



Eagles 2011

PRESSURE TO SUCCEED:

**DOES PREHOSPITAL CPAP AVOID
DRUG FACILITATED INTUBATION**




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Objectives

- To determine if the implementation of CPAP would result in a decrease in drug facilitated intubations




Out of Hospital Continuous Positive Airway Pressure Ventilation vs Usual Care in Acute Respiratory Failure: A Randomized Controlled Trial

- Thompson et al
- Annals Emerg Medicine 2008: 53(3)232-241)



Inclusion Criteria

- Inclusion
 - Severe Respiratory Distress
 - Accessory muscle use
 - Respiration Rate > 25
 - Hypoxia
 - Exclusion
 - Respiratory Arrest
 - RR < 8
 - Period's of apnea
- 

Results

	Intubated	Mortality
Usual Care	17/34 (50%)	12/34 (35%)
CPAP	7/35 (20%)	5/35 (14%)



Houston CPAP Deployment

- CPAP Deployment
- April 1, 2007

- Persse JEMS 2007

Houston CPAP Implementation Outcome

Dates	Intubations	Relative Change
April 1, 2005 to March 31, 2007	3279	
April 2, 2007 to March 31, 2009	2719	-18%

Methods

- Multnomah County EMS AMR Database
 - All incidents where “drug assisted intubations” were used (succinylcholine, etomidate, vecuronium)
 - “Primary Impression” field was used to categorize the clinical presentation

Multnomah County EMS

- Population: 700,000
- ALS Fire first response
 - City of Portland ,
Gresham and Airport
Fire Departments
- ALS transport (AMR
Multnomah County)
- Approximately 180
paramedics authorized
to use drug facilitated
intubation



Background

Year	Item
2001	Systemwide deployment of Drug Facilitated Intubation in Multnomah County
2003-2004	Mandatory use of waveform ETCO ₂ on all EMS units in Multnomah County
2006	Switch to Etomidate from midazolam as induction agent
2008	CPAP deployed systemwide by ALS providers in Multnomah County

MCEMS CPAP Protocol

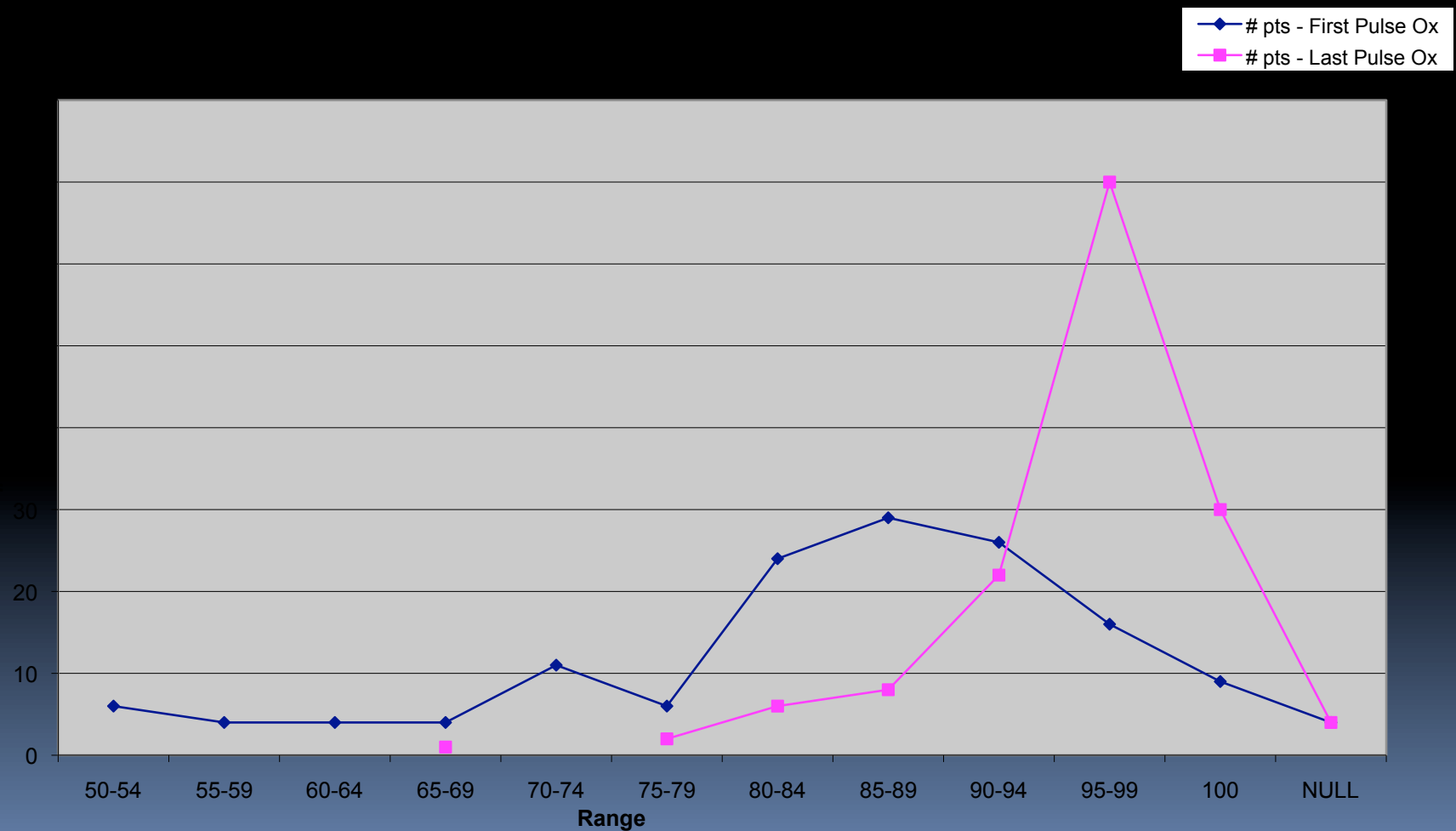
- Adult patients presenting with moderate to severe respiratory distress
 - Awake, alert and able to maintain airway
 - Signs and symptoms consistent with CHF / Pulmonary Edema or COPD
 - SBP > 100 mm Hg
 - Over the age of 12 years.



Multnomah County Respiratory Distress Protocol

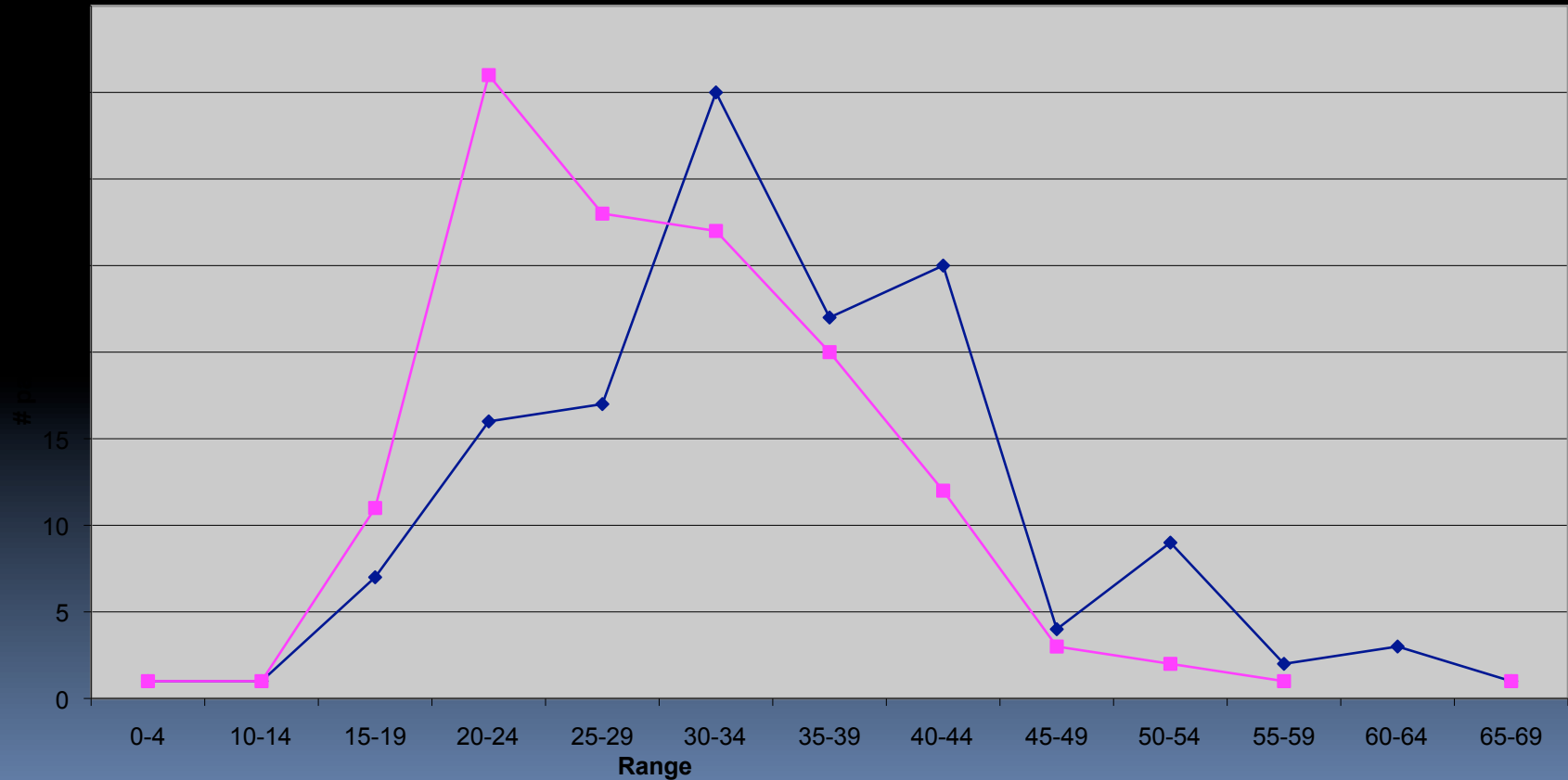
- Oxygen
- Albuterol
 - Suspected CHF
 - NTG
 - Furosemide
 - CPAP
 - COPD
 - Albuterol
 - Ipratropium
 - Steroids (methylprednisolone / dexamethasone)
 - CPAP

CPAP Oximeter Before / After AMR 2008 Data



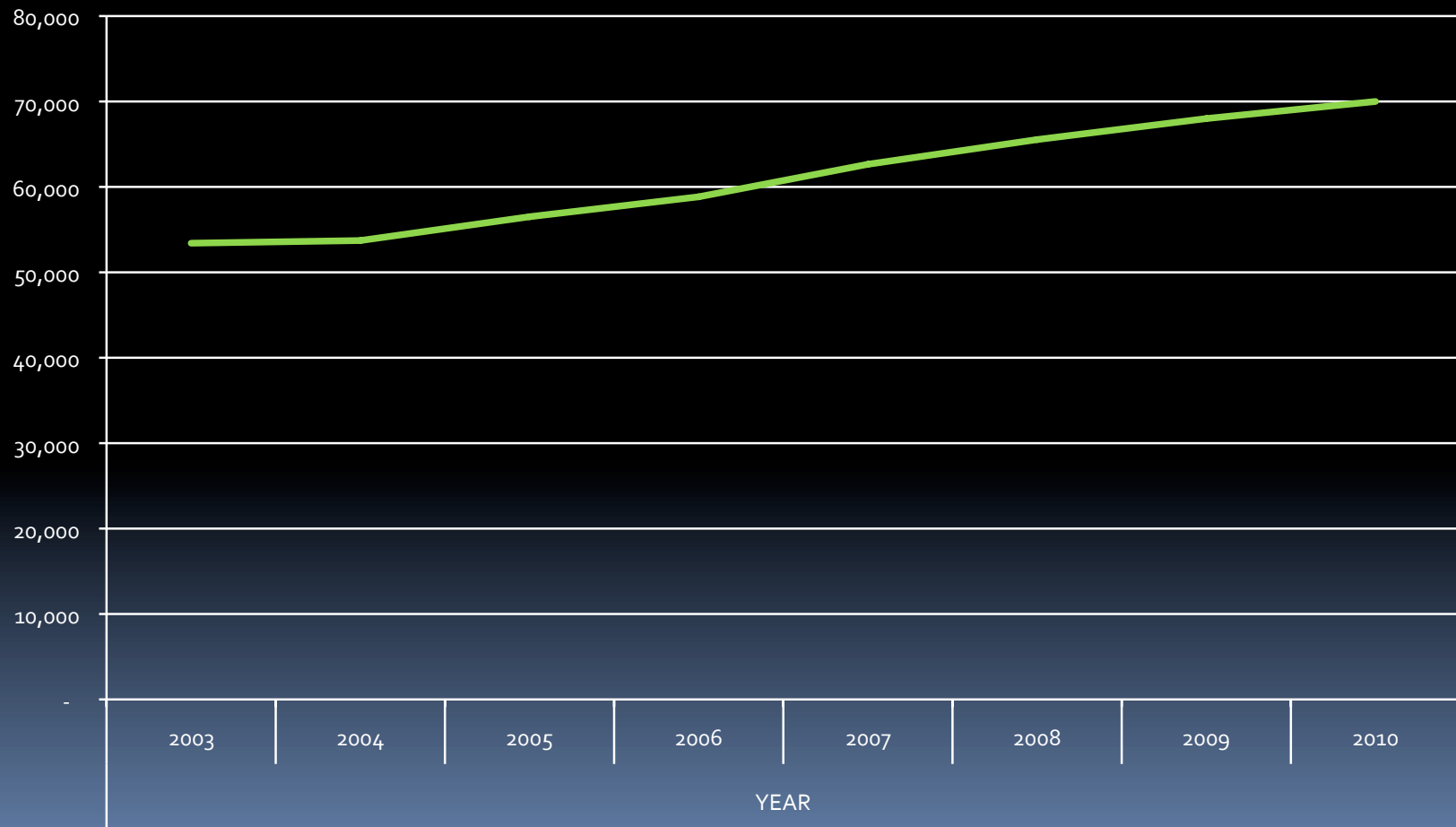
CPAP: Respiratory Rate Before / After : AMR 2008 Data

◆ # pts - First Respiratory Rate
■ # pts - Last Respiratory Rate

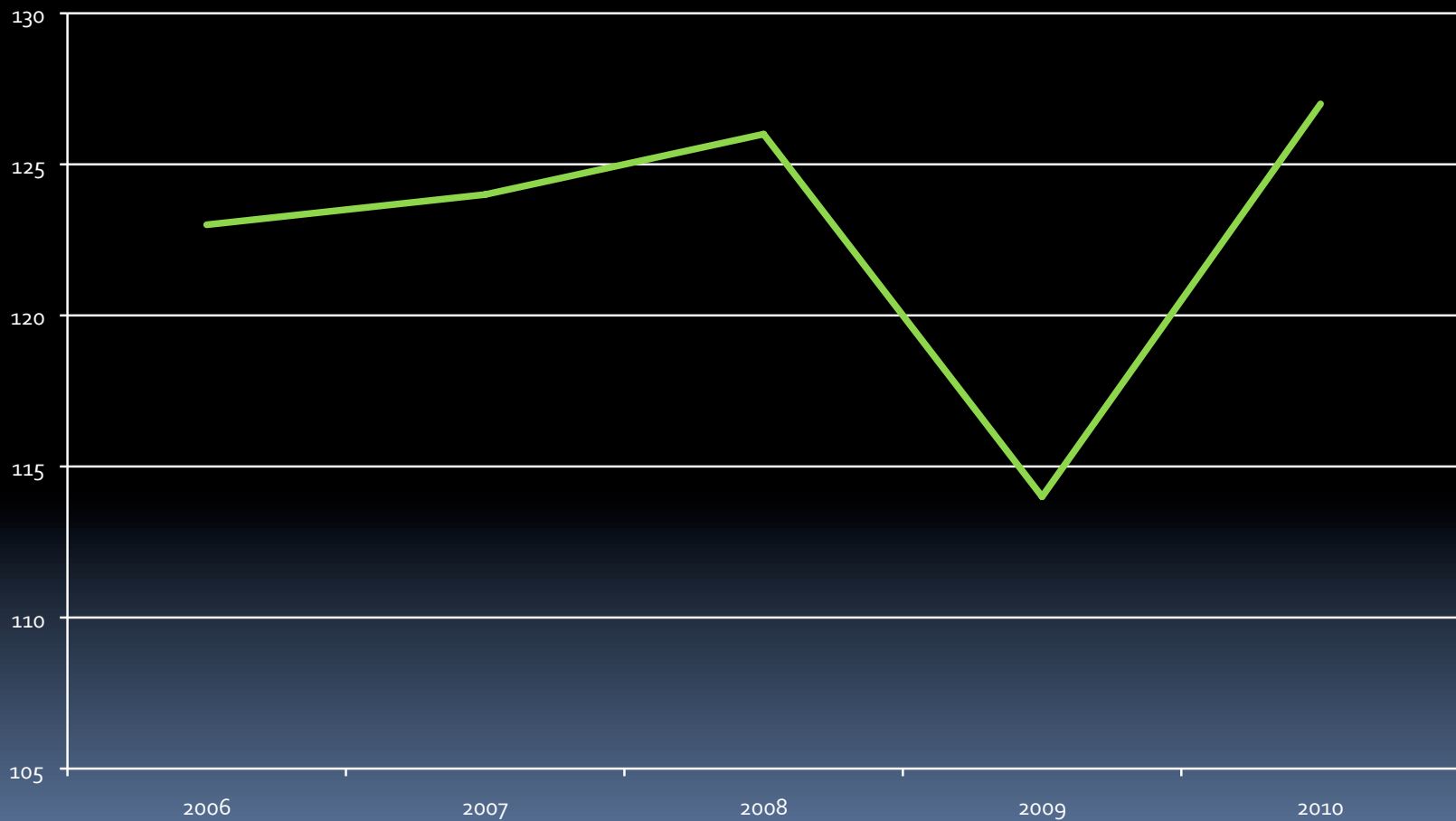


Multnomah county EMS Incidents 2003 - 2010

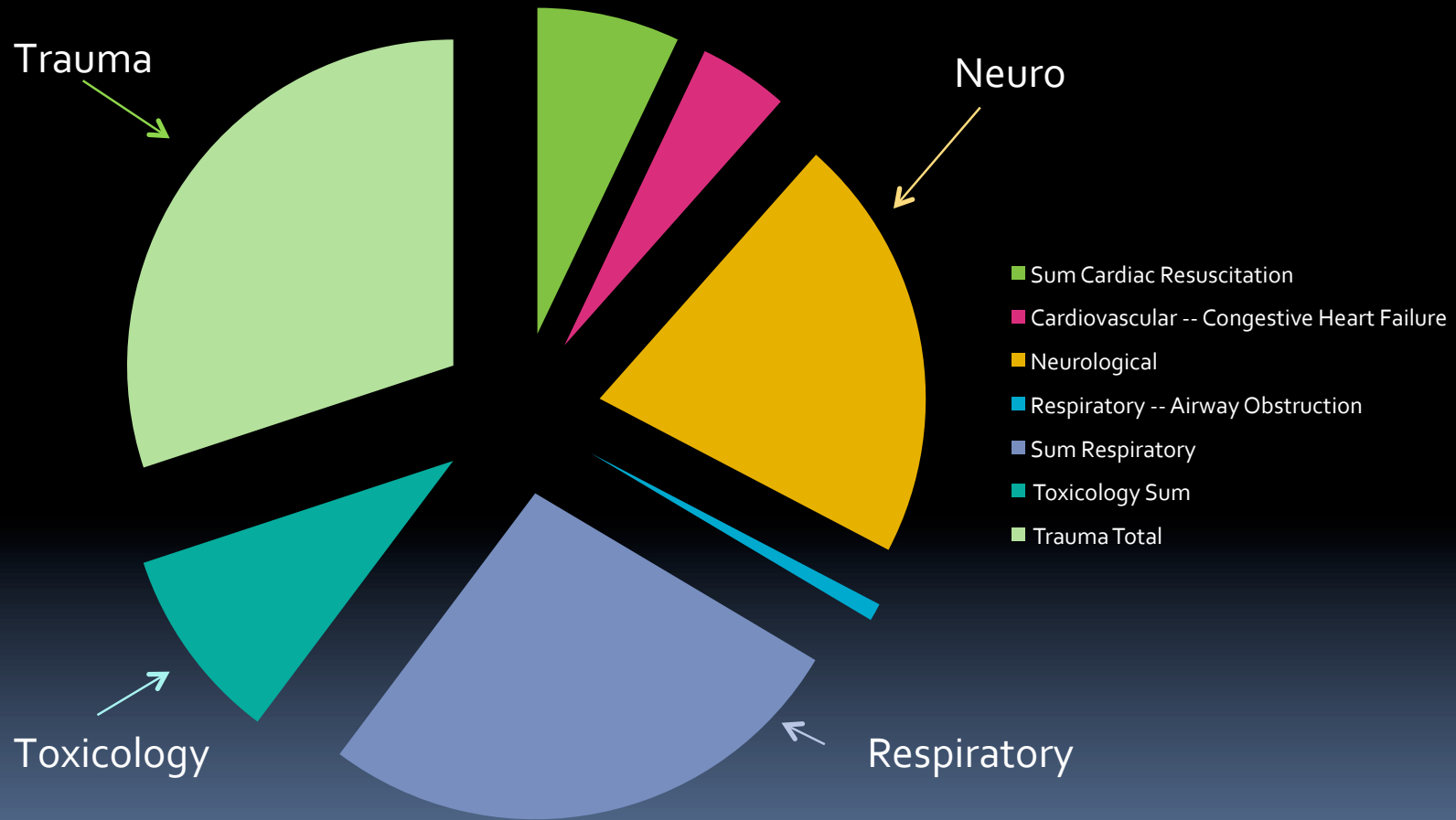
Incidents Dispatched



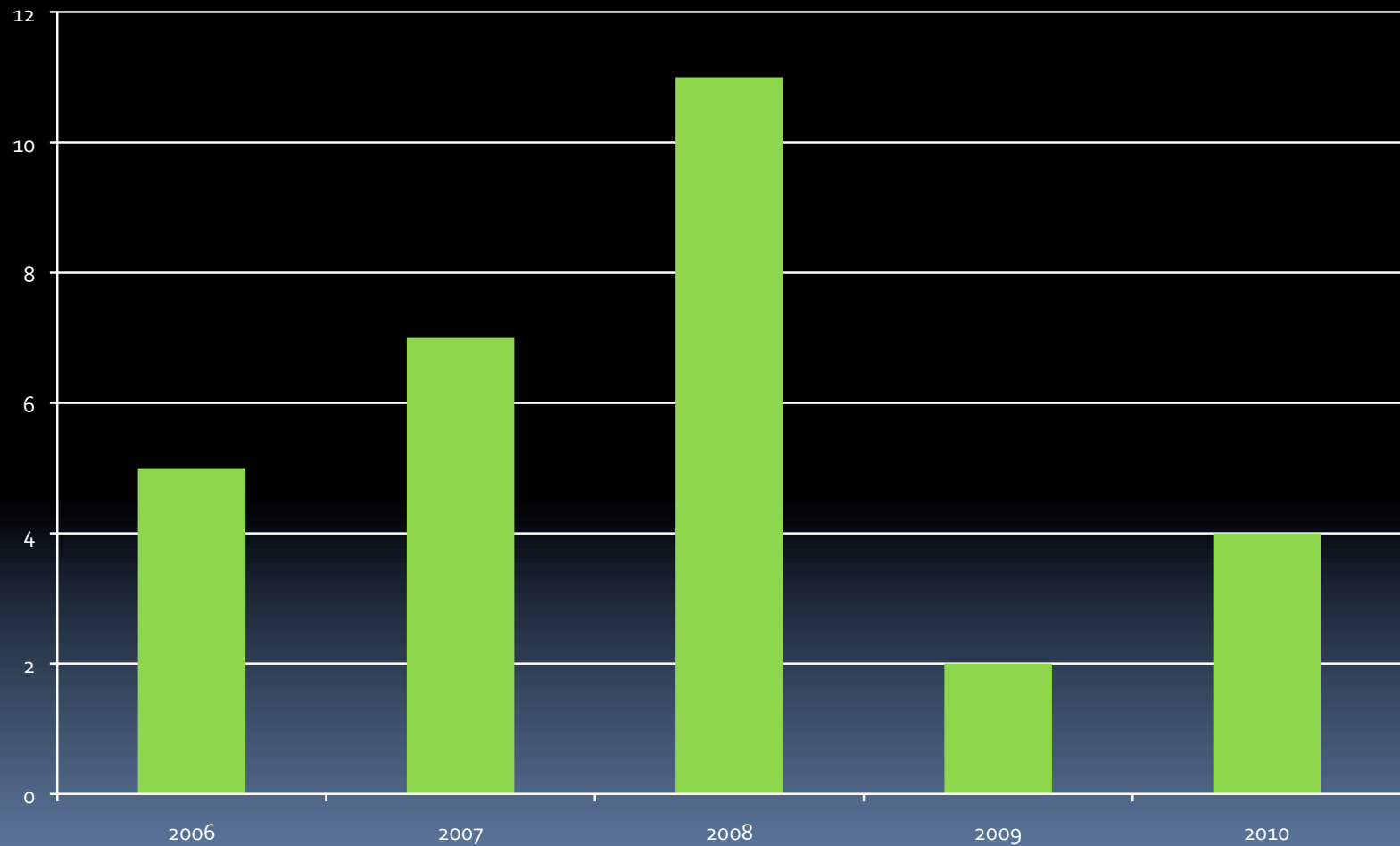
Drug Facilitated Intubations 2006 - 2010



Drug Facilitated Intubation: Clinical Presentations 2006-2010

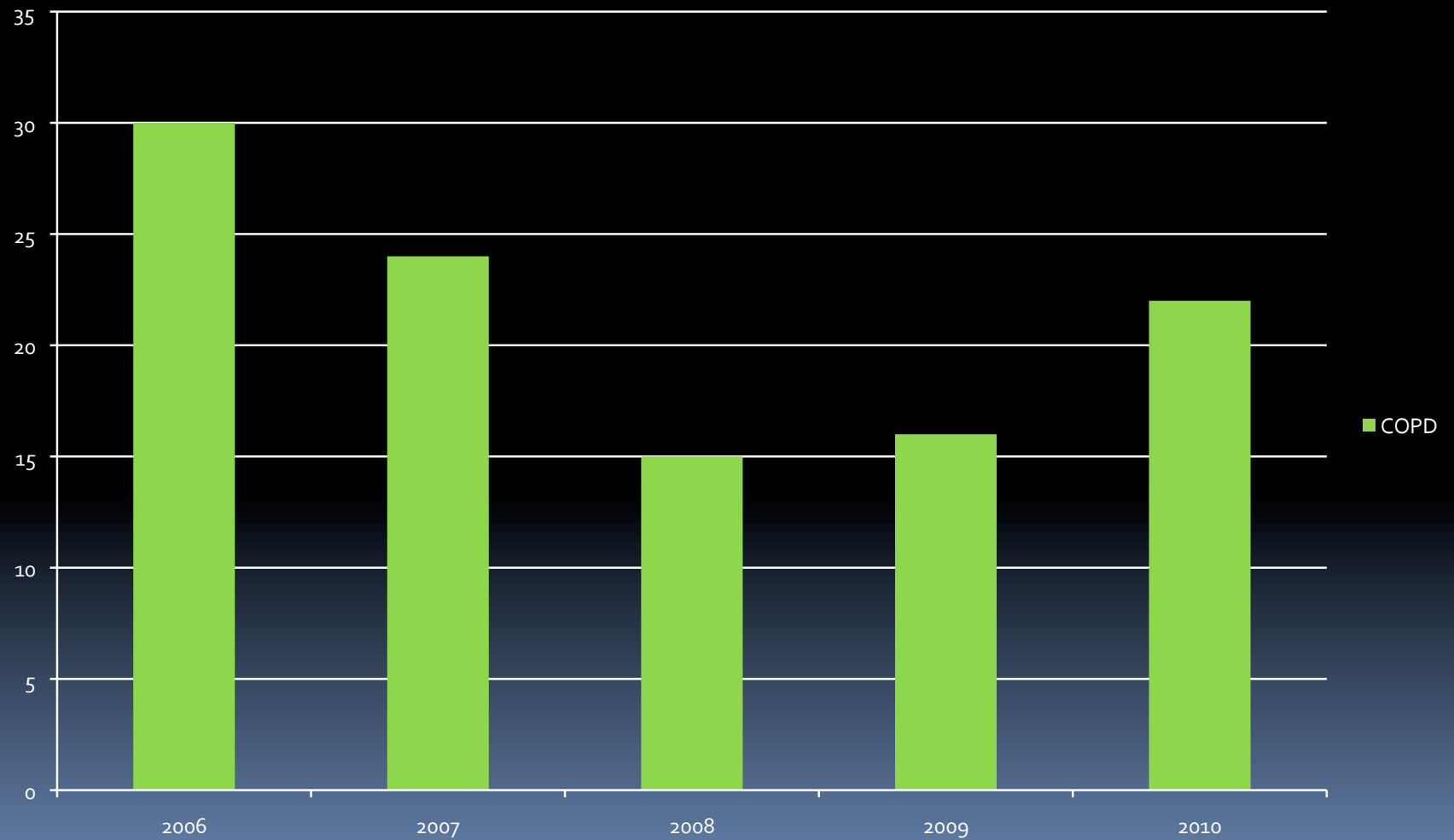


CPAP with Congestive Heart Failure

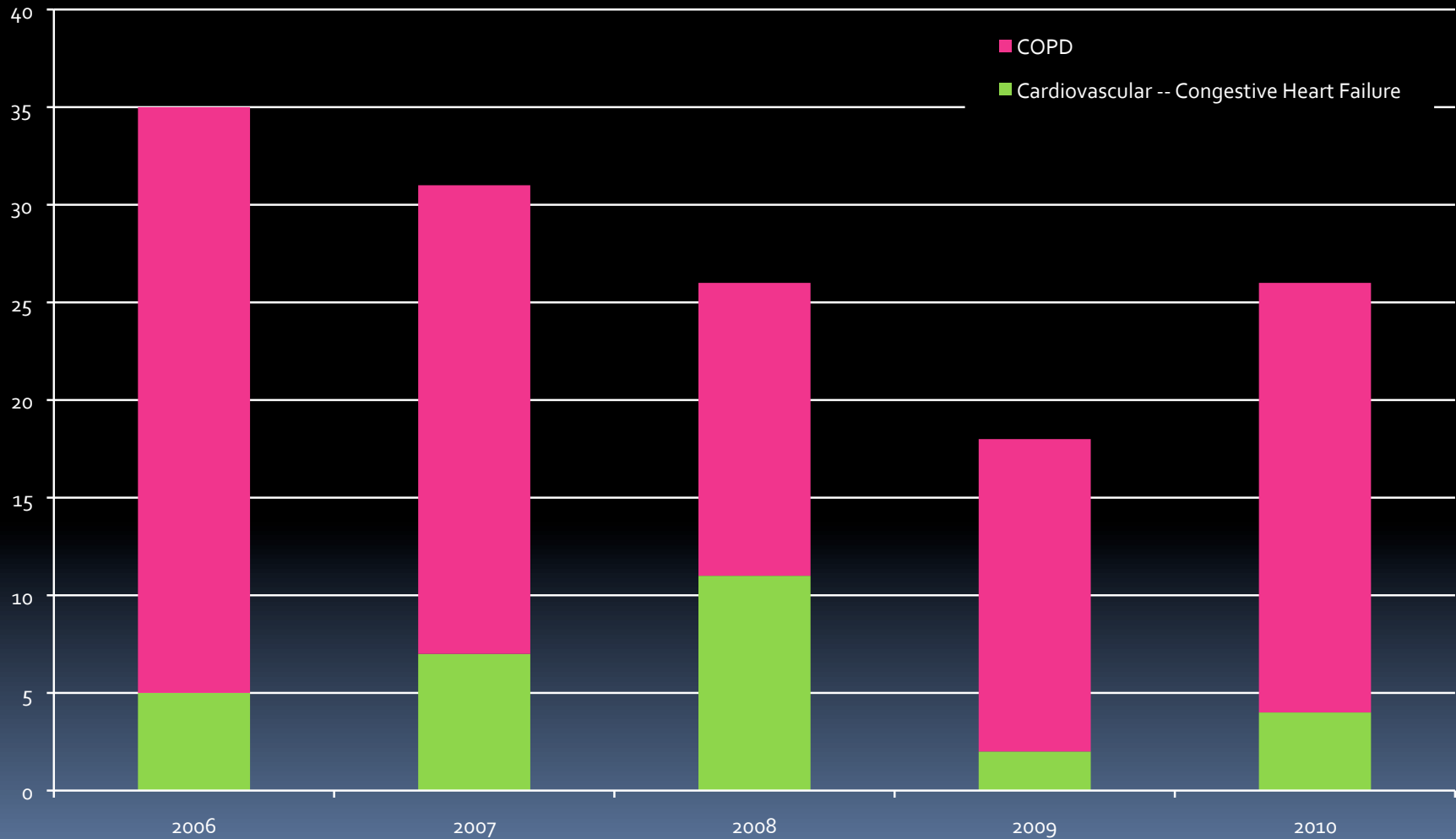


CPAP with COPD

COPD



CPAP : Combined COPD / CHF



Conclusions

- Systemwide CPAP deployment in an EMS system which performs drug facilitated intubation appears to decrease the incidence of drug facilitated intubation in patients presenting with respiratory distress secondary to congestive heart failure and/or COPD.
- Effect appears to be the greatest with patients presenting with CHF.

The END