# Today’s Agenda

<table>
<thead>
<tr>
<th>Time (MT)</th>
<th>Presentation</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noon – 12:05 pm</td>
<td>Welcome, Announcements, Introductions</td>
<td>Lachelle Smith, Director, ECHO Idaho</td>
</tr>
<tr>
<td>12:05 – 12:10 pm</td>
<td>Idaho Epidemiology Curves and Public Health Updates</td>
<td>Carolyn Buxton Bridges, MD, FACP</td>
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<tr>
<td>12:10 – 12:15 pm</td>
<td>Treatment Updates</td>
<td>Cathy Oliphant, PharmD</td>
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<tr>
<td>12:15 – 12:35 pm</td>
<td>COVID-19 Critical Care</td>
<td>Paula Carvalho, MD</td>
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<td>12:35 – 12:55 pm</td>
<td>Critically Ill COVID Patient Case and Q&amp;A</td>
<td>ECHO Panel</td>
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<td>Sky Blue, MD</td>
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<td>Paula Carvalho, MD</td>
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<td>12:55 – 1 pm</td>
<td>Closing Pearls, Announcements, Call to Action</td>
<td>Megan Dunay, MD, MPH</td>
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<td>Lachelle Smith, Director, ECHO Idaho</td>
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Idaho Epidemiology Curves and Public Health Updates

Carolyn Buxton Bridges, MD, FACP
Governor’s Coronavirus Working Group, Former CDC Public Health Physician and Researcher
# Case Counts and SARS-CoV-2 PCR Testing in Idaho

<table>
<thead>
<tr>
<th></th>
<th>5/19/2020</th>
<th>6/15/2020</th>
<th>7/6/2020</th>
<th>7/13/2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total lab-confirmed and probable</td>
<td>2,455</td>
<td>3,462 (△556)</td>
<td>8,052 (△4,590)</td>
<td>11,402 (△3,350)</td>
</tr>
<tr>
<td>Deaths</td>
<td>74</td>
<td>88 CFR 88/3462=2.5</td>
<td>94 (△6) CFR 6/4590=0.1</td>
<td>102 (△8) CFR 8/3350=0.2</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>213</td>
<td>270 (△117)</td>
<td>387</td>
<td>500 (△113)</td>
</tr>
<tr>
<td>ICU admissions</td>
<td>89</td>
<td>100 (△30)</td>
<td>130</td>
<td>144 (△14)</td>
</tr>
<tr>
<td>Healthcare personnel</td>
<td>295 (△57)</td>
<td>366 (△230)</td>
<td>596</td>
<td>760 (△164)</td>
</tr>
<tr>
<td>Total tests</td>
<td>37,847 (△17,436)</td>
<td>65,306 (△42,619)</td>
<td>107,925</td>
<td>129,540 (△12,615)</td>
</tr>
</tbody>
</table>
COVID-19 by Date of Onset

11.2%
Patients currently hospitalized in an inpatient bed who have suspected or confirmed COVID-19

Patients currently hospitalized in the Intensive Care Unit (ICU) with confirmed COVID-19
Community Mask Wearing

• CDC recommends wearing cloth facial coverings as source control, when in public and social distancing may not be maintained

• Limited data on cloth facial covering effectiveness
  • Some studies estimating filtering capacity suggest likely impactful in preventing especially large droplet spread from source patient

• Hong Kong study (VC-C Cheng) estimating possible impact of public mask use which might also include mix of surgical masks and cloth facial coverings

• Recent review article by Chou, et al. Annals Intern Med on community and healthcare-setting mask vs N95 use
  • Overall in HC settings, limited differences sometimes for N95 vs surgical mask
  • In community settings, less effective likely due to compliance

Examined mask use among public in HK-SAR
  • >95% compliance
  • Among the 961 confirmed cases (and excluding household clusters)
    • 11 clusters of 113 persons directly engaged in mask-off activities such as dining, bars, karaoke, and exercise in fitness clubs.
    • 3 clusters involving 11 persons engaged in mask-on settings at the workplace.

Compared cases in HK-SAR with other countries with less mask use and controlling for population density
  • Concluded high compliance with mask use in public likely contributes to reducing community spread


Cumulative number of COVID-19 in representative countries or areas with or without community-wide wearing of face mask

Only HKSAR people consistently wear face mask during the 3 months of COVID-19 pandemic

Number of day since the first laboratory-confirmed case

- Hong Kong
- Switzerland
- Germany
- Denmark
- Singapore
- Italy
- France
- The United Kingdom
- Republic of Korea
- Spain
- Austria
- Norway
- Netherlands
- Sweden
- United States of America
Table 1
Incidence of coronavirus disease 2019 (COVID-19) infection in Hong Kong Special Administrative Region (HKSAR) as compared with that of selected countries as of 8 April 2020 (at day 100 after official announcement of pneumonia outbreak in Wuhan, Hubei Province, China)\textsuperscript{b}.

<table>
<thead>
<tr>
<th>Countries or city</th>
<th>Population (million)\textsuperscript{b}</th>
<th>Cumulative number of confirmed case\textsuperscript{c}</th>
<th>Number (percentage) of death</th>
<th>Incidence per million population\textsuperscript{d}</th>
<th>P value (incidence compared with HKSAR)</th>
<th>Population density: population per km\textsuperscript{2} (rank in the world)\textsuperscript{e}</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western Pacific Region</strong></td>
<td></td>
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</tr>
<tr>
<td>Hong Kong SAR\textsuperscript{d}</td>
<td>7.45</td>
<td>961</td>
<td>4 (0.4%)</td>
<td>129.0</td>
<td>Not applicable</td>
<td>6782 (3\textsuperscript{rd})</td>
</tr>
<tr>
<td>Singapore</td>
<td>5.70</td>
<td>1,481</td>
<td>6 (0.4%)</td>
<td>259.8</td>
<td>\textit{P}&lt;0.001</td>
<td>7894 (2\textsuperscript{nd})</td>
</tr>
<tr>
<td>South Korea</td>
<td>51.78</td>
<td>10,384</td>
<td>200 (1.9%)</td>
<td>200.5</td>
<td>\textit{P}&lt;0.001</td>
<td>517 (13\textsuperscript{th})</td>
</tr>
<tr>
<td><strong>European Region</strong></td>
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</tr>
<tr>
<td>Spain</td>
<td>47.10</td>
<td>140,510</td>
<td>13,798 (9.8%)</td>
<td>2,983.2</td>
<td>\textit{P}&lt;0.001</td>
<td>93 (89\textsuperscript{th})</td>
</tr>
<tr>
<td>Switzerland</td>
<td>8.59</td>
<td>22,164</td>
<td>641 (2.9%)</td>
<td>2,580.2</td>
<td>\textit{P}&lt;0.001</td>
<td>208 (48\textsuperscript{th})</td>
</tr>
<tr>
<td>Italy</td>
<td>60.24</td>
<td>135,586</td>
<td>17,129 (12.6%)</td>
<td>2,250.8</td>
<td>\textit{P}&lt;0.001</td>
<td>200 (51\textsuperscript{st})</td>
</tr>
<tr>
<td>Belgium</td>
<td>11.52</td>
<td>22,194</td>
<td>2,035 (9.2%)</td>
<td>1,926.6</td>
<td>\textit{P}&lt;0.001</td>
<td>376 (22\textsuperscript{nd})</td>
</tr>
<tr>
<td>Austria</td>
<td>8.90</td>
<td>12,640</td>
<td>243 (1.9%)</td>
<td>1,420.2</td>
<td>\textit{P}&lt;0.001</td>
<td>106 (76\textsuperscript{th})</td>
</tr>
<tr>
<td>Germany</td>
<td>83.15</td>
<td>103,228</td>
<td>1,861 (1.8%)</td>
<td>1,241.5</td>
<td>\textit{P}&lt;0.001</td>
<td>233 (41\textsuperscript{st})</td>
</tr>
<tr>
<td>France</td>
<td>67.06</td>
<td>77,226</td>
<td>10,313 (13.4%)</td>
<td>1,151.6</td>
<td>\textit{P}&lt;0.001</td>
<td>123 (68\textsuperscript{th})</td>
</tr>
<tr>
<td>Netherlands</td>
<td>17.44</td>
<td>19,580</td>
<td>2,101 (10.7%)</td>
<td>1,122.7</td>
<td>\textit{P}&lt;0.001</td>
<td>420 (16\textsuperscript{th})</td>
</tr>
<tr>
<td>Norway</td>
<td>5.37</td>
<td>5,863</td>
<td>69 (1.7%)</td>
<td>1,091.8</td>
<td>\textit{P}&lt;0.001</td>
<td>17 (171\textsuperscript{st})</td>
</tr>
<tr>
<td>Denmark</td>
<td>5.82</td>
<td>5,071</td>
<td>203 (4.0%)</td>
<td>871.3</td>
<td>\textit{P}&lt;0.001</td>
<td>135 (64\textsuperscript{th})</td>
</tr>
<tr>
<td>The United Kingdom</td>
<td>66.44</td>
<td>55,246</td>
<td>6,159 (11.1%)</td>
<td>831.5</td>
<td>\textit{P}&lt;0.001</td>
<td>274 (32\textsuperscript{nd})</td>
</tr>
<tr>
<td>Sweden</td>
<td>10.33</td>
<td>7,693</td>
<td>591 (7.7%)</td>
<td>\textit{744.7}</td>
<td>\textit{P}&lt;0.001</td>
<td>23 (159\textsuperscript{th})</td>
</tr>
<tr>
<td><strong>Region of Americas</strong></td>
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<tr>
<td>United States of America</td>
<td>329.45</td>
<td>363,321</td>
<td>10,845 (3.0%)</td>
<td>1,102.8</td>
<td>\textit{P}&lt;0.001</td>
<td>34 (145\textsuperscript{th})</td>
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Treatment Updates

Cathy Oliphant, PharmD
Infectious Disease, Professor and Interim Chair, ISU College of Pharmacy
COVID Pharmacologic Treatments

• Tocilizumab
• Remdesivir
• Corticosteroids
• Anticoagulation
Tocilizumab

- Interleukin-6 receptor antagonist
  - IL-6 is part of the cytokine storm
  - The cytokine release is marked by elevation of coagulation markers, multi-organ dysfunction, respiratory failure and death.

- Two studies have recently demonstrated lower death rates in mechanically ventilated patients
Tocilizumab: University of Michigan
(Clinical Infectious Diseases - https://doi.org/10.1093/cid/ciaa954 - published 7/11/2020)

• Single center observational study
• 78 COVID mechanically ventilated patients received tocilizumab (vs 76 patients w/std care) from 3/9-4/20/20
  – Groups similar but tocilizumab group was younger (55 vs 60 yo), less likely to have CKD/lung dz
  – Most patients intubated w/in 24 hr admission or 48 hr of transfer
• Tocilizumab was associated with improved survival:
  – 45% reduction in hazard of death and improved status
• Reduced case fatality rate at 28 days (18% vs 36%, p=0.01)
• Increase in patients discharged from hospital during study period (56% vs 40%, p=0.04)
• Tocilizumab treated had increased frequency of super-infections (no difference in 28 day death rate)
  – 54% vs. 26%
Tocilizumab: Milan, Italy
(Journal of Infectious Diseases -
https://doi.org/10.1016/j.jinf.2020.07.008)

• Single-center retrospective study
• 74 tocilizumab treated patients were matched with 148 matched controls from 3/13-4/3/2020
  – 70% critically ill
  – Median age 59
• Critically ill experienced benefit whereas less severe did not benefit
• Tocilizumab patients had improved survival (p=0.035) but longer hospital stays (p=0.019)

• At the end of follow-up:
  – 65% of tocilizumab treated patients were improved or stable
  – 35% of tocilizumab treated patients had clinical deterioration (death or worsened mechanical ventilation requirements)
• Significant AEs in tocilizumab treated patients
  – Increased infections (32%)
  – Worsening respiratory status
Remdesivir

• Hospitalized, severe patients
  – SpO2 ≤ 94% on room air or
  – Requiring supplemental oxygen, mechanical ventilation, ECMO

• Data have demonstrated:
  – Shorter time to recovery (11d vs 15 d p<0.001) in patients with a median time from onset s/s to remdesivir initiation < 10 d)
  – Improved discharge rates in patients with s/s < 10 days

• Dosing
  – Day 1: 200 mg x 1
  – Days 2-5: 100 mg daily for patients not requiring mechanical ventilation (if no clinical improvement, may extend to 10 days)
  – Days 6-10: 100 mg daily for mechanically ventilated patients
Corticosteroids

• RECOVERY Trial
• Dexamethasone use was associated with a reduction in overall 28 day mortality
  – 21.6% vs 24.6%
  – 35% reduction in mechanically ventilated vs 20% in those receiving supplemental oxygen (no mechanical ventilation)
• Reduction in 28 day mortality greatest in those with s/s > 7 d vs those with recent onset
• Also associated with reduced duration of hospitalization and increased probability of D/C within 28 days

• Dosing:
• IDSA and NIH Guidelines recommend dexamethasone 6 mg daily (IV or PO) for up to 10 days in patients receiving mechanical ventilation or supplemental oxygen
  – 10 days or until hospital discharge (which occurs first)
  – Equivalent dosing if dexamethasone not available:
    • 32 mg methylprednisolone
    • 40 mg prednisone
COVID & Thrombosis

• Severe COVID can result in cytokine storm, systemic inflammatory response and coagulopathy (that is prothrombotic)
• The enhanced prothrombotic state induced by severe COVID is associated with venous and arterial microthrombi
• Data demonstrates incidence of VTE of up to 27% with mortality rates up to 40-60%
• VTE prophylaxis is essential in these patients
COVID & Anticoagulation

• CDC estimates that ~90% of hospitalized COVID patients have at least one increased risk of thrombosis

  – 449 COVID patients
    • 99 received heparin (primarily LMWH)
  – DVT prophylaxis reduced 28 day mortality by 20% in patients with an SIC score ≥ 4 or D-dimer ≥ 3,000 ng/ml (or 6x ULN)
    • 28-day mortality 40% vs 64.2%, p=.029 for SIC Score ≥ 4
    • 28-day mortality 32.8% vs 52.4%, p=.017 for elevated D-dimer
    • No increase in major bleeding
COVID & Anticoagulation

• Bikdeli et al. COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-Up. JACC 2020;75(23). DOI: 10.1016/j.jacc.2020.04.031

• Barnes et al. Thromboembolism and anticoagulant therapy during the COVID-19 pandemic: interim clinical guidance from the anticoagulation forum. J of Thrombosis and Thrombolysis 2020;50:72-81


• Treatment Guidelines:
  – NIH
  – WHO
  – International Society for Thrombosis and Haemostatis
  – American Society of Hematology
COVID & Anticoagulation: VTE Prophylaxis in non-ICU Patients

- All hospitalized patients with COVID should be considered for VTE prophylaxis
- Standard dose VTE prophylaxis
  - Enoxaparin 40 mg daily if BMI < 40 kg
  *Preferred over UFH – due to dosing schedule (once or twice daily)
    - BMI ≥ 40 kg: Enoxaparin 40 mg Q12
    - If CrCl < 30 ml/min, enoxaparin 30 mg daily
  - UFH – standard dose
COVID & Anticoagulation: VTE Prophylaxis in ICU Patients

• All hospitalized patients with COVID should be considered for VTE prophylaxis

• VTE prophylaxis Dosing
  – Enoxaparin 30 mg Q12 if BMI < 40 kg
    *Preferred over UFH – due to dosing schedule
      • BMI > 40 kg: 50% increase for obese
      • If CrCl < 30 ml/min, enoxaparin 30 mg daily
  – UFH – standard dose
  – Data demonstrate that patients with D-dimer > 2,000 or SIC score > 4 benefit from BID dosing of enoxaparin
  – Data do not support treatment dose heparin for prophylaxis
COVID & Anticoagulation: Duration of VTE Prophylaxis

• Extended post-discharge thromboprophylaxis should be considered for all hospitalized patients with COVID-19 that meet high VTE risk criteria

• VTE prophylaxis post-discharge
  – Up to 45 days

*Non-COVID trials have evaluated VTE prophylaxis post-discharge using the following durations
  – Enoxaparin 6-14 days
  – Rivaroxaban (Xarelto) 31-39 days
  – Betrixaban (Bevyxxa) 35-42 days
COVID-19 Critical Care

Paula Carvalho, MD
Boise VA Medical Center
Learning Objectives

To develop an understanding of:

• Viral duration and aerosol science
• How to oxygenate a patient with COVID-19
• The role of corticosteroids in COVID-19
The science of coronavirus
A word about aerosols and viral duration: What do we know?

Aerosol and surface stability of SARS-CoV-2

Conditions:
- 21-23°C
- 40% humidity
- 7 day observation period

<table>
<thead>
<tr>
<th>Surface</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Aerosol</td>
<td>3</td>
</tr>
<tr>
<td>Plastic</td>
<td>72 (rapid decrease in stability at 72h)</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>72 (rapid decrease in stability at 48h)</td>
</tr>
<tr>
<td>Cardboard</td>
<td>24</td>
</tr>
<tr>
<td>Copper</td>
<td>4</td>
</tr>
<tr>
<td>Glass</td>
<td>9 days</td>
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*N Engl J Med 2020;382:1564

*J Hosp Inf 2020;104:246*
Aerosols:

**Aerosol-generating procedures***:
- Bronchoscopy
- Intubation
- Suctioning
- Nebulizer treatments

*Generate potentially infectious bioaerosols*

**Aerosol-dispersing procedures***:
- Oxygen therapy
- Humidified high-flow nasal cannula (HFNC)
- Non-invasive ventilation (NIV)
- Manual ventilation

*These devices do not contain pathogens unless the device is contaminated*
Aerosol production

A) Oral Cavity mode, responsible for millimeter droplets

B) Shear-induced surface-wave instability in the airway lining fluid
   Pathogen-laden droplets

C) Bronchiolar film rupture (d≤1μm)
Aerosol deposition

- **> 5 µm**
  - Trapped in upper airways

- **1 - 5 µm**
  - Deep lung deposition

- **< 1 µm**
  - Reach pulmonary alveoli through diffusion

- **500 nm**
The patient with COVID-19 and hypoxemia:

- Start with supplemental oxygen to target an SpO2 of 90-96%

- If low-flow oxygen (\(\leq 6\) L/minute) is not sufficient, use non-invasive methods of oxygenation
  
  First choice: High-flow nasal cannula
The patient with COVID-19 and hypoxemia:

- If low-flow oxygen (\(\leq 6\) L/minute) is not sufficient, use non-invasive methods of oxygenation
  
  Second choice:
  
  Non-invasive ventilation with positive airway pressure
  
  * good mask seal
  
  * negative-pressure room
The patient with COVID-19 and hypoxemia:

• Consider proning therapy:
The patient with COVID-19 and hypoxemia:

- Non-invasive ventilation with positive airway pressure
- Helmet ventilation
The patient with COVID-19 and hypoxemia:

Mechanical ventilation:
• Rapid progression
• No improvement on HFNC > 50L/minute + FIO2 60%
• Increased PaCO₂
• Hemodynamic instability

Management:
ARDSnet low-tidal volume, PEEP, targeting plateau pressure \( \leq 30 \text{ cm H}_2\text{O} \)
An overview of corticosteroids in COVID-19

• Initial recommendation: NEVER
• Surviving Sepsis Campaign:
  Use in mechanically ventilated patients with ARDS (consensus based on weak data)

Kolleikas et al.

6 patients with COVID-19 and hyperinflammatory syndrome + ARDS:
Methylprednisolone 125 mg IV daily at least 8 days into symptoms:
100% clinical improvement, no intubations
An overview of corticosteroids in COVID-19

So et al.
• 7 patients with COVID-19 on mechanical ventilation
• Methylprednisolone 500 mg or 1000 mg upon intubation, daily x 3, then 1 mg/kg with downward taper
• 100% survival

Yuan et al.
• 132 patients with non-severe COVID-19 (retrospectively analyzed, 74 received steroids, 58 did not)
• Methylprednisolone 40-60 mg daily for ~11 days
• No difference in outcome, with suggested morbidity for patients who received steroids
An overview of corticosteroids in COVID-19

The RECOVERY trial:
• Randomized hospitalized patients to usual care (n=4321) versus dexamethasone 6 mg daily x 10 days (n=2104)
• Primary outcome was mortality at 28 days

Results:
Dexamethasone = 21.6% mortality
Usual care = 24.6% mortality (p<0.001)

Subgroups pre-specified by degree of respiratory support:
Mechanical ventilation: 29% vs 40% (NNT = 8 patients)
Oxygen requirement (SpO2<92%): 21.5% vs 25% (NNT = 25 patients)
No oxygen requirement: 17% vs 13.2% (No benefit)
An overview of corticosteroids in COVID-19

Comments and concerns:

- In RECOVERY trial, baseline mortality in UK ICU was much higher than expected
- Patients on steroids, diabetics, were not studied
- Timeline of treatment not always standardized
- Steroids delay viral clearance
- Peer review not yet done on this study
- Should steroids with low mineralocorticoid activity be used?
- If viral replication peaks in week 2 of illness, what is optimal timing of steroid administration?
Summary:

1. Respiratory infection with COVID-19 can be reduced or eliminated by interrupting bio-aerosol transmission in 3 phases:

- Reducing the release of virus at the source
- Impending pathogen transportation
- Protecting susceptible persons
Summary:

2. The common agreement on treatment of respiratory failure is:

- Oxygen to provide SpO2 target of 90-96%
- If low-flow oxygen (≤ 6L/minute) is not sufficient, non-invasive methods should be tried first rather than immediate intubation
- HFNC delivery is preferable to NIV
Summary:

3. Steroids might help...

*Patients with COVID-19 and hypoxemic respiratory failure are most likely to respond favorably to corticosteroids. Extensive literature review for determination of appropriate timing and patient selection is needed*
References

• Koliekas L et al.: ORCID iD:0000-0002-4420-609X, 2020
• So et al.: Respir Case Rep 8(6):2020 e00596
• Yuan M et al.: Shock 2020 (June 2)
• Dhand et al.: Am J Respir Crit Care Med 10.1164, June 16 2020
• RECOVERY Collaborative Group: https://doi.org June 22, 2020
Patient Case Presentation

Megan Dunay, MD, MPH
Geriatrician, Boise VA and Medical Director for Geriatrics and Extended Care for VA Pacific Northwest Region
Patient Case, Ms. Ada

- 44yo F with hx of mild intermittent asthma (using albuterol MDI once every couple of weeks at baseline) and GERD (taking famotidine PRN) admitted to acute care hospital with COVID after attending a wedding last weekend.

- On admit:
  - SpO2 85% on RA, up to 92% on 3L O2 via NC. All other VS stable.
  - CV: RRR no murmur, no edema, normal distal pulses
  - Lungs: Crackles throughout bilateral bases, occasional wheeze
  - Abd: benign
  - Neuro: non-focal
Ms. Ada

- Admit Imaging: CXR with groundglass opacities B and hazy retrocardiac opacity
- Admit Labs:
  - WBC 3.2, Hgb/HCT: 14/56
  - BUN 32/Cr 1.21
  - CRP: 2.1, ESR 42
  - Lactate 2.9
  - Blood cultures ordered; Urine antigens ordered
  - COVID swab + 48 hours prior to admission – obtained by PCP
Ms. Ada

- Admitted to stepdown unit, negative pressure room
  - Started on Remdesivir
  - Able to use albuterol MDI q 2hrs
  - Overnight does ok, sats hold at 94% on 5L NC
- Hospital Day 1:
  - SpO2 progressively worsens: requiring 10L NC to maintain sats
  - Temp increases to 100.4
  - HR increases to low 100’s
  - Rapid Response Called:
    - Exam notable for tachycardia, respiratory distress, pronounce wheezes and coarse crackles
    - ABG: pH 7.55/PCO$_2$ 30/PO$_2$ 63/HCO$_3^-$ 22
    - CXR: groundglass opacities persist, diffuse patchy opacities present now too, mostly at periphery
Ms. Ada

- How do we adequately oxygenate this patient?
  - Is there a role for non-invasive ventilation?
  - How do we know when to intubate?
  - How should ventilator settings be managed?

- What pharmacologic agents should we consider in treating this patient?
  - Steroids?
  - Antimicrobials?
  - Albuterol, ipratroprium? By what means? Nebulizers?

- What is the natural history of this patient’s condition?
  - What should we be counseling family to expect?
  - What complications should we watch for?
  - What is the real mortality risk in someone like this?
JOIN US FOR OUR NEXT SESSION!

For information, please visit uidaho.edu/echo

- Tuesday, July 21 at noon MT
RESOURCES FROM TODAY’S SESSION AND PAST SESSIONS CAN BE FOUND IN OUR ONGOING RESOURCE LIST.

https://iecho.unm.edu/sites/uidaho/download.hns?i=440