COVID-19 for the Hospitalist

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Link to the most current version →

BACKGROUND
- Syndrome is COVID-19 = Coronavirus Disease 2019
- Virus is SARS-CoV-2, similar to MERS and SARS
- Person Under Investigation (PUI) = pending test
- Presumptive positive = 1st test positive, waiting for CDC
- Confirmed positive = CDC test positive

TRANSMISSION
- 5-7 (up to 12 day) incubation
- Spread via *droplet nuclei* and likely *contact*
- Spread person-to-person, including *asymptomatic*
- Can remain in aerosols for hrs, fomites for 4 days
- Viral shedding avg 8d after start of illness (up to 37 days)
- High risk groups:
  - Nursing home, homeless/shelter
  - HIV, immunosuppressed
  - Healthcare workers

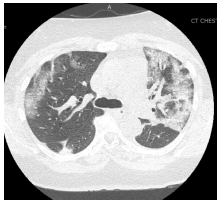
ISOLATION AND PPE
- Surgical mask on patient
- Cohort if possible, single occupancy *negative pressure* rooms
- Limit visitors/restrict totally if able
- Minimize entry/exit from room and aerosols:
  - Phone call to patient's room/mobile # for history
  - Use **Telemedicine** as available
  - Limit time in patient room (exam only)
  - Bundle nursing care (vitals, lab draws, med admin times)
  - No nebulized medications
  - Avoid NIPPV (BiPAP/CPAP) unless necessary and patient is in a **negative pressure room**
- Standard + Contact + Airborne precautions:
  - N95 (or equivalent, fit-tested), gown, non-surgical gloves, goggles/face shield
  - Especially for *aerosolizing procedures* (intubation/ extubation, NIPPV, HFNC, CPR, bag-mask ventilation, bronchoscopy)
- Don/Doff PPE with observer, USE A CHECKLIST
- Hand hygiene for 20 seconds

DIAGNOSIS

Symptoms/Presentation
- Fever: 94% in the last week, 40-60% on admit
- Cough: 59%
- Dyspnea 31%
- URI symptoms
- GI symptoms: diarrhea common in Southeast
- Anorexia, generalized weakness, fatigue, myalgias common
- New data: anosmia, also pts presenting w/ arrhythmia or MI

Labs	**Notes/Clues**
RT-qPCR viral testing	24hr (in-house)-10 day
CBC, trend Q48hr	low/nl WBC, low lymph #
BMP, trend Q48hr	low Na, AKI
LFTs, trend Q48hr	mild elevation
D-dimer, repeat before d/c	High
LDH, repeat before d/c	High
Ferritin,, repeat before d/c	High
CRP, repeat before d/c	High
Procalcitonin	Low unless co-infected
CPK	watch for myositis
BNP	Usually low
Troponin	Variable, trend if high
Rapid Influenza	Eval for co-infection
Respiratory Infection Panel	ONLY if BMT/transplant
Sputum Culture	Avoid induced sputum
Legionella sputum and urine	"
Acute Hepatitis panel, HIV	If high LFTs or starting antiviral

Imaging
Bilateral opacities, sens increased at 72hrs
- CXR on admit
- CT w/ bilateral GGOs. higher sens, but do not reflexively order



MONITORING
- Continuous pulse oximetry (watch for abrupt decline)
- Telemetry x48hrs after admit or ICU step-down, d/c as able
- Vital Signs Q4hr on admit, space to Q8hr as able
- Trend labs Q48hr (or more frequently) if needed
- Follow up repeat d-dimer, ferritin, LDH, CRP before d/c
- **SOFA score** correlates with in-hospital mortality (OR 5.65) (Zhou)

MANAGEMENT
- **Goals of care discussion** with all patients
- Supplemental O2 via low flow nasal cannula, aim for SpO2 92-96%
  - Avoid NIPPV *except case-by-case for clinical indication*
  - If flow >6L, transfer to non-rebreather
  - Early Crit Care consult and consideration of intubation
- *Fluid restrictive resuscitation,* avoid maintenance fluids
- Consults: allow for tele-consult if available to decrease risk

- *Medications that are likely helpful*
  - Empiric antibiotics *if indicated based on imaging*
    - ceftriaxone 1g IV Q24hr + azithro IV/PO x5 days total
    - doxycycline if no azithromycin
    - Vancomycin IV if MRSA risk factors
  - Acetaminophen 1g Q6hr PRN fever
  - Oseltamivir if flu + or pending (d/c if neg PCR)
  - Loperamide for viral diarrhea
- *Controversial*
  - ACEi/ARB: ACC guidance recs continue home meds, no new start
  - NSAIDs: WHO early rec against, then rescinded
  - Systemic steroids unless refractory shock or ARDS
  - Low/no good evidence for azithromycin + hydroxychloroquine

- *Investigational*
  - Statin (atorvastatin 40 or rosuvastatin 20mg) if CPK & LFTs okay
  - Hydroxychloroquine – minimal data, consider in select patients
    - 400mg PO BID x1 day, then 400mg PO daily x4 days
    - Consider if hypoxemic and >2 risk factors: lung disease, organ/bone marrow transplant, HIV, immunosuppressed, RR >24, HR >125bpm, D-dimer >1, CRP >100, LDH >245, troponin >2x ULN, Lymph # <0.8, and/or ferritin >300
    - Screen G6PD, ECG (QTc <500), check glucose during tx. Caution with *QT prolongation, history of arrhythmia, retinal disease, drug-drug interactions*
  - Remdesivir – waiting for clinical trial, effective in vitro (Wang)
  - Lopinavir/ritonavir/ribarvirin - consult ID and ID Pharm if can't use HCQ
  - Darunavir/cobicistat – if contraindications to HCQ & antivirals (ID consult)

PROGNOSIS
Spectrum of Disease in Adults
- 81% mild-moderate
- 14% severe (hypoxemia, respiratory distress)
- 5% critical (respiratory failure)

Mortality: China ~ 3.4% , Italy ~7%
- Age is the greatest predictor of severity and mortality
- >80yo mortality is 15-20%
- Comorbidities (CVD 10.5%), diabetes (7.3%), HTN (6%), cancer (5.3%) increase mortality/case fatality rate
- Admit SOFA score predicts mortality
- High risk patients
- Pre-existing CV disease, pulmonary disease, diabetes mellitus, hypertension, immunosuppressed/transplant recipient, HIV (regardless of CD4)
- Severe lab abnormalities: D-dimer >1, CRP >200, LDH >250, troponin >2x ULN, lymph <0.8, ferritin >500, elevated IL-6.

Complications
- Immune: Potential for secondary HLH
- CV: Arrhythmia 17%, cardiac injury 7% (higher in ICU), myocarditis, shock (Wang)
- Pulm: resp failure, prolonged mechanical ventilation, prolonged hypoxemia

DISPOSITION
Discharge to Home with Home Health services if
- Resolved fevers
- Stable on ambient air or 2L NC (can order home O2)
- Improved inflammatory labs (LDH, CRP, ferritin, d-dimer)
- Improved symptoms (may persist for weeks)