

# I Got the Airway... Now What?

Principles of Mechanical Ventilation in the ED:  
The first 6 hours

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# Disclosure

∞ We're unable to identify any potential conflict of interest and have nothing to disclose

# Objectives

- ❧ Review a basic approach to ventilator setup and settings in the acute management of ED patients
- ❧ Discuss an approach to the ventilator and relevant medical management issues with regards to common pathologies seen in rural emergency departments including ARDS, Asthma, Head Trauma, DKA and post community cardiac arrest

# For each of the following cases, let's consider:

- ❧ A few issues regarding acute medical therapy
- ❧ Best way(s) to ventilate the patient
- ❧ Specific ventilation concerns and pitfalls
- ❧ Getting ready for transportation

# Specific Ventilation Considerations:

- ❧ Specific areas of concern wrt each of the patients Ventilators
- ❧ Mode of choice
- ❧ Tidal Volume, Minute Ventilation
- ❧ RR and FiO<sub>2</sub>
- ❧ PEEP and Vent Pressures Dialed into System
- ❧ Troubleshooting



# And Hopefully

☞ We can have some time to actually get some hands on face time with a ventilator or two

# Let's Assume....

∞ All patients in these scenarios are being transferred OUT of your local ED to a regional or tertiary referral center

# Let's Also Assume....

- ☞ Your on call RT, if you have one, is at home and on their way into the hospital
- ☞ You've got very competent nursing staff on site to help with drugs and the process of intubation
- ☞ Your local ED ventilator is in the room



# Case 1: Asthma

- ❧ 21 year old woman, long hx of asthma
- ❧ Presents with acute asthmatic decompensation
- ❧ Looking very distressed, use of accessory muscles
- ❧ Stat ABG: RR 40, PCO<sub>2</sub> 40, P0<sub>2</sub> 96 (2 L NP)
- ❧ Intubated for WOB and ventilatory assist

# Case 2: Head Trauma

- ❧ 32 year old man
- ❧ Involved in single car MVA, concurrent ETOH use
- ❧ HR 98, BP 140/78, RR 14, Sats 96% by BVM, Afebrile
- ❧ GCS 4/15, extensor postures, Pupils sluggish, bilaterally reactive
- ❧ Intubated in field

# Case 3: DKA

- ❧ 18 year old Insulin Dependent Diabetic X 12 years
- ❧ Found unconscious by family at 6pm Saturday night after binge ETOH/party and then 'sleeping all day'
- ❧ HR 122, BP 94/48, Sats 100% on 2 L NP, RR 32
- ❧ Initial ABG pH: 6.94, PCO<sub>2</sub>: 9, PO<sub>2</sub>: 102, HCO<sub>3</sub>: 4

# Case 4: ARDS (suspected)

- ❧ 56 year old man, SOB with cough, productive sputum, fever X 3 days
- ❧ HR 128, BP 118/88, RR 24, Sats 68% R/A, up to 87% on NRB, T 38.8
- ❧ Looks distressed, sats now dropping, pulling off mask, agitated.
- ❧ Intubated by your team, post intubation CXR shows diffuse bilateral airspace disease

# Case 5: Post Arrest

- ☞ 74 year old man, known vasculopath
- ☞ Arrested at local gas station, CPR provided by bystanders
- ☞ EMS arrived, ACLS protocols and shockable rhythm on VF.
- ☞ Return of Spontaneous Circulation after 17 minutes
- ☞ Intubated in ED with ease
- ☞ GCS, HR 96, BP 140/70, RR 8, Sats 92% bagged, T: 37.1



# Thanks

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