

SOCRATES PART 3 – HANDS-ON

Time: 3 hours

SOCRATES LAB/PRACTICAL SKILLS

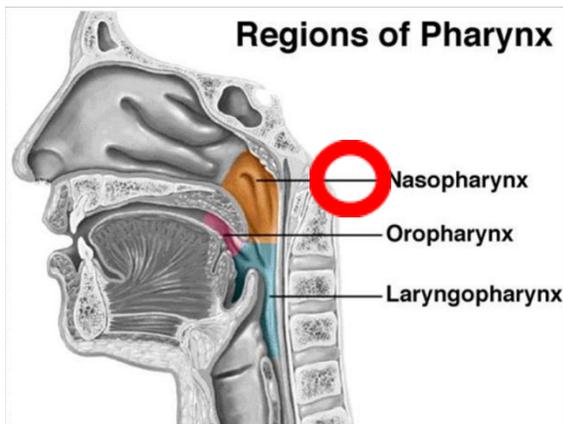
SOCRATES - Special Operations CoVID19 Rapid Assessment, Treatment and Emergency Support (references include <https://emcrit.org/ibcc/covid19/>, <https://www.uwmedicine.org/coronavirus>, <https://www.cdc.gov/coronavirus/2019-ncov/publications.html>, JTS COVID-19 CPG 20MAR20 DRAFT, PFCare.org, and Wayne’s Ragged Edge SAVell class)

CAO: 23MAR20

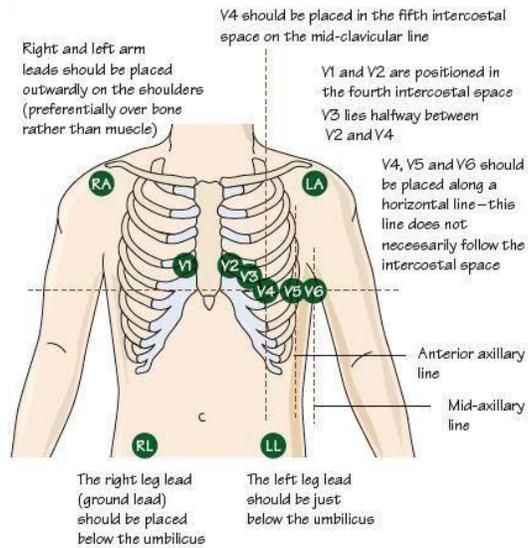
1. Review of basic science, transmission and PPE (open <https://emcrit.org/ibcc/covid19/>) 5 mins
2. DON/DOFF PPE without self-contaminating – 25 mins

https://www.youtube.com/watch?v=08XRYOE6CAw&feature=share&fbclid=IwAR3ZDvxdyIOtHME5wbAbW7FDMt5vSWnN_b7ZeXOln5tTugLC1eczn0A06a8

3. Review of screening policy and appropriate COVID19 testing technique - 5 mins



4. Review of cardiac monitors (Philips MP2 and TempusPRO), vital signs trending (PFCare.org)- 15mins



5. Review of sedation and paralytic drugs- 20 mins **CAUTION: DO NOT USE WITHOUT MEDICAL PROVIDER SUPERVISION; REMEMBER – PARALYTIC DOES NOT EQUAL UNCONSCIOUSNESS or PAIN CONTROL – always include sedation/pain management in the paralyzed patient!!!**

6. Review of Patient Care (Nursing care) – *20 mins*
 - a. DVT prevention – massage, patient movement
 - b. Proning, patient padding and repositioning
(<https://www.nejm.org/doi/full/10.1056/NEJMoa1214103> includes videos)
 - c. Foley care, I/Os
 - d. Skin care – wipe with clean cloth (water rinsed baby wipe) Q12
 - e. HEENT exam for intubated:

7. Ventilators (SAVeII and Eagle 754)– *30 mins*
 - a. Review basics of mechanical ventilation:
Managing-Initial-Vent
-ED Weingart.pdf
8. Troubleshooting and Practical Vent Exercise – *50 mins*
 - a. Review **DOPE (Displacement, Obstruction, PTX<or other lung problem>, Equipment)**
 - b. Use MOVE to set up SAVeII and work through patient scenario

MOVE Assessment:

• M: Mental Status and Mechanics of Breathing

GCS, Altered Respiratory Rate & Rhythm

WOB (Work of Breathing)

• O: Oxygenation

SpO₂, HR, FiO₂, PEEP, skin color, recruitability?

• V: Ventilation

• RR, VT, M.V., EtCO₂, Size of Vt based on

ml's per/kg IBW

• iTime and eTime (SAVell preset I:E of 1:2

(or 33%(60/set RR)

• Breath Sounds

• Chest Rise (symmetry of expansion)

• E: Evaluation & Equipment ("is my patient

safe?")

• PIP (Peak inspiratory pressure)

• Plateau (can't be measured on the

SAVell (should prompt evaluation of airway resistance vs. lung compliance)

• Drive Pressure (may need to use PIP as

the surrogate to Plateau on the SAVell

9. Vignette and review local SOPs for critical care

but only if assessment determines

These observations are from ER physicians in Louisiana, taking care of COVID patients. Please read lessons learned and use them accordingly; hopefully, we can cut the learning curve and save lives:

"I am an ER MD in New Orleans. Class of 98. Every one of my colleagues have now seen several hundred Covid 19 patients and this is what I think I know:

Clinical course is predictable.

2-11 days after exposure (day 5 on average) flu like symptoms start.

Common are fever, headache, dry cough, myalgias(back pain), nausea without vomiting, abdominal discomfort with some diarrhea, loss of smell, anorexia, fatigue.

Day 5 of symptoms- increased SOB, and bilateral viral pneumonia from direct viral damage to lung parenchyma.

Day 10- Cytokine storm leading to acute ARDS and multiorgan failure. You can literally watch it happen in a matter of hours.

81% mild symptoms, 14% severe symptoms requiring hospitalization, 5% critical.

*Patient presentation is varied. Patients are coming in hypoxic (even 75%) without dyspnea. I have seen Covid patients present with encephalopathy, renal failure from dehydration, DKA. I have seen the bilateral interstitial pneumonia on the xray of the asymptomatic shoulder dislocation or on the CT's of the (respiratory) asymptomatic polytrauma patient. Essentially if they are in my ER, they have it. Seen three positive flu swabs in 2 weeks and all three had Covid 19 as well. Somehow this ***** has told all other disease processes to get out of town.*

China reported 15% cardiac involvement. I have seen covid 19 patients present with myocarditis, pericarditis, new onset CHF and new onset atrial fibrillation. I still order a troponin, but no cardiologist will treat no matter what the number in a suspected Covid 19 patient. Even our non covid 19 STEMI's at all of our facilities are getting TPA in the ED and rescue PCI at 60 minutes only if TPA fails.

Diagnostic

CXR- bilateral interstitial pneumonia (anecdotally starts most often in the RLL so bilateral on CXR is not required). The hypoxia does not correlate with the CXR findings. Their lungs do not sound bad. Keep your stethoscope in your pocket and evaluate with your eyes and pulse ox.

Labs- WBC low, Lymphocytes low, platelets lower than their normal, Procalcitonin normal in 95%

CRP and Ferritin elevated most often. CPK, D-Dimer, LDH, Alk Phos/AST/ALT commonly elevated.

Notice D-Dimer- I would be very careful about CT PE these patients for their hypoxia. The patients receiving IV contrast are going into renal failure and on the vent sooner.

Basically, if you have a bilateral pneumonia with normal to low WBC, lymphopenia, normal procalcitonin, elevated CRP and ferritin- you have covid-19 and do not need a nasal swab to tell you that.

A ratio of absolute neutrophil count to absolute lymphocyte count greater than 3.5 may be the highest predictor of poor outcome. The UK is automatically intubating these patients for expected outcomes regardless of their clinical presentation.

An elevated Interleukin-6 (IL6) is an indicator of their cytokine storm. If this is elevated watch these patients closely with both eyes.

Other factors that appear to be predictive of poor outcomes are thrombocytopenia and LFTs 5x upper limit of normal.

Disposition

I had never discharged multifocal pneumonia before. Now I personally do it 12-15 times a shift. 2 weeks ago we were admitting anyone who needed supplemental oxygen. Now we are discharging with oxygen if the patient is comfortable and oxygenating above 92% on nasal cannula. We have contracted with a company that sends a paramedic to their home twice daily to check on them and record a pulse ox. We know many of these patients will bounce back but if it saves a bed for a day we have accomplished something. Obviously we are fearful some won't make it back.

We are a small community hospital. Our 22 bed ICU and now a 4 bed Endoscopy suite are all Covid 19. All of these patients are intubated except one. 75% of our floor beds have been cohorted into COVID 19 wards and are full. We are averaging 4 rescue intubations a day on the floor. We now have 9 vented patients in our ER transferred down from the floor after intubation.

Luckily we are part of a larger hospital group. Our main teaching hospital repurposed space to open 50 new Covid 19 ICU beds this past Sunday so these numbers are with significant decompression. Today those 50 beds are full. They are opening 30 more by Friday. But even with the "lockdown", our AI models are expecting a 200-400% increase in COVID 19 patients by 4/4/2020.

Treatment

Supportive

worldwide 86% of COVID 19 patients that go on a vent die. Seattle reporting 70%. Our hospital has had 5 deaths and one patient who was extubated. Extubating happens on day 10 per the Chinese and day 11 per Seattle.

Plaquenil which has weak ACE2 blockade doesn't appear to be a savior of any kind in our patient population. Theoretically, it may have some prophylactic properties but so far it is difficult to see the benefit to our

hospitalized patients, but we are using it and the studies will tell. With Plaquenil's potential QT prolongation and liver toxic effects (both particularly problematic in COVID 19 patients), I am not longer selectively prescribing this medication as I stated on a previous post.

We are also using Azithromycin, but are intermittently running out of IV.

Do not give these patient's standard sepsis fluid resuscitation. Be very judicious with the fluids as it hastens their respiratory decompensation. Outside the DKA and renal failure dehydration, leave them dry.

Proning vented patients significantly helps oxygenation. Even self proning the ones on nasal cannula helps.

Vent settings- Usual ARDS stuff, low volume, permissive hypercapnia, etc. Except for Peep of 5 will not do. Start at 14 and you may go up to 25 if needed.

Do not use Bipap- it does not work well and is a significant exposure risk with high levels of aerosolized virus to you and your staff. Even after a cough or sneeze this virus can aerosolize up to 3 hours.

The same goes for nebulizer treatments. Use MDI. you can give 8-10 puffs at one time of an albuterol MDI. Use only if wheezing which isn't often with COVID 19. If you have to give a nebulizer must be in a negative pressure room; and if you can, instruct the patient on how to start it after you leave the room.

Do not use steroids, it makes this worse. Push out to your urgent cares to stop their usual practice of steroid shots for their URI/bronchitis.

We are currently out of Versed, Fentanyl, and intermittently Propofol. Get the dosing of Precedex and Nimbex back in your heads.

One of my colleagues who is a 31 yo old female who graduated residency last May with no health problems and normal BMI is out with the symptoms and an SaO₂ of 92%. She will be the first of many.

I PPE best I have. I do wear a MaxAir PAPR the entire shift. I do not take it off to eat or drink during the shift. I undress in the garage and go straight to the shower. My wife and kids fled to her parents outside Hattiesburg. The stress and exposure at work coupled with the isolation at home is trying. But everyone is going through something right now. Everyone is scared; patients and employees. But we are the leaders of that emergency room. Be nice to

your nurses and staff. Show by example how to tackle this crisis head on. Good luck to us all. "

10. Questions and Course AAR.

Check Your Understanding:

1. You are wearing standard PPE of gloves, gown, goggles and surgical mask (no N-95 due to shortage) and a 36 y/o female with SLE presents to the ED with Chief Complaint of mild anxiety and shortness of breath. She was given a mask by the front desk. She does not have any COVID19 exposures but states "I just want to get tested". She denies fever, cough, or chest pain. She uses a Mirena IUD for birth control, LMP: 18FEB20. Her vitals : HR 92, BP 118/72, RR 24, T-98.9F (37.2C), O2 Sat 91%. No pain.

What is your initial impression? What should you recommend after her COVID19 test (knowing it will be 6-7 days before a result)? Does she need to be admitted for further therapy? What is your exposure risk given your current PPE posture?

1. Discussion: Her rapid RR and low SaO2 are concerning. Given increased community transmission, it is likely she has COVID19. Defer to hospital SOP for workup, but at she needs further lab testing and oxygen therapy. An X-ray may be considered given her immunocompromised status (Lupus). Ensure her medication list is accurate and consult with provider for possible medication concerns (eg steroids are generally bad for COVID19) Consider a trial of high flow (6lpm) nasal cannula and re-assess. **NOTE: Nasal cannula does NOT create aerosol at less than 6lpm, also Non-Rebreathers are safe for use at 15 lpm without creating any aerosols; you can place a simple face mask/surgical mask OVER a non-rebreather mask for added safety for a patient needing oxygen who is presenting with COVID19.** (ref: Critical Care Intensivist forum comment from Medical Director in a hospital treating numerous COVID19 pts)

She may be directed to isolate at home with home O2 therapy if no beds are available in the hospital. What criteria would you give for her to return to the ED?? (consider: increased work of

breathing, increasing fever, inability to tolerate PO, change in mental status) She may be isolated at home with oxygen if: she seems to understand the risks and return to ED criteria, she has someone else at home to help monitor and assist, she is able to provide basic self care – eg food, water, hygiene.

Your exposure risk is MODERATE with this patient. She is NOT coughing and is masked, so your risk of droplet exposure is low. However, she likely has COVID and you are seeing her in a non-negative pressure room without an N95. Fomite transmission is possible. Recommend doffing your current PPE, alcohol gel, handwashing after your visit before donning new PPE before next non-COVID patient. DO NOT do anything that generates aerosol (eg, high flow O2) UNLESS you are wearing a PAPR.

Remember, COVID19 treatment guidance changes daily!!! Stay abreast of current evidence using the websources from this course (JTS, CDC, EMCRI, SCCM) and follow local guidance and SOPS (which will also change with time as we have more information)!