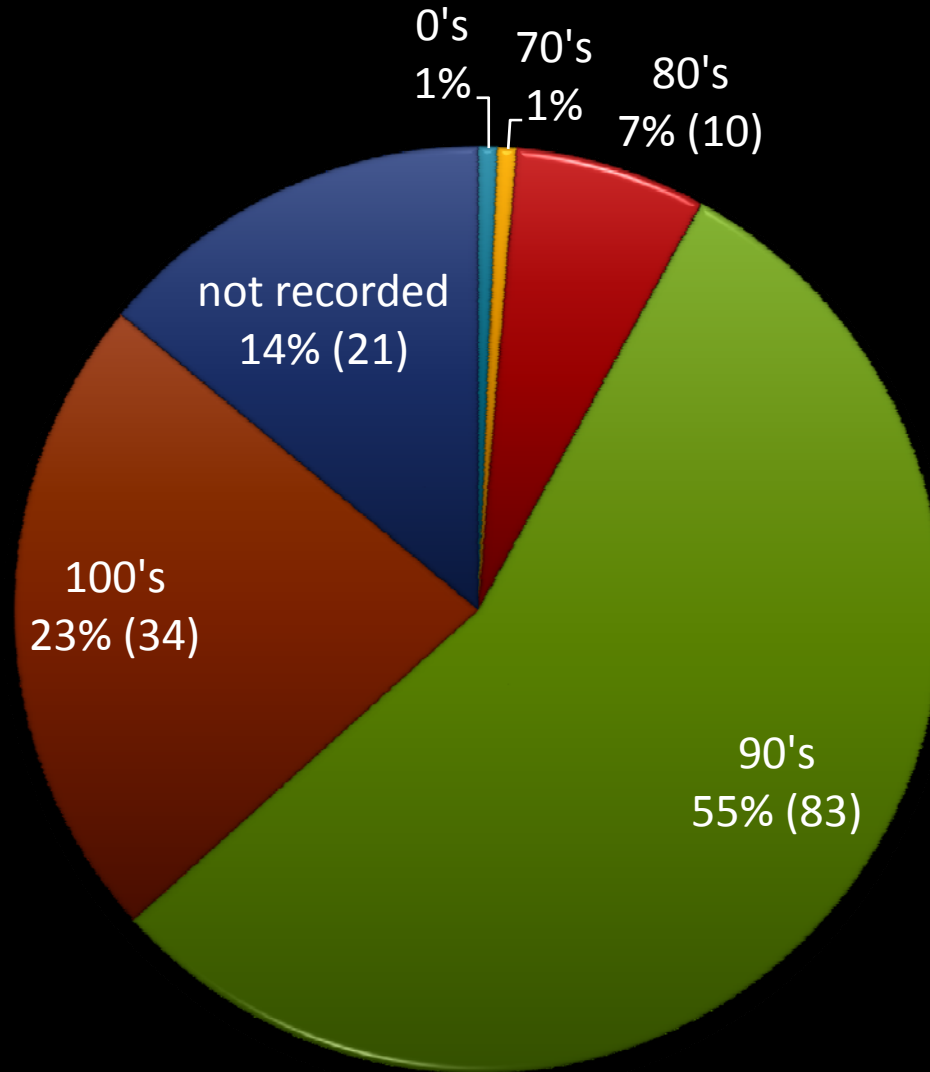
- Found mask molded improperly with hole in plastic causing leak, crew used tape and manual pressure to seal leak, otherwise considerable improvement in patient (*mask kept and sent to Emergent*)
- Patient had short nose, mask leaked near his eyes, portable O2 tank not compatable with O2 hookup (threads stripped) unable to continue CPAP, main O2 empty  
(*follow up done with ALS agency*)

# Pulse Oximetry Before CPAP

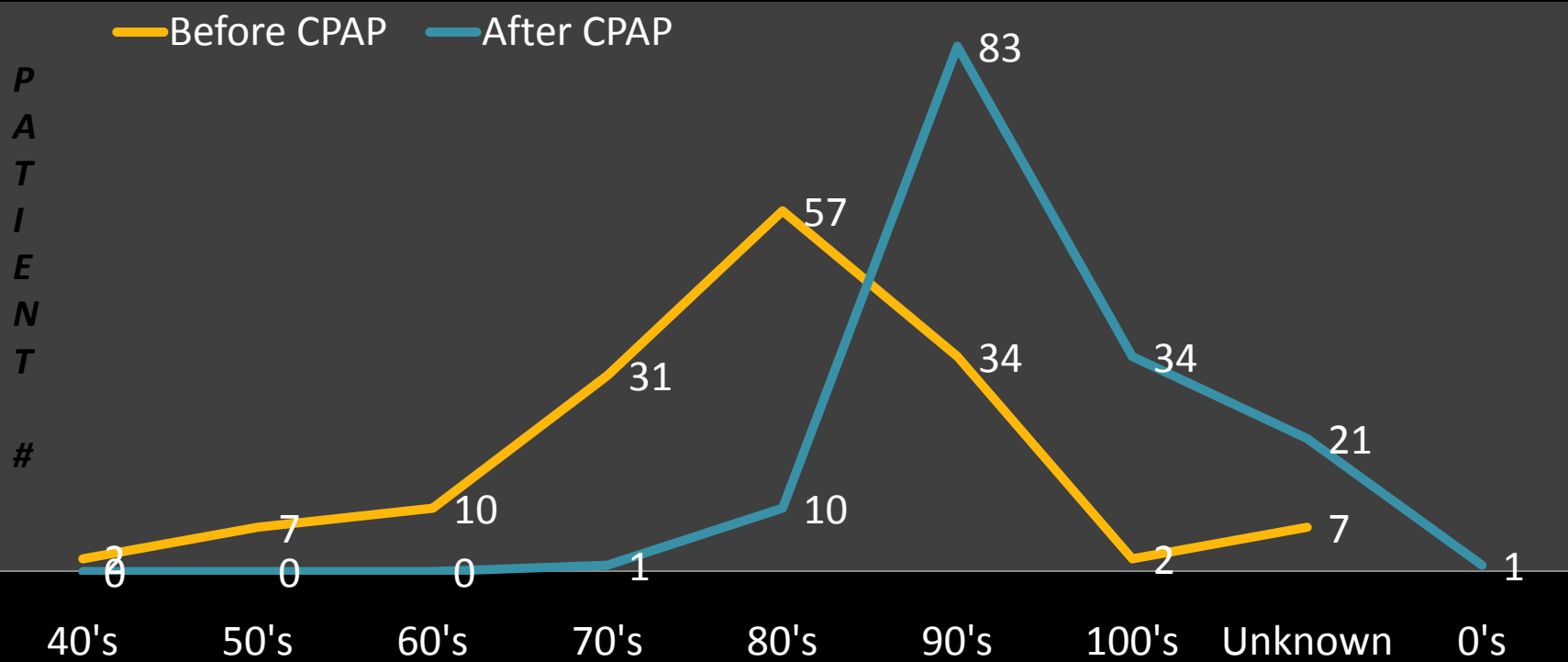


# Pulse Oximetry after CPAP

SaO<sub>2</sub> after CPAP  
(in 10% groups)

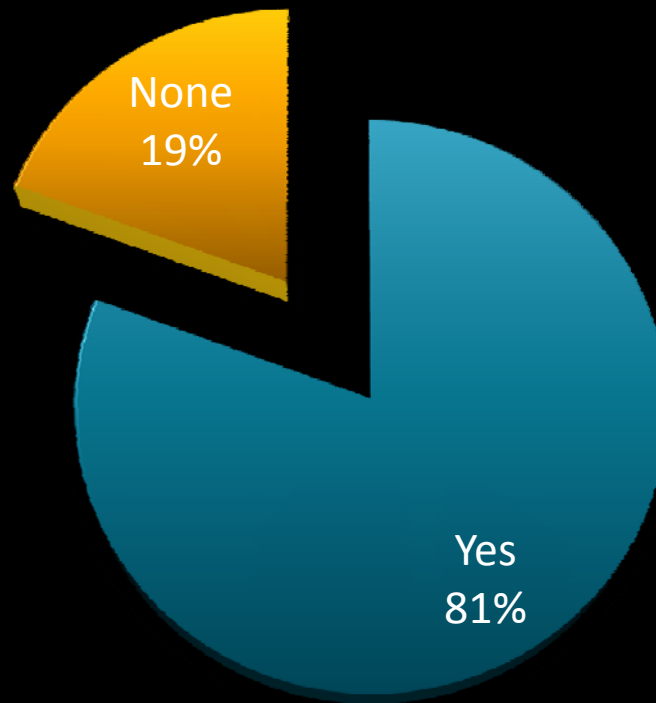


# 150 Patients



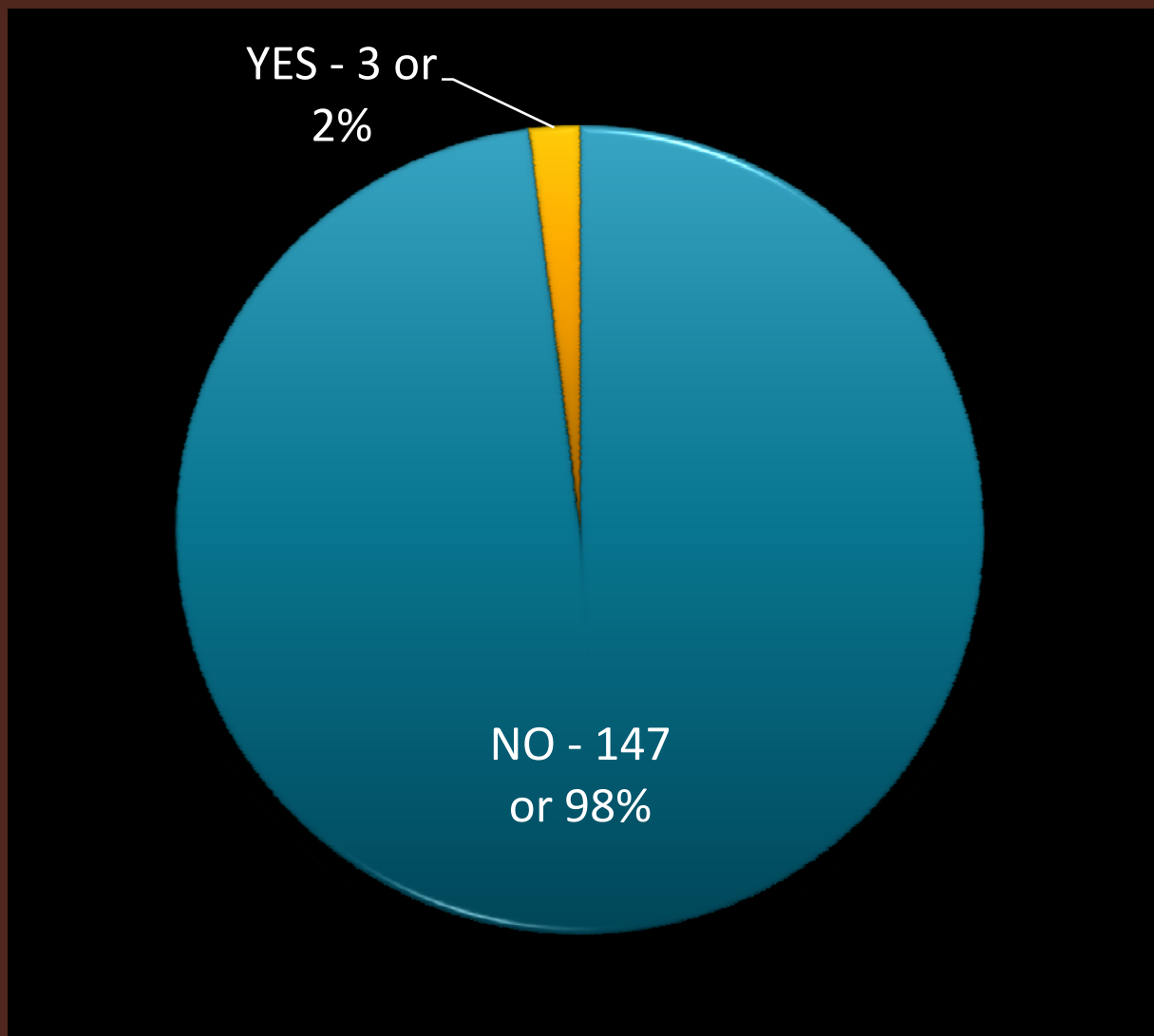
# Vital Signs Recorded

No Second Set of Vital Signs Recorded after any Treatment



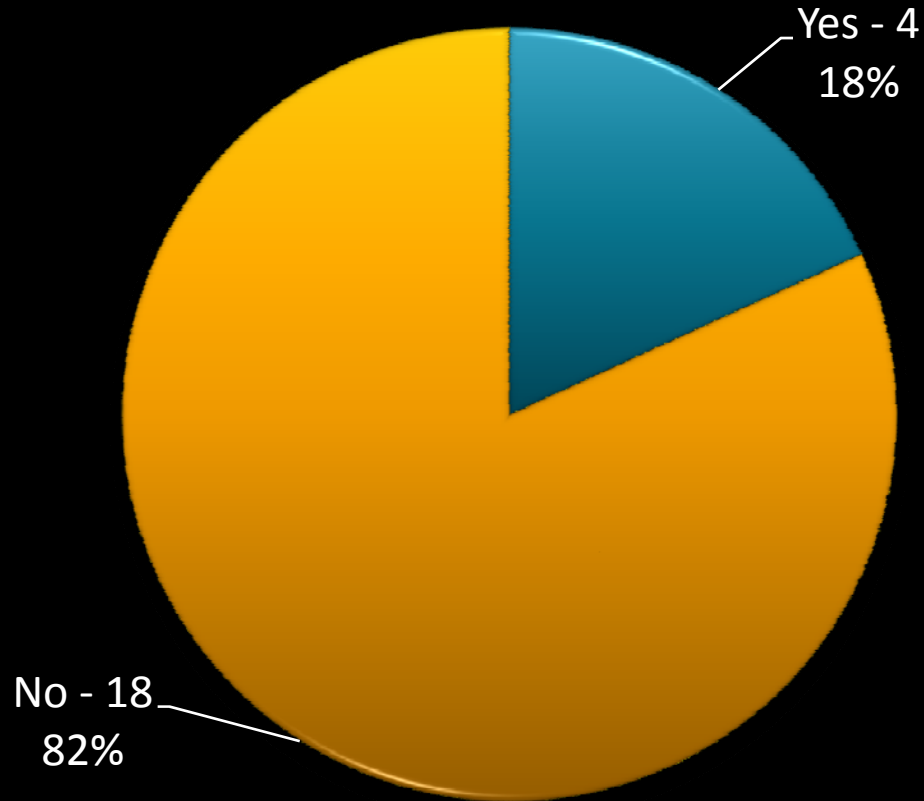


# Pre-Hospital Intubation Required?



# In Hospital Intubations Still Collecting Data (24 Collected so far)

In Hospital Intubation





# Positive Results!



## Crew Comments

Great results, patient dramatically improved.

Great tool really made a difference in the patient's status in a relatively short span of time.

The patient was transferred from EMS CPAP to the hospital CPAP and I believe patient was discharged that evening.

The patient was discontinued from crews CPAP at hospital and placed on respiratory CPAP. I was pleased with hospital respiratory being right there ready to go.

Patient tolerated CPA well. Patient shortness of breath decreased and the pulse ox increased to 98%. The patient tolerated CPAP well.

The patient's shortness of breath decreased and the pulse ox increased to 98%.

The patient tolerated procedure well with no complications and respiratory effort eased as well as an increase in his O2 saturations.

The patient was initially near respiratory arrest. It was a dramatic improvement and avoided arrest and intubation.



# *More...*



There was relatively instant improvement following initiation of CPAP!

The patient appeared to breathe better. The patient stated her breathing improved.

The patient's initial SAO<sub>2</sub> was 78% on 15 liters via non re-breather. The SAO<sub>2</sub> at arrival of Mon Valley Hospital was 97%.

One minute after applying CPAP, the patients color improved from cyanotic to pink and SAO<sub>2</sub> improved from 85% to 95%.

The SPO<sub>2</sub> increased from 73% to 95% with CPAP. The patient's breathing and color improved.

# *So...*



# Apply CPAP Earlier?

Pennsylvania Department of Health

Cardiac

5002 – ALS – Adult

## CONGESTIVE HEART FAILURE STATEWIDE ALS PROTOCOL

Initial Patient Contact - see Protocol #201

Manage Airway/Ventilate, if indicated

High-flow Oxygen

CPAP/BiPAP (if available) if respiratory distress

**AND**

SaO<sub>2</sub> < 90% on High-flow Oxygen

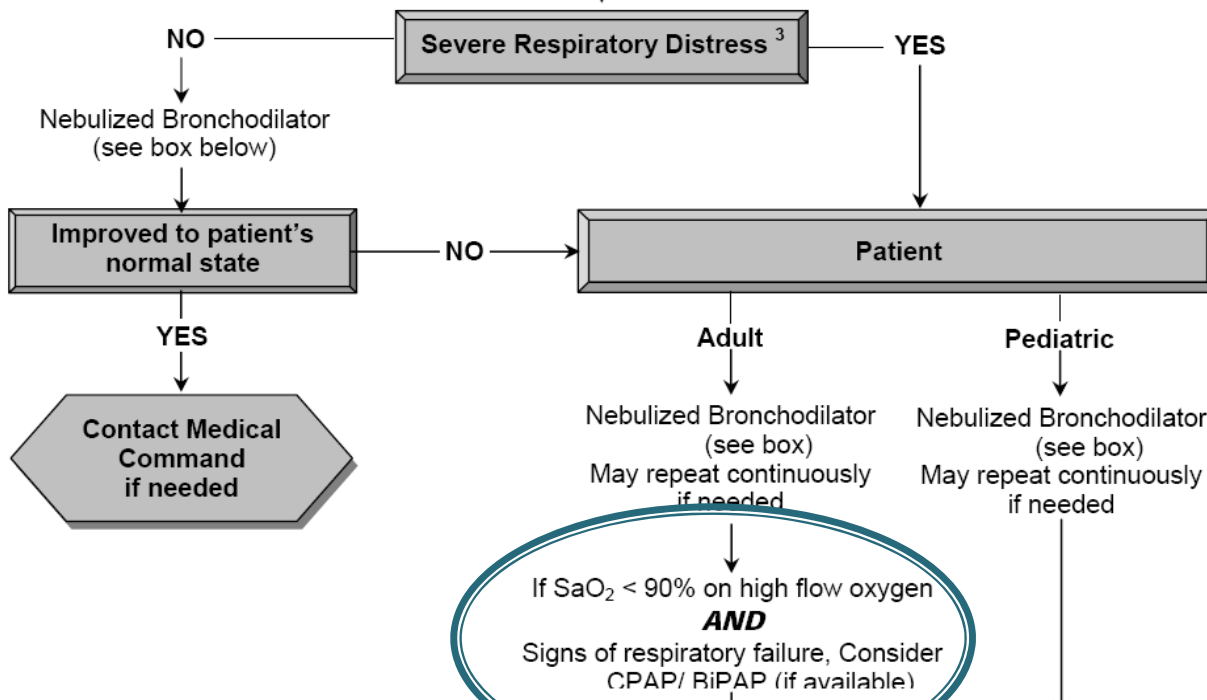
Monitor ECG & Pulse Oximetry



### ASTHMA / COPD / BRONCHOSPASM STATEWIDE ALS PROTOCOL

Initial Patient Contact - See protocol #201

Manage Airway/ Ventilate, if needed <sup>1</sup>  
Administer Oxygen <sup>2</sup>  
Monitor Pulse Oximetry



# Thank you for all your help !

