**ARDS Teaching Script**

Definition: ARDS is an acute, diffuse, inflammatory lung injury that leads to increased pulmonary vascular permeability, increased lung weight, and a loss of aerated tissue [[2](https://mail.piedmont.org/owa/redir.aspx?C=Xly0iLfh40aTOpVUCfJc6IZUZk-4rdIISWf-SizS5P9pBp586YnP8clQfFcwJkfeiIHR2vf4ENM.&URL=http%3a%2f%2fwww.uptodate.com%2fcontents%2facute-respiratory-distress-syndrome-clinical-features-and-diagnosis-in-adults%2fabstract%2f2)]. Clinical hallmarks of ARDS are hypoxemia and bilateral radiographic opacities

Etiology: ARDS is associated with a variety of risk factors and etiologies. These conditions are grouped together under the term ARDS because the clinical, physiological features, pathological features, and management are similar regardless of the inciting event.

* Sepsis, Aspiration, Pneumonia, Severe Trauma, Transfusion-related, Drugs

Berlin definition: ARDS can be diagnosed once cardiogenic pulmonary edema and alternative causes of acute hypoxemic respiratory failure and bilateral infiltrates have been excluded. The Berlin Definition of ARDS requires that all of the following criteria be present to diagnose ARDS.

* Symptoms must have begun within one week of a known clinical insult
* Bilateral opacities
* Must exclude cardiogenic pulmonary edema
* PF ratio
  + Mild ARDS – The PaO2/FiO2 is >200 mmHg, but ≤300 mmHg, on ventilator settings that include positive end-expiratory pressure (PEEP) or continuous positive airway pressure (CPAP) ≥5 cm H2O.
  + Moderate ARDS – The PaO2/FiO2 is >100 mmHg, but ≤200 mmHg, on ventilator settings that include PEEP ≥5 cm H2O.
  + Severe ARDS – The PaO2/FiO2 is ≤100 mmHg on ventilators setting that include PEEP ≥5 cm H2O.

Mechanical Ventilation: “Lung Protective Ventilation’ **ARDSnet** protocol 2000

* 6 cc/kg goal, 8 cc/kg highest able to go
* High PEEP in relation to FIo2 (refer to ARDSnet table in binder)
* Prevents further Ventilator Induced Lung Injury and reduced mortality
* **Permissive Hypercapnea**: accepts hypercapnia and mild respiratory acidosis, utilize high respiratory rates to reduce the degree
* “Dry lungs are happy lungs” diurese your ARDS patients if able (**FACTT**)

Refractory ARDS/Beyond ARDSnet

* Deep **Sedation** important, often targeting RASS -5
* Early consideration of **Paralytics** (ACURASYS)
* **Prone** Positioning in Severe ARDS (PROSEVA): highlights
  + Consider when PF ratio < 150 and 60%/+5
  + Improves oxygenation and reduces mortality
  + Should be considered in early severe ARDS
* Consider inhaled Nitric Oxide (**iNO**)
* **VVECMO** has been proven to reduce mortality in severe ARDS as well (CAESAR)
  + Consider transfer to ECMO center when it appears patient may be developing severe ARDS (PAH)
* RT’s have low threshold to transfer to **PCV** mode due to high peak pressures that occur in poor compliant lungs, be careful in this mode as patient can often have worsening acidosis
* **APRV**/Bilevel is another consideration and considered an “open lung recruitment” strategy; RT’s will switch to it occasionally in Severe ARDS, no large studies show any reduction in mortality
* **HFOV** (Oscillator) was previously used frequently in severe ARDS however two studies came out in 2013 showing no benefit and one showed harm (stopped early). It’s use has gone down significantly but will occasionally be used if no other rescue therapies are an option