

COV-19 Case

Section 1: Case Summary

Scenario Title:	COV-19 Case
Keywords:	Pneumonia, sepsis, ventilation, Infectious Disease
Brief Description of Case:	A patient from the community with fever and possible exposure to Coronavirus

Goals and Objectives	
Educational Goal:	Identify and isolate a patient with a novel, highly infectious disease.
Objectives: (Medical and CRM)	<ol style="list-style-type: none">1. Review an approach to febrile patients who present during a pandemic.2. Prioritize the initial approach of infection control.3. Review the initial management of the patient with sepsis/respiratory failure.
EPAs Assessed:	

Learners, Setting and Personnel			
Target Learners:	Junior Learners	<input type="checkbox"/> Senior Learners	<input checked="" type="checkbox"/> staff
	<input type="checkbox"/> Physicians	<input type="checkbox"/> Nurses	<input type="checkbox"/> RTs
	<input type="checkbox"/> Other Learners:		
Location:	Sim Lab	<input checked="" type="checkbox"/> In Situ	<input type="checkbox"/> Other:
Recommended Number of Facilitators:	Instructors: 1		
	Confederates: 1		
	Sim Techs: 1		

Scenario Development	
Date of Development:	March 31, 2020
Scenario Developer(s):	Dr. Jeanne Macleod
Affiliations/Institutions(s):	St Paul's Hospital



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Last Revision Date:	
Revised By:	
Version Number:	1



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Section 2A: Initial Patient Information

A. Patient Chart					
Patient Name: Tony Petrelli			Age: 64	Gender: M	Weight: 75 kg
Presenting complaint: Dyspnea					
Temp: 38.5	HR:123	BP: 100/50	RR: 30	O ₂ Sat: 89%	FiO ₂ : 1L NP
Cap glucose: 8.7			GCS: 14 (E4 V4 M6)		
Triage note: Mr. Tony Petrelli is a 64yo male with 5-day history of fever, cough and mylagias. The family is concerned about his increasing shortness of breath over the last 4 hours.					
Allergies: NKDA					
Past Medical History: COPD HTN CHF			Current Medications: Combivent inhaler prn Bisoprolol 5mg PO daily Ativan 1mg PO BID prn for anxiety Atorvastatin 20mg PO daily Thyroxine 0.1mg PO daily		

Section 2B: Extra Patient Information

Patient has had close contact with a friend who recently tested positive for COVID-19. He visited his friend 8 days ago and noted that the friend was coughing. Later on, the family has heard that this friend had a fever and tested positive for COVID 19. Patient developed a fever 5 days ago. Cough progressing over past 3 days, non productive.

- They have some anterior, bilateral chest pain when taking a deep breath, but mostly finds it difficult to breath
- This feels different then a usual COPD exacerbation and “puffers are not really helping”

As interview continues the patient will become more confused and no longer be oriented to person, place and time.



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Section 3: Technical Requirements/Room Vision

A. Patient
<input checked="" type="checkbox"/> Mannequin - Adult
<input type="checkbox"/> Standardized Patient
<input type="checkbox"/> Task Trainer
<input type="checkbox"/> Hybrid
B. Special Equipment Required
IV (available and present in the patient) O2 saturation and cardiac monitors Intubation equipment (Laryngoscope, Bougie, BVM, LMA)
C. Required Medications
Bronchodilators (meter-dosed inhalers of albuterol) Broad spectrum antibiotics (including Ceftriaxone, Piperacillin-Tazobactam) IV Fluids (Ringer's Lactate and Normal Saline)
D. Moulage
Mannequin with decreased air entry to right lung, rapid shallow breathing, tachycardia
E. Monitors at Case Onset
<input type="checkbox"/> Patient on monitor with vitals displayed <input checked="" type="checkbox"/> Patient not yet on monitor
F. Patient Reactions and Exam
<i>Include any relevant physical exam findings that require mannequin programming or cues from patient (e.g. – abnormal breath sounds, moaning when RUQ palpated, etc.) May be helpful to frame in ABCDE format.</i> Decreased air entry to both lungs with bilateral wheeze and crackles at bases. Speaking in two word sentences

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Section 4: Confederates and Standardized Patients

Confederate and Standardized Patient Roles and Scripts

Role	Description of role, expected behavior, and key moments to intervene/prompt learners. Include any script required (including conveying patient information if patient is unable)
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Family Member- Wife of patient	
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Section 5: Scenario Progression

Scenario States, Modifiers and Triggers

Patient State/Vitals	Patient Status	Learner Actions, Modifiers & Triggers to Move to Next State		Facilitator Notes
1. Baseline State Rhythm: sinus tach HR: 123 BP: 100/50 RR: 30 O ₂ SAT: 85% (1L NP) T: 38.5°C GCS: 14	PT is mildly confused. He is speaking in two word sentences and show signs of respiratory distress	<u>Expected Actions</u> MOVE DIRECT TO NEGATIVE PRESSURE ROOM- DON ALL NECESSARY PPE- INITIALLY CONTACT DROPLET PRECAUTIONS Perform focused history & PE Initiate resuscitative measures (IV, O ₂ , monitors) Ask for appropriate lab work Ask for ECG/PERFORM POCUS Check cap glucose Recognize respiratory failure. PORTABLE CXR Trial of just inhalers- NO NEBS Plan for ventilatory support	<u>Modifiers</u> <i>Changes to patient condition based on learner action</i> - If does give supplemental O ₂ , the patients O ₂ sats continue to decrease to 82% on 1 litre. <u>Triggers</u> <i>For progression to next state</i> - Actions complete or 6 min	<u>Can NOT use nebulizers.</u> <u>All Health care workers need to be in droplet precautions including lab, x-ray and ECG techs.</u> <u>Mask on patient with nasal prongs behind mask.</u> <u>ICU team will be notified- IMMEDIATELY</u>



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<p>2. Resp failure Rhythm: sinus tach HR: 130 BP: 100/50 RR: 28 O₂SAT: 90% NRB- WITH HEPA FILTER AT 10-15L/MIN IS NOT CONSIDERED AEROSLIZING T: 38.5°C GCS: 14</p>	<p>Sats improve but pt remains dysp- neic and tachyp- neic</p>	<p><u>Expected Actions</u> Identify ARDS on CXR/POCUS Recognize that instability of pa- tient and call Sr resident/staff Discuss NIPPV (only if able to iso- late patient and negative pressure room) and call RT. If start NIPPV all health team members need to be in PPE appropriate for air- borne precautions. Recognize shock, start broad spectrum abx (CEFTRIAX- ONE/AZITHROMYCIN) Resuscitate w 2L crystalloid MAX</p> <p>- Consider vasopressors EARLY- phenylephrine/norepinephrine drip</p>	<p><u>Modifiers</u> - BP will decline to 80/40 if no flu- ids given- consider inotropes early. - Sats drop to 85% if no NRB</p> <p><u>Triggers</u> - All actions complete or 10 minutes</p>	<p><u>NO NIPPV if no negative pressure room or</u> <u>NO HFNC- High Flow nasal Cannula if no negative pressure room availa- ble.</u></p>
<p>3. Respiratory Fail- ure Rhythm: sinus tach HR: 140 BP: 80/50 RR: 30 O₂SAT: 84% T: 38.5°C GCS: 11</p>	<p>Patient increased respiratory fail- ure with de- creased LOC</p>	<p><u>Expected Actions</u> Prepare for intubation Intubate with RSI. KETAMINE 100MG/ROCURONIUM 100MG, WAIT 45SECS FOR ROCURONIUM TO TAKE EFFECT.</p> <p>Attempt at optimization of BP prior to intubation.</p>	<p><u>Modifiers</u></p> <p><u>Triggers</u> - Discuss with ICU on how to trans- fer</p>	<p><u>DURING INTUBATION minimize number of people in the room.- 3 MAX AND HAVE RN STEP AWAY.</u></p> <p><u>Switch to airborne precautions to all those in room during intubation.</u></p> <p><u>USE AIRWAY CHECKLIST TO MAKE SURE ALL NECESSARY EQUIPMENT</u></p>



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		<p>VL preferred Avoid Bagging- place Bag valve mask with 15L/Min with good seal to preoxygenate.</p> <p>POST SEDATION DRIP PREPARED IMMEDIATELY WITH PROPOFOL. 50mcg/kg/min.</p>		<p><u>IN ROOM. VERBALIZE ALL 3 PLANS INCLUDING 2 BACK UPS.</u></p> <p><u>ENSURE ALL CONTAMINATED EQUIPMENT IS PROPERLY SEALED IN BIOHAZARD BAGS.</u></p> <p><u>PROPER DOFFING IS CRUCIAL</u></p>
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Appendix A: Laboratory Results –

CBC

WBC 10.2

Lymphocytes 0.5

Hgb 135

Plt 454

Lytes

Na 128

K 3.5

Cl 102

HCO₃ 19

Urea 7

Cr 97

Glucose 6.2

VBG

pH 7.14

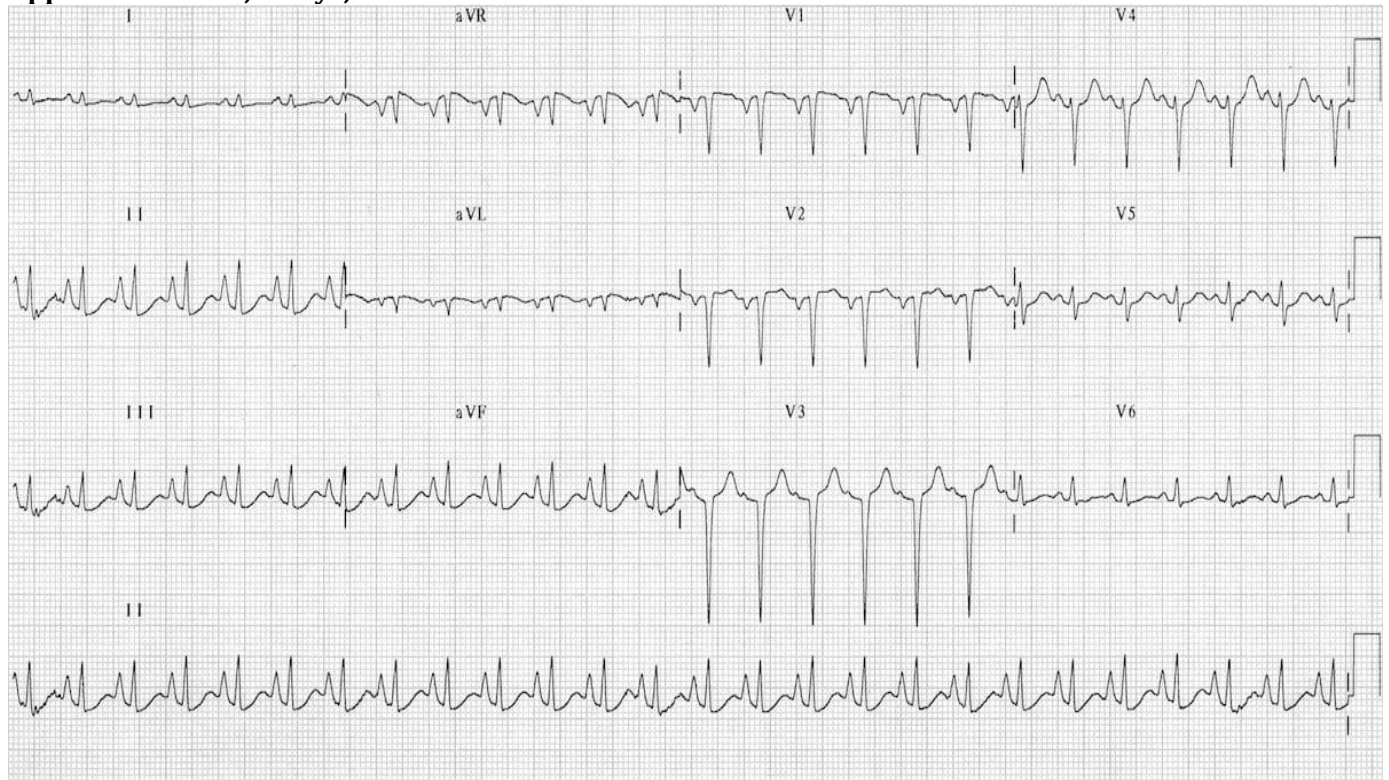
pCO₂ 57

HCO₃ 20

Lactate 4.6

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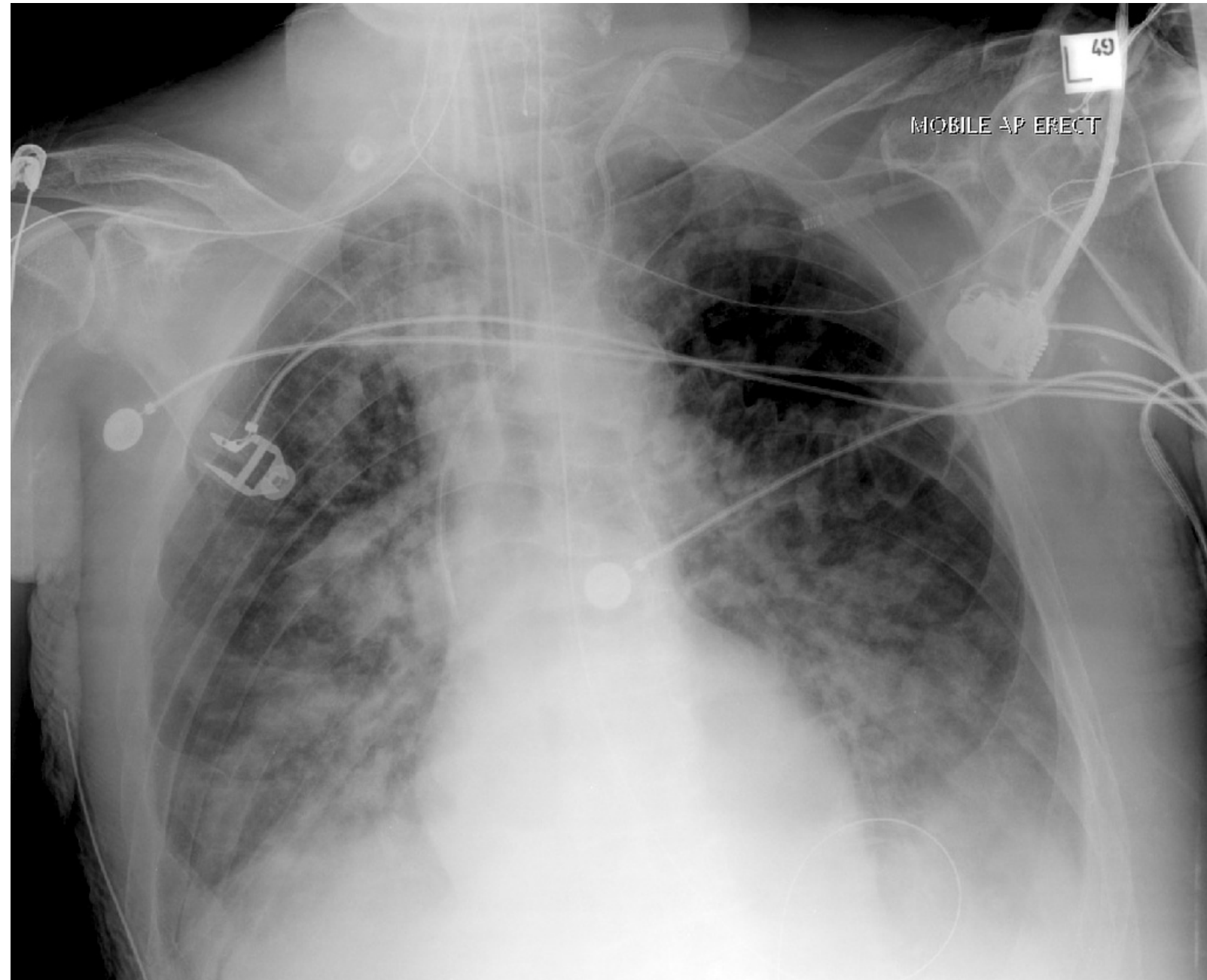
Appendix B: ECGs, X-rays, Ultrasounds and Pictures



<https://litfl.com/ecg-in-chronic-obstructive-pulmonary-disease/>

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CXR source:



<https://radiopedia.org/cases/35985>

US source:

<https://www.thepocusatlas.com/covid19-1/common-pleural-based-findings-in-covid19>



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US source:

<https://www.thepocusatlas.com/pulmonary>



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Appendix C: Facilitator Cheat Sheet & Debriefing Tips

Include key errors to watch for and common challenges with the case. List issues expected to be part of the debriefing discussion. Supplemental information regarding any relevant pathophysiology, guidelines, or management information that may be reviewed during debriefing should be provided for facilitators to have as a reference.

Challenges:

- Identifying possible cases of COVID in the general public
- Early Infection Control Strategy of quick recognition/early isolation of patient with the immediate placement of mask on patient and appropriate PPE for health care workers.
- Isolation of family members
- Management of number of team members exposed to AGMP- aerosolized generating medical procedures.

Debrief Discussion:

- Differential diagnosis of respiratory distress still don't forget common causes of Respiratory failure- pneumonia/pneumothorax/acute MI/CHF
- Challenges of PPE/Donning/Doffing

References

1. Practical recommendations for critical care and anesthesiology teams caring for 2019-nCoV patients. Can J of Anesthesia. R Wax and M Christan. Online Feb 12, 2020 <https://doi.org/10.1007/s12630-020-1591-x>
2. Epidemiological and Clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. The Lancet Chen et al. Online Jan 30, 2020 [https://doi.org/10.1016/S0140-6736\(20\)30211-7](https://doi.org/10.1016/S0140-6736(20)30211-7)
3. Clinical Management of severe acute respiratory infection when 2019-nCoV infection is suspected: Interim Guidance Jan 28, 2020

