

Lessons Learned from the COVID-19 Outbreak in Virginia, 3/29/202

1. Supplies

- a. N95 masks – develop a plan to reuse. CDC has very unclear guidance regarding this, but it's unlikely that you will be able to wear a new one daily. Some options include
 1. Wearing a cloth shield over the N95 mask
 2. Having multiple N95 masks and rotating through them (mask 1 on Monday, mask 2 on Tuesday, mask 3 on Wednesday, back to mask 1...)
- b. Isolation carts
 1. You may need 2 or 3 times the number you normally have
- c. Isolation trash cans – double or triple your numbers as well
 1. You will also need the same increase in red bags for biohazard and yellow bags for linen
 2. Your biohazard disposal company should be ready to receive 2-3x the usual amount of waste. Make sure they are.
- d. Gowns
 1. One option mentioned by the dept of health is to use cloth gowns assigned to each room. May hang on a hook inside the door
- e. Gloves
 1. Not usually a supply problem
 2. Vinyl gloves can be very difficult to slip over hands that have been sanitized with alcohol-based sanitizer. Nitrile gloves are much easier to use.
- f. Bleach wipes
 1. Hard to keep isolation carts stocked with these, but just important as hand sanitizer
 2. Good for surfaces, stethoscopes. Not good for pulse oximeters and touchless thermometers. We have been sanitizing pulse oximeters with bleach wipes and then wiping them after a minute with computer screen wipes to remove the film.

2. Develop **frequent Vital Signs testing in all Nursing Facility patients** especially Temperature and Pulse Oximetry

- a. TIP: proactively remove fingernail polish from all current residents to enhance pulse oximetry accuracy
- b. Facilities may need to enhance equipment including portable Thermometers and Pulse Oximeters
 1. Ideal: vitals equipment dedicated to each room
 2. Next to ideal: cohort vitals equipment along wards
- c. Touchless thermometers are quick but must be decontaminated between patients.
 1. Ideally a touchless thermometer would be dedicated to each patient with confirmed or suspected COVID.
- d. If staffing is an issue (and it will be), forgo BP checks and focus on pulse oximetry/pulse rate and temperatures.
- e. Facilities will need to increase equipment including portable Thermometers and Pulse Oximeters

3. Develop a plan to move and **cohort patients based on status**; including those with fever (likely COVID-19+); confirmed COVID-19+; and/or comfort care.

- a. Ideally, an entire unit would be cleared and ready to accept COVID patients

- b. Next to ideal: set aside a hallway to accept COVID patients
- c. Basic: designate rooms at the end of a hallway for COVID patients.
- d. **Do not underestimate how much time and personnel will be involved in moving patients**
 - 1. Increase staff and hours in housekeeping
 - 1. They will need to be prepared to quickly deep clean any room vacated by COVID-positive or suspected patients
 - 2. Designate personnel to move beds
 - 1. Ideally this would not involve your nursing or CNA staff
 - 2. You will receive test results in the afternoon, just when your 9-5 staff is going home. Make a contingency plan to move 3-5 patients per day at 4pm or later.
 - 3. Think about portable storage containers (PODS) in which to store patient belongings. You can also disinfect belongings in these containers
- 4. Develop a spreadsheet to track all patients under suspicion for COVID. Minimum data would include:
 - a. Room number/hospital
 - b. Name
 - c. Age
 - d. Onset of symptoms/beginning of quarantine
 - e. End of quarantine
 - f. Date of testing
 - g. Results of testing
 - h. Code status, Hospitalization status
 - i. Whether family has been contacted re. status and whether ACP discussion has been held
 - j. Date of deaths
- 5. Start Goals of Care conversations early. Talking points:
 - a. COVID can be lethal for elderly residents and for those with multiple diseases
 - b. Your facility has and will continue to offer a robust set of services for symptom management as well as palliative care
 - c. If a resident develops acute respiratory failure, experience and studies have shown that it is highly unlikely they will recover even with hospital transfer and ventilation
 - d. Transfer to the hospital will put a frail elder at further risk of trauma, exposure to diseases and interventions that will be unlikely to help.
 - e. Comfort care in a familiar setting by nurses, aids and doctors that know their history, personality and proclivities is the kindest, most humane way to ensure comfort and dignity at the end of life.
 - f. Ensure RESUSCITATION and TRANSFER PREFERENCE information is clearly marked / accessible for ALL HEALTHCARE WORKERS
- 6. Given restrictions on STAT BOXES, consider **ordering comfort medications** (liquid morphine, liquid lorazepam and atropine) when patients develop fever and/or respiratory symptoms and/or COVID+ test result.
 - 1. Use your Pyxis Machine or Omnicell to ensure a robust supply of comfort meds
- 7. NH should consider immediate **comfort care staff education** on shortness of breath / respiratory distress at end of life and consider partnering with Hospice for an **emergency Hospice support line for staff**

8. Staff PPE should be based on guidance from the CDC but **develop a plan to have ALL STAFF FIT TESTED**
 - a. Note, this may be an area where health systems or the Dept of Health can support our local Nursing Homes by offering support for staff FIT TESTING
9. Health systems should consider obtaining a **list of employed medical staff that support local Nursing Facilities** as secondary roles. This information may be critical for communication if there is an outbreak at a specific facility.
 - a. Note: Some facilities will need support if/when Medical Director is unable to return to work; recommendation to plan ahead for this circumstance. Telehealth services should be engaged early.
10. Nursing facilities should consider **assessing the % of staff that have secondary positions at other nursing facilities** as if there is an outbreak, their staffing may be reduced by this amount.
 - a. For example, Virginia Department of Health has restricted staff who has worked at Canterbury from working at any other medical, nursing, or high risk facility.
11. Trim down medication lists
 - a. Given the expected decrease in staffing, either delete or postpone administration of non-essential medications. We have been giving a one month delay in administration of all non-essential meds such as statins, vitamins, supplements, anti-Alzheimer's meds
12. Treatment:
 - a. We have found a significant amount of bronchospasm in our COVID patients
 1. Short acting bronchodilators have helped
 1. MDI with spacers in those that can use them
 2. We have used nebulizers in patients that can't synchronize a deep breath with the spacers
 2. For our patients with COPD, steroids seem to help. It is important to note that the CDC is recommending against widespread steroid use for COVID positive patients: *"Corticosteroids should be avoided, because of the potential for prolonging viral replication as observed in MERS-CoV patients, unless indicated for other reasons. For example, for a chronic obstructive pulmonary disease exacerbation or for septic shock per Surviving Sepsis guidelines"*.
 3. Further discussion can be found at <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>
 4. We think it's reasonable to try a burst of steroids in those with a history of chronic lung disease or with severe bronchospasm
 5. We have used Prednisone 60 mg or Solumedrol IM, 60-120 mg stat followed by Prednisone 20-40 mg qd for 5 days. With the above CDC guidelines in mind, we will probably limit our steroid use to a single dose and then reassessment.
 - b. Oxygen helps with symptoms
 1. We have used NRB masks with high flow oxygen to provide comfort in some severe cases. Saturations on presentation have been in the low 60s at times.
 - c. As noted above, be ready with morphine and lorazepam
13. 4 observed courses
 - a. Indolent course, deadly
 1. Initial 24-28 hours of fever and severe respiratory symptoms
 2. Stabilization for 3-5 days
 3. Decompensation on days 5-7 with death within 24 hours
 4. No response to antibiotics as empiric treatment for secondary bacterial pneumonia

- b. Acute respiratory failure
 1. Symptoms begin with fever and acute respiratory failure with death within 6-12 hours. More likely in the superannuated
- c. Sepsis-like picture
 1. Sudden onset of AMS, hypoxia and hypotension without fever
 2. A small subset of patients in our experience. All have tested positive for COVID (may simply have been asymptomatic carriers who developed sepsis independently).
- d. Indolent course, convalescence
 1. Fortunately, the majority of our patients. Same course as indolent to death although continued improvement over 7-10 days.
- e. GI prodrome
 1. Not common, but we have seen nausea and diarrhea up to 2 days before onset of fever and respiratory symptoms.

14. Ethics

- a. Most of the ethical challenges have been issues regarding benefit to patient vs. risk to community (communitarianism).
 1. Should an 80-year-old with little chance of recovery be intubated, increasing the risk of exposure to healthcare workers and decreasing availability of ventilators for patients with better survival?
 2. Should facilities establish an outright ban on nebulizer treatment due to transmission concerns even if nebulizer treatment may provide better relief to patients?
 3. Should health systems prevent providers from entering nursing homes with COVID cases in order to prevent them from transmitting the virus to other patients who live outside nursing homes? What does that say about the value we place on the elderly and those with dementia?

15. Decreasing cross contamination of workers

- a. We have developed, with the department of health, avenues of entry and exit to prevent cross contamination of workers. We have a entry for workers coming from home, and a separate exit for workers leaving after shift.
 1. Workers step in decontamination fluid (unsure whether this is necessary but recommended by the DOH)
 2. Showers and locker rooms (supplied by the Dept of Health) are available for staff that wish to change clothes before and after work.
- b. We have a COVID unit with a separate entrance and breakroom. We are staffing this with some COVID positive workers at this point.
 1. COVID positive workers are allowed to work as long as they do not have a fever or cough.
 2. They are not allowed to share breakroom or bathroom with COVID negative workers.
 3. We're still working through the details with the Dept of Health.
 4. COVID positive workers have the advantage of not having to wear masks on the COVID unit. They do continue to wear gowns and gloves.