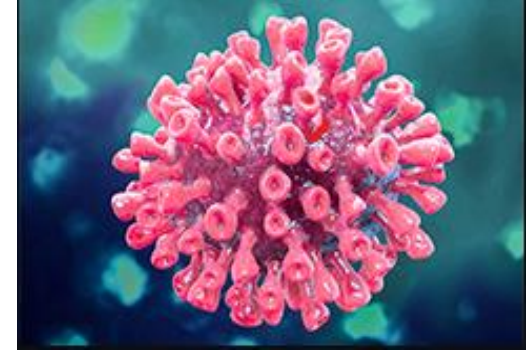


# What works, what doesn't and everything in between

Ahmed D. Sesay MD

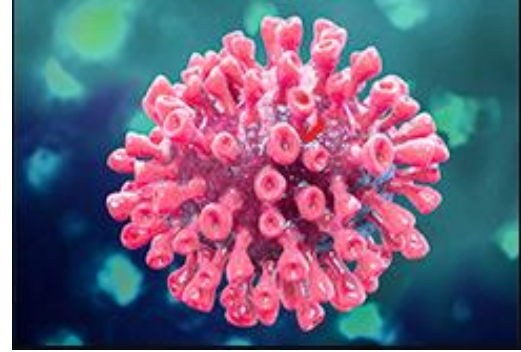
Asheville Pulmonary and Critical Care Associates

# ARDS - Berlin Definition



1. Respiratory Symptoms 1 week of a known insult
2. Bilateral opacities
3. Respiratory failure cannot be explained by cardiac failure
4. Oxygen impairment
  - a) *Mild ARDS –  $PaO_2/FIO_2 > 200$  mmHg*
  - b) *Moderate ARDS -  $PaO_2/FIO_2 > 100$  mmHg*
  - c) *Severe ARDS –  $PaO_2/FIO_2 < 100$  mmHg*

# ARDS – Pathological Stages



- Exudative Stage

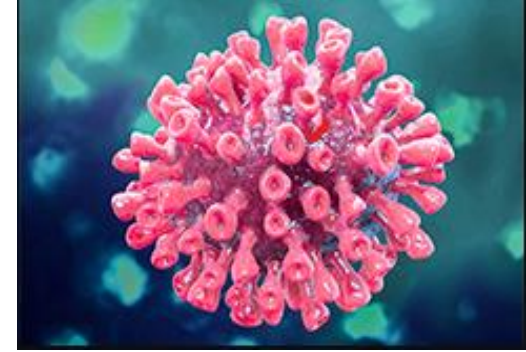
- *Diffuse Alveolar Damage 7-10 days*

- Proliferative Stage

- *Resolution of pulmonary edema with proliferation of type II alveolar cells*

- Fibrotic Stage

- *Obliteration of lung architecture*



# ARDS: Supportive Management

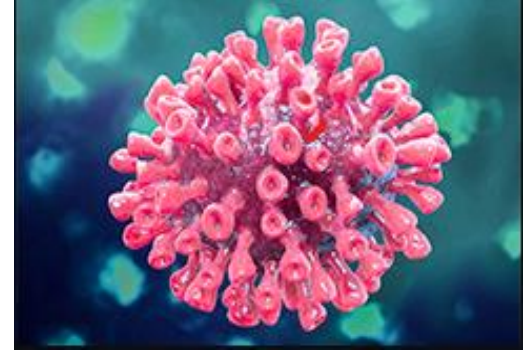
## 1. Low tidal volume ventilatory support - 6- 8ml/kg

- *Decreased mortality*
- *Increased number ventilator free days*

## 2. PROSEVA

- *Multicenter*
- *Randomized open label trial*
- *Outcome – reduction in 28 days mortality*

# ARDS: Supportive Management



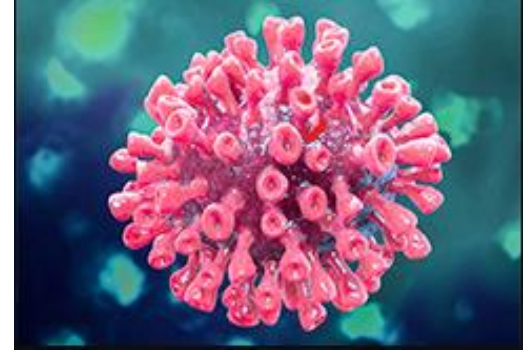
## 3. ACURASYS

- *Multicenter -*
- *Double blinded*
- *Placebo trial*
- *Outcome - Paralysis with Cisatracurium 48 hrs. Improves 90 days survival*

## 4. FACTT

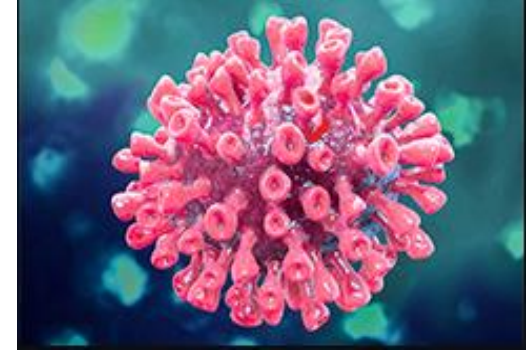
- Multicenter
- Randomized Controlled trial
- Outcome - Conservative Vs Liberal Fluid Management – Conservative fluid mgmt. decreases ventilator days and ICU days

# Case Report



- 39 y/r patient
- Pre-existing conditions – Diabetes – hgbA1C 14
- Cough, Shortness of breath
- COVID + 2 days prior to admission

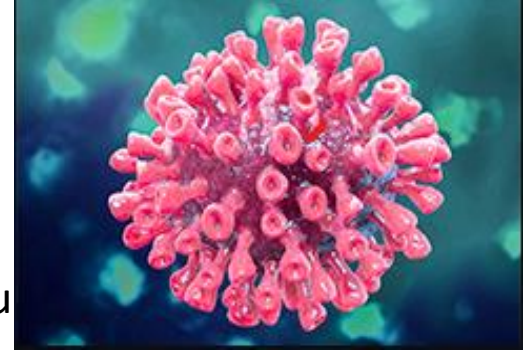
# Labs



T: 99.7 F      HR: 92      RR: 18      BP: 117/67      **SpO2: 87%**

- Hemoglobin A1C – 14.9
- Platelet – 98
- LDH (220) – 232 – 324 – 315
- Ferritin (274) – 1913 – 1456
- C-reactive Protein ( 0.5) – 8.05, 7.75
- ABG – 7.43/35/**61** – 7.46/38/**50**

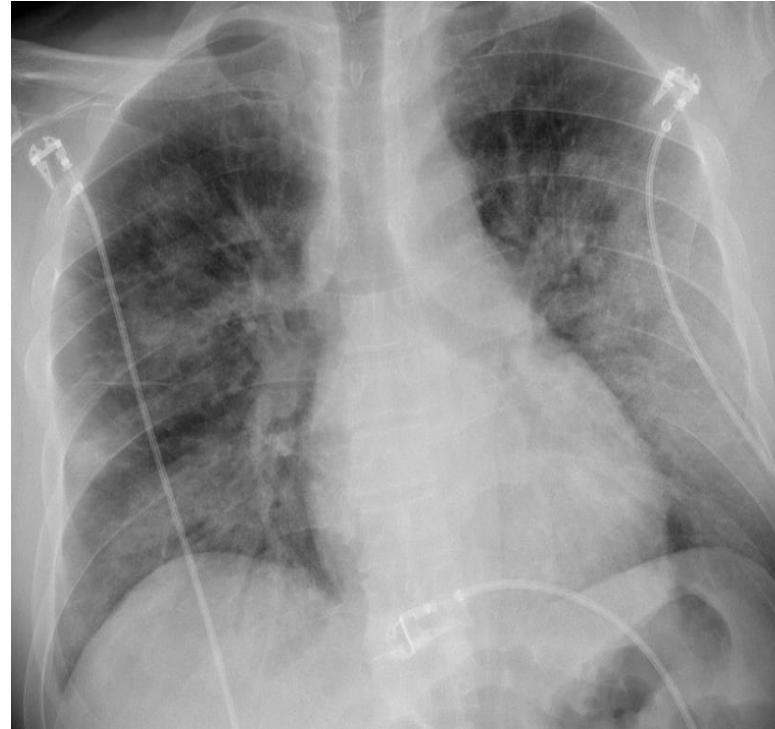
# Chest Images



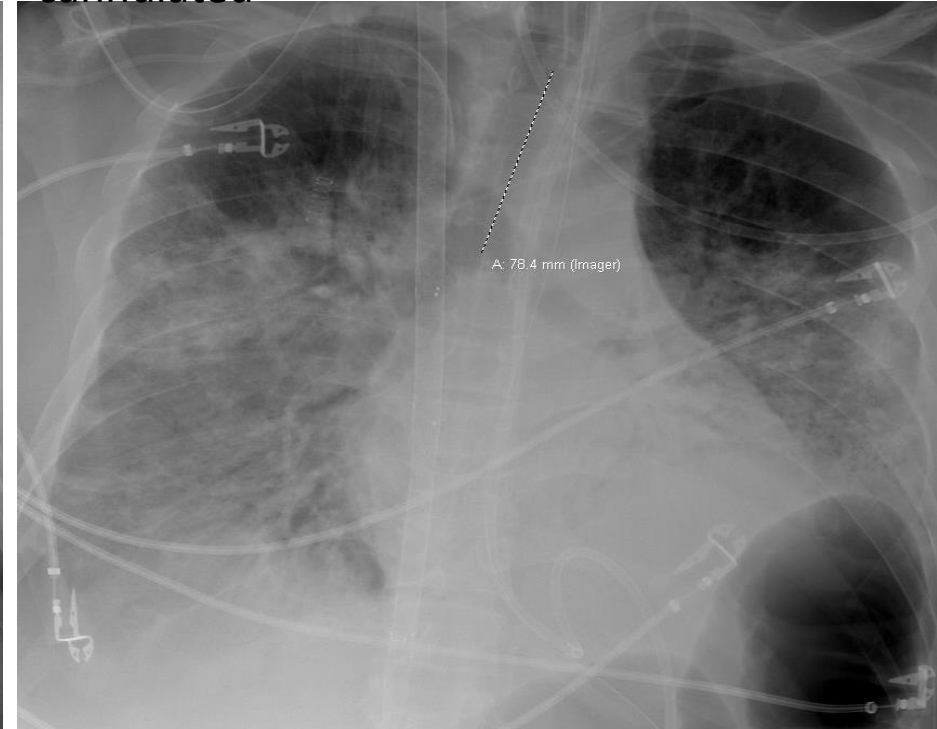
Hospital Day 1



Hospital Day 10 – still not intubated

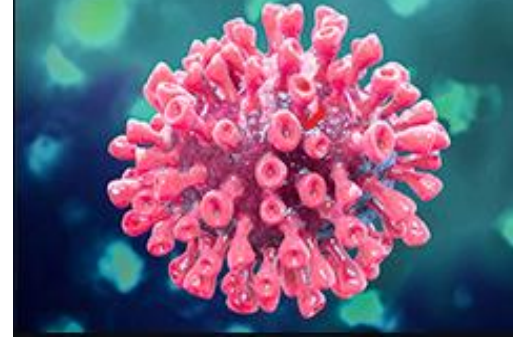


Hospital Day 20 – Intubated



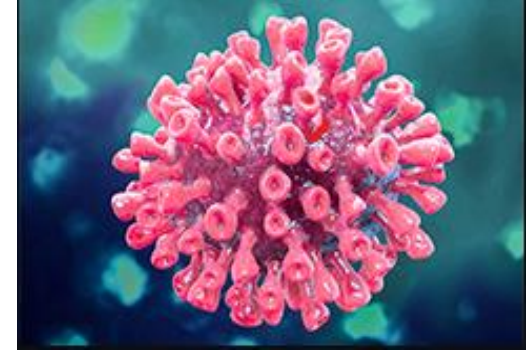


# Hospital Course

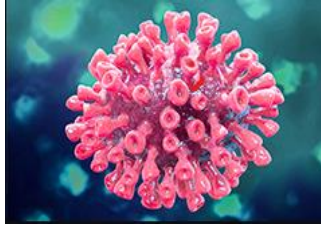


- Admitted to the step-down unit – transferred ICU 1 day later
- Ceftriaxone and Azithromycin (*on admission*)
- Remdesivir (*hospital day 1 ( 10days)*)
  - a) *EUA criteria – COVID-19 +, onset of symptoms < 10 days*
  - b) *Intubated pt for less than- 48 hrs – ACTT Trial*
- Convalescent Plasma (*hospital day 2*)

# Hospital Course



- **Therapeutic Anticoagulation** (*hospital day 5*)
  - a) *Low Intensity – Non critically ill COVID-19 Patients – VTE PPX – Enoxaparin / Heparin*
  - b) *Intermediate Intensity – Severe Critically ill or worsening - Enoxaparin 0.5mg/kg BID*
  - c) *High intensity – Worsening clinical status – rise in D-dimer – Enoxaparin 1 mg/kg BID*
  
- **Intubated** (*hospital day 10*)
  - a) *Personal protection and protection of colleagues*
  - b) *Most skilled person should be intubating*
  - c) *Glidescope*
  - d) *RSI*
  - e) *Anesthesia Team available*



# Hospital Course: Extracorporeal Membrane Oxygenation

- *ECMO WATCH* (hospital day 11) and *Cannulated* (hospital day 20)



## Contraindications

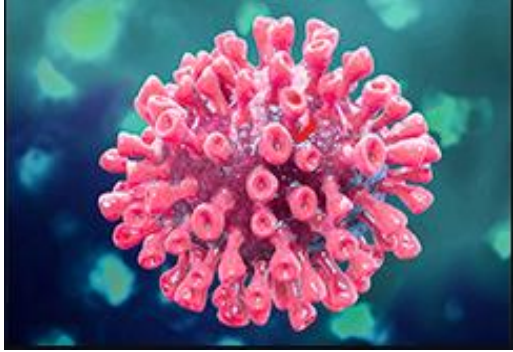
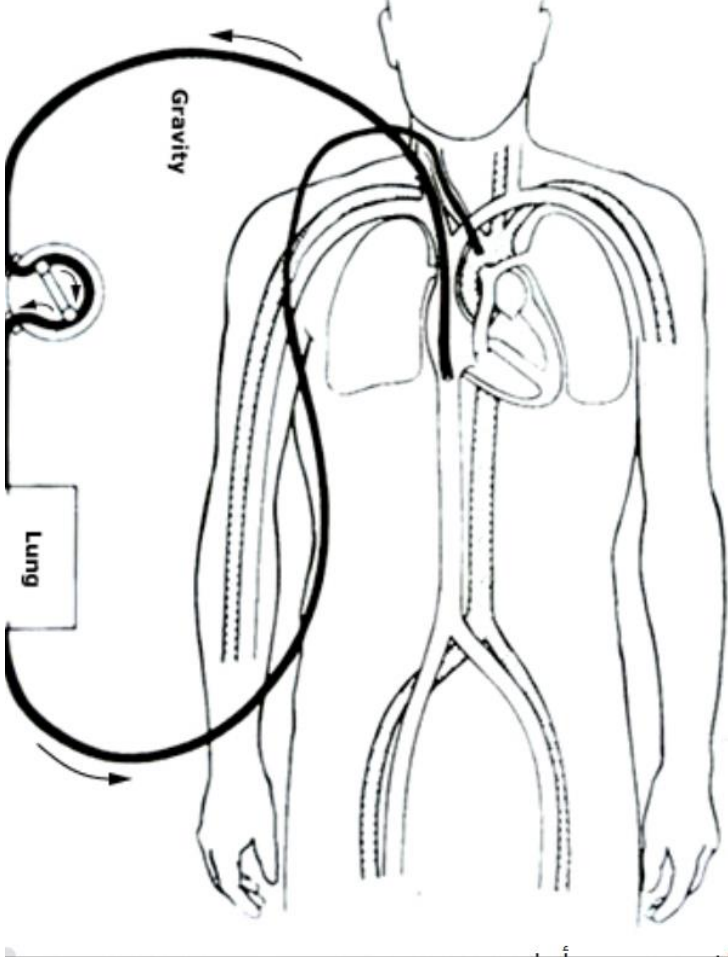
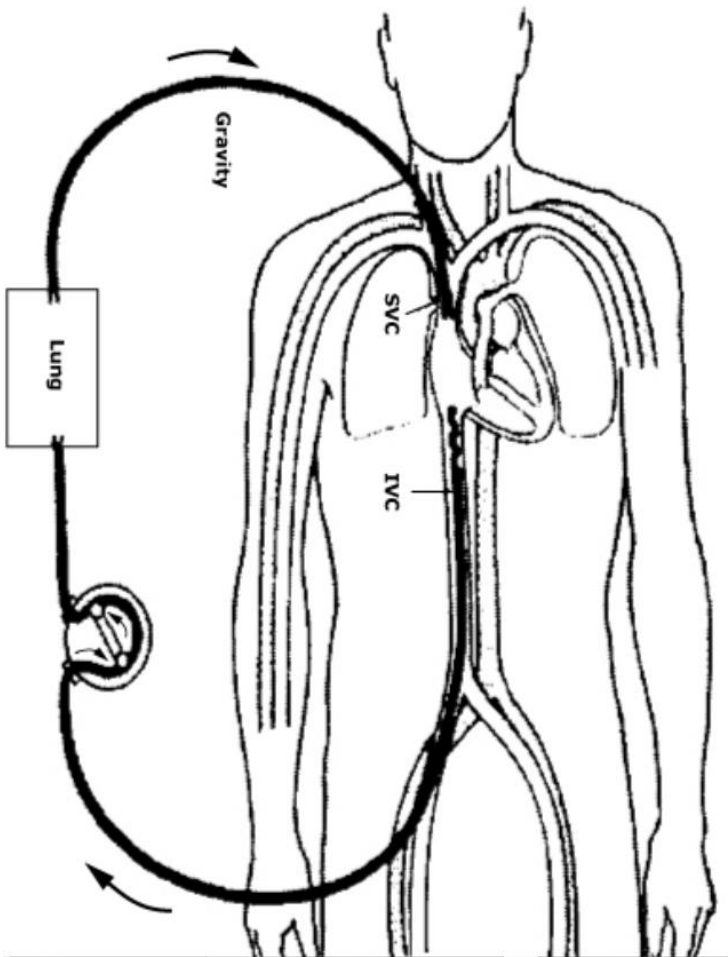
### Absolute Contraindications

- Age  $\geq$  60 years
- Contraindication to systemic anticoagulation
- Decline to receive blood products
- Terminal disease with short expected survival
- Pre-existing or concurrent advanced, renal or hepatic impairment
- Underlying moderate to severe chronic lung disease
- Advanced multiple organ failure syndrome  $\geq$  3 organ system failure
- Unresponsive septic shock
- Uncontrolled metabolic acidosis
- Central nervous system injury
- Long term immunocompromised- suppressed
  - Heart, renal, bone marrow transplant recipients, Graft versus host lung disease
- Cardiac Arrest without ROSC for >30 minutes
- Mechanical ventilation at high settings > 7 days

### Relative Contraindications

- Age  $\geq$  50
- Unknown neurological status
- Multiple Acute organ system failure  $\geq$  2 organ system failure
- Active smoker
- Substance abuse
- Immunosuppressant drug therapy
- Severe pulmonary hypertension
- Mechanical ventilation >72 hours

# ECMO



# Hospital Course

- GI bleed (*hospital day 28*)
  - Thoracotomy for massive large left hemothorax (*hospital day 30*)
  - 4 bronchoscopies for mucus plug – (*hospital days 31, 35, 36 & 36*)
  - Decadron 6mg (*hospital day 35*)
  - ***Withdrawal of care*** (*hospital day 42*)
- a) *The role of palliative care*

