

# Evidenced-based Medicine:



<u>Author</u>	<u>Citation</u>	<u># Patients</u>	<u>Outcomes</u>
Berstein, A., et al <i>New England Journal of Medicine</i> ; 1991, 325:1825-1830.	<i>"Treatment of Severe Cardiogenic Pulmonary Edema with Continuous Positive Airway Pressure Delivered by Face Mask". New England Journal of Medicine; 1991,325:1825-1830.</i>	39	65% reduction in ED ETI
Lin M, Yang YF, Chiang, et. Al <i>Chest</i> , 1995; 107:1379-86	<i>"Reappraisal of continuous positive airway pressure therapy in acute cardiogenic pulmonary edema. Short - term results and long-term follow up".</i>	100	75% reduction in ICU ETI
Hastings, D., et al <i>Journal of Emergency Medical Services</i> , 1998: 23(9):58-65.	<i>"A Supportive Adjunct for Congestive Heart Failure in the Pre-Hospital Setting".</i>	67	85% reduction in PEC ETI 50% reduction in ICU LOS
Kosowsky JM, et al <i>Prehospital Emergency Care</i> . 2001, 5:190-196	<i>"Prehospital Use of Continuous Positive Airway Pressure (CPAP) for Presumed Pulmonary Edema, a preliminary case series".</i>	19	0 of 19 ETI in PEC 5.6 days - LOS 2 of 19 intubated in ED 2 of 19 in ICU within 24 hrs.
Gardtman M. Waagstein I. Karlsson T. Herlitz J. Division of Cardiology, Sahlgrenska University Hospital, Goteborg, Sweden. <i>European Journal of Emergency Medicine</i> . 7(1):15-24,2000 March	<i>"Has an intensified treatment in the ambulance of patients with acute severe left heart failure improved the outcome"?</i>	158	Improvement in symptoms during transport. No improvement in long-term mortality. (35% to 39% 1 <sup>st</sup> yr.)
Kelly AM, Georgakas C, Bau S, Rosengarten P, Western Hospital, Melbourne, Vic. <i>Australian N Z J Medicine</i> , 1997 June;27(3):319-22	<i>"Experience with the use of continuous positive airway pressure (CPAP) therapy in the emergency management of acute severe cardiogenic pulmonary oedema".</i>	75 retrospective	4% required ETI Avg. duration of t <sub>x</sub> 1.9 hrs. 89% experienced no adverse effects 71% discharged form ED to General Medical Wards.
Sacchetti,AD Harris, RH <i>Postgraduate Medicine</i> 1998 Feb;103 (2): 145-7, 153-4, 160-2	<i>"Acute cardiogenic pulmonary edema. What's the latest in emergency treatment"?</i>		90% ETI averted in ED

## **Evidenced-based Medicine:**



**Kosowsky JM, Branson RD, Crocco TJ, et al: Training Paramedics to administer Continuous Positive Airway Pressure (CPAP) to Patients with Presumed Cardiogenic (abstract). Prehospital Emergency Care. 2000, 4:100**

**Kosowsky JM, Stephanides SL, Branson RD, Sayre MR: Prehospital Use of Continuous Positive Airway Pressure (CPAP) for Presumed Pulmonary Edema, a preliminary case series. Prehospital Emergency Care. 2001, 5:190-196**

**Kosowsky JM, Gasaway MD, Stephanides SL, Ottaway M, Sayre MR: EMS transports for difficulty breathing: is there a potential role for CPAP in the prehospital setting? Academic Emergency Medicine. 2000, Oct; 7(10):1165**

**Kosowsky JM, Zane R: BiLevel positive airway pressure for presumed pulmonary edema. Academic Emergency Medicine. 2001, Mar; 8(3): 299-300**

**Kosowsky JM, Storrow AB, Carleton SC: Continuous and BiLevel positive airway pressure in the treatment of acute Cardiogenic pulmonary edema. American Journal of Emergency Medicine. 2000, Jan; 18(1):91-5**

# Commentary-based Medicine:



<u>Author</u>	<u>Title</u>	<u>Type</u>	<u>Comment</u>
Mattera C MS RN EMT-P Journal of Emergency Medical Services,2000,May: 36-47	<i>“Heart Failure and Pulmonary Edema”.</i>	Educational	<b>“New option in the t<sub>x</sub> of ACPE”.</b> Uses a \$60 disposable extensively in large Chicago EMS System. Lectures at numerous State EMS Conferences. Shares Protocols.
Angelo Salvucci, MD, FACEP Medical Director for Santa Barbara and Ventura County (CA) EMS Agency and chair of the California Commission on EMS. EMS Magazine, July,2001	<i>“CPAP for Cardiogenic Pulmonazry Edema”</i>	Editorial	<b>CPAP used extensively in ED’s, hospital ICU’s and in Europe on physician-staffed ambulances.</b> <b>CPAP is beneficial and can eliminate the need for intubation.</b> <b>I have used this extensively in my practice.</b> <b>CPAP has much promise for use in the prehospital field.</b>
Brochard L, et al Medical Intensive Care Unit Henri Mondor Hospital Creteil, France	<i>“Noninvasive ventilation for acute exacerbations of chronic obstructive pulmonary disease”.</i>	Abstract	<b>In selected patients with acute exacerbations of COPD, NiPPV can reduce the need for endotracheal intubation, the length of the hospital stay, and the inhospital mortality rate.</b>
Antonelli M, et al Institute of Anesthesiology and Intensive Care, Universita La Sapienza, Policlinico Umberto I, Rome, Italy	<i>“A comparison of noninvasive positive pressure ventilation and conventional ventilation in patients with acute respiratory failure”.</i>	Abstract	<b>In patients with ARF, NiPPV was as effective as conventional ventilation in improving gas exchange and was associated with fewer serious complications and shorter stays in the intensive care unit.</b>
Pang D, et al Chest / 114 / 4/ Oct,1998 1185-92	<i>“The Effect of Positive Pressure Airway Support on Mortality and the Need for Intubation in Cardiogenic Pulmonary Edema”.</i>	A Systematic Review	<b>This systemic review suggests that there is a modest amount of favorable evidence to support the use of CPAP in patients with cardiogenic pulmonary edema due to its association with a decrease in the need for intubation and a trend toward a decrease in mortality.</b>

## **Financial-based Medicine:**



### **Epidemiology**

**10 per 1000 age > 65**

**Accounts for 25% of all Medicare Admissions**

**CHF DRG. (#127)**

**The payout is about \$4.5K per discharge**

**The average LOS is 6.7 days.**

**Those needing intubation/ICU stay longer than 6 days.**

**The ideal length of stay is 4-5 days (which would also include some with ICU).**

**The average charge is \$10-12K.**

**This makes CHF a big loser DRG with the typical cost to charge ratio of 50%.**