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Dear Folks,

We are all working very hard to manage a huge volume of COVID patients and at the same time field calls from our interested colleagues all over the country. To better inform our fellow surgeons who are about to be inundated with these patients, we thought it might be valuable to summarize the many innovations we have made at our various New Jersey institutions to deal with the pandemic.

1. What have you done with the Trauma/Surgical Critical Care service at your institution?

For example, one institution reorganized coverage to give up the acute care surgery to the general surgeons while surgical intensivists managed 4 large critical care areas (2 COVID- only). On that team have 8 Trauma Surgeons. 4 have taken on a service and 4 take night call on a given week.

2. How have you employed non critical care surgeons?

For example one institution engaged:

- Vascular surgeon during the day
- Cardio thoracic surgeon during the night
- General Surgeon acting as back up to the trauma surgeons

- One institution, the surgical intensivists cover trauma and emergency surgery during the days and the general surgeons and subspecialists (vascular) cover at night.
- Anesthesiologist have partnered with the surgical intensivists to cover new COVID units.
 - One institution developed 8 surge teams to manage up to 16 COVID patients each (4 medical, 1 cardiac surgical team, 2 ACS/surgery teams, and 1 cardiology team.

3. How have you changed your residency program?

For example, one institution merged and then divided all of residents into three teams who cover the house for 24hrs. each. The 3 residencies were distributed as follows:

- Residency 1 – Interns helping senior residents or APP in ICU
- Residency 2 – Acting as Senior residents on Critical Care COVID Floors
 - Residency 3 – Covering Traumas/lines at night

Other institutions have utilized surgical residents and fellows who are idle related to the lack of elective surgery and clinic coverage to back up general surgeons and help with the ICUs.

4. How have you changed your deployment of mid-level providers?

For example, one institution reallocated non critical care mid-level providers to step down units and created a float system to utilize the critical care mid-levels where they are most needed, particularly at night. In addition, critical care mid-level providers cover COVID floors at night while daytime different experience of mid-level providers in COVID floor, SICU and non-critical care stepdown unit.

At other institutions, the mid-level providers were merged from all areas and multidisciplinary COVID teams created.

5. How have you changed your OR utilization?

We all have shut our ORs down to only emergencies.

6. How have you changed your Trauma/Surgical Critical Care call schedule?

For example, one institution is doing day coverage of ICU's (4 faculty total), and a float who covers all units and Trauma from noon to noon. We split call on Sat to two 12h shifts for the float. Some institutions have had to increase call to cover for sick colleagues (about 25% out ill).

7. Has your service taken on additional ICUs?

For example, one institution took over two more newly created ICU's and also are taking medical non-COVID patients in the SICU (horrible experience!). Ultimately covering a total of four 16 to 26 bed units. Some sites have utilized the PACUs as ICUs or set up tents to care for the overflow.

8. What techniques have you found useful in managing Covid-19 patients?

For example, proning (18/6hrs) seems to dramatically improve the oxygenation of our COVID patients and is being used even in the hypoxic ones who are not intubated. Some nurses have been pulled from administrative duties to join specialty teams (such as proning teams).

Vent management as follows:

- Proning as a routine
- Only small changes in vent management
- Wean peep last, FiO2 first
 - Slow peep wean (only while supine).

We hope that these simple observations will help anyone preparing for the pandemic. Of note, on numerous occasions patients who have tested negative for COVID initially, have deteriorated during our care and turned out to be COVID positive a week later. This exposed entire health care teams to the virus. All this week at HUMC we have more than 400 COVID positive patients with over 110 on ventilators. Be safe and good luck.

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