HHS ASPR/HHS COVID-19 Clinical Rounds

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Providence discloses the following COVID-19 learnings in the spirit of information sharing only.
Inpatient Outcomes and Analytics | Providence CoVERED Tool

**Objective:** Provide key metrics and insights from COVID-19 inpatient encounters between February 5th and April 4th, 2020.

- **Hospitalizations:** 453
- **ICU Admits:** 114 (25% of encounters)
- **Total Deceased:** 118 (26% of patients)
- **ICU Discharges:** 43
- **Total Discharged:** 335 (74% of patients)
- **Non-ICU Deceased:** 47
- **Non-ICU Discharged:** 292
There is roughly a **25% mortality** in our hospitalized patients

Approximately **2/3 of people needing an ICU died** in our early experience

- Studies of several drugs/devices underway may change this
- Early intubation and early proning helps

**Average LOS is 6.3 days** for all patients

- 8.3 days for patients needing the ICU

Younger, healthier patients have significantly higher odds of surviving an ICU stay
ICU Experience | Clinical Care and Strategies

33 years old woman with 3 weeks of cough

► History of obesity and hypertension

► 7 days of progressive dyspnea prior to ED presentation:
  ▪ SpO2 was in 60’s at triage
  ▪ Cyanotic extremities and respiratory distress
  ▪ Intubated in ED

► Rapidly moved to ICU on 100% FiO2 PEEP 18
  ▪ Paralytics given, prone positioning initiated

► Escalated to ECMO needs on HOD #2
  ▪ She is one of 2 ECMO survivors at Swedish Medical Center
  ▪ 9 out of 30 (30%) ECMO patients discharged alive as of 4/9/2020
ICU Swedish (Seattle) Experience | Key Characteristics

Age Ranges of ICU Patients

- **All ICU Patients**: N= 67; 42 Men; 25 Women; Average age: 63
- **Survivors to Discharge**: Average Age: 49
- **Deceased**: Average Age: 72

Days on Invasive Mechanical Ventilation

- **Patients that Died**: 6.3 days
- **Patients that Extubated**: 8.7 days
ICU Experience | Additional Observations and Data

- Development of Acute Cardiomyopathy: 5
- Development of AKI: 16
- HFNC Alone: 14
- Non-invasive Ventilation: 1
- Successful Extubation: 19
- Prone: 16
- Ventilated: 46
- Total Patients: 67
ICU Experience | How We Prepared

► Developed Respiratory Care Guidelines
  ▪ Re-evaluated often to see where we were ahead vs behind
  ▪ Kept High Flow O2, Non-invasive and Invasive Ventilated patients in airborne precautions

► Reviewed all supplies
  ▪ Create alternatives for standard medications

► Up-staff with Intensivists to deliver hands-on care

► Prepare for tiered staffing model with non-ICU extenders

► Plan to convert any available room to ICU capable
  ▪ We were able to double/potentially triple capacity

► Create Scarce Resource Triage Team
ICU Hacks | Adapting to the Needs

► Environmental Controls
  ▪ All ICU rooms converted to neg pressure
  ▪ Up to 12 air changes/hour (ACH)
  ▪ -2.5 Pa pressure

► Use extension tubing to place pumps outside of ICU rooms
  ▪ Reduces PPE and allows for control outside
► RN and RT’s alternating vent change care
► Aerogen adaptor for delivering nebulized meds without breaking the circuit
► Putting ventilator computers outside the room if able
ICU Experience | Lessons Learned

► Great critical care delivered by skilled Intensivists is working the best
► Too early to tell about pharmaceutical interventions
► Stop intubating early
  ▪ Often people are “Happily Hypoxic” and can tolerate lower O2 sats
  ▪ Watch for fatigue or distress as a sign to intubate
► COVID-19 based ARDS has better lung compliance than standard ARDS
  ▪ Still applying 6cc/kg, however only need low PEEP
  ▪ Paralyze and prone for refractory hypoxemia if needed
  ▪ 16hrs prone, 8 hrs supine as tolerated: ABG’s to help determine need and de-escalation
► Volume resuscitation is not often needed
  ▪ Transient hypotension, resolves with guarded fluids given
ICU Experience | It takes a Community to save a City

- Daily communication with regional ICU leaders
  - Formed a text string with all Regional Hospital ICU directors
- Offer help to each other as hospital ICU’s reached capacity
  - Taking patients from other ED’s
  - Offering to provide needed PPE
- Shared data and observations in real time with immediate feedback
- Shared strategies for care and staffing models
- Shared options for pharmaceutical therapies and studies
  - Collaborated on getting needed studies up and running
- Collaborative journal publications continue to come out spanning across hospitals