OUR EXPERIENCE INCREASING OUR SURGE CAPACITY IN THE COVID-19 PANDEMIC

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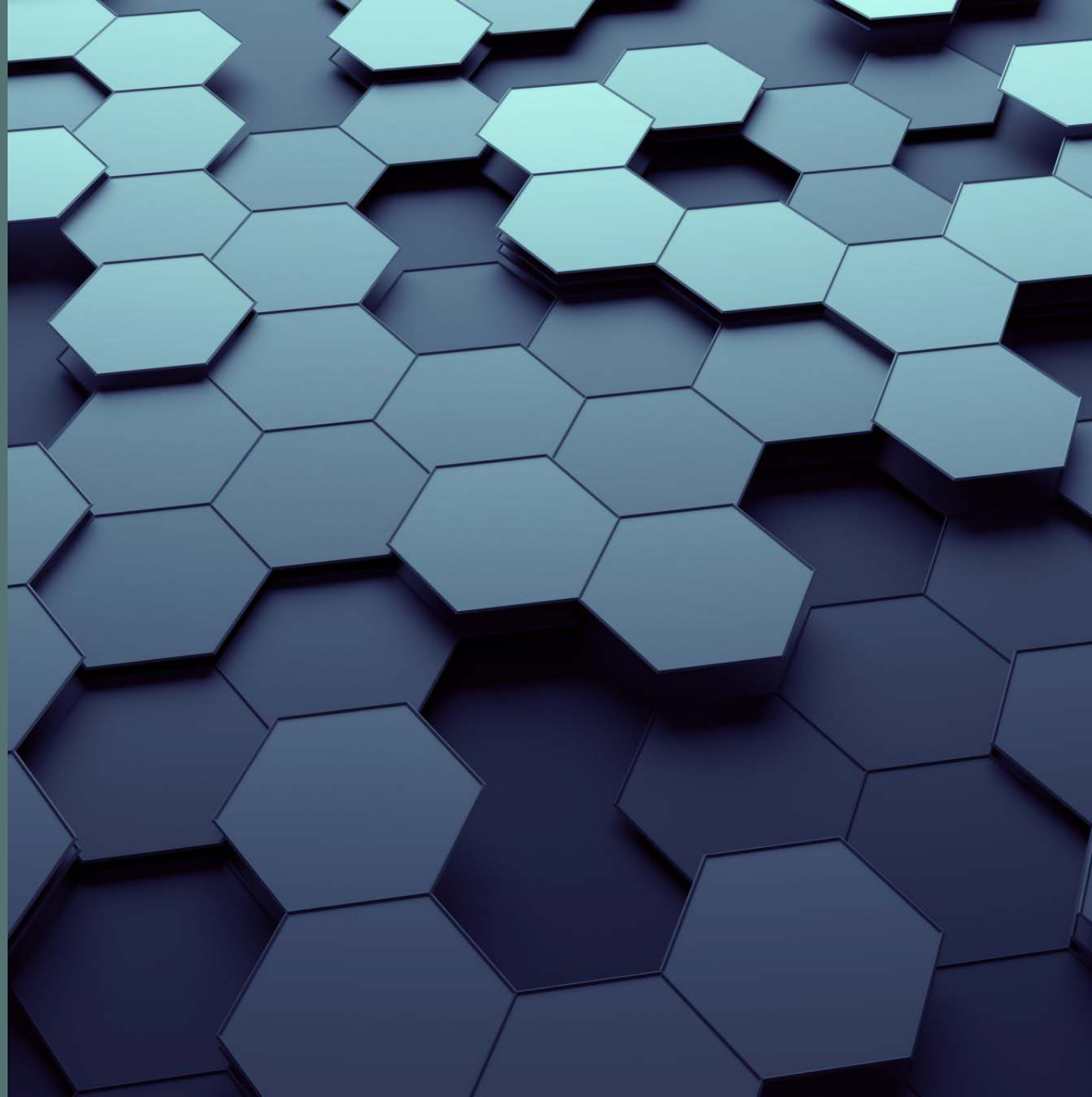


- No conflicts of interest to disclose.

OBJECTIVES:

- How staffing was accomplished utilizing critical care and non-critical care providers.
- How teams were formed and with what proportions.
- Roles of procedure teams, trainees, and other relevant issues.
- How we were able to prioritize continually moving patients out of the ED without significant wait times.

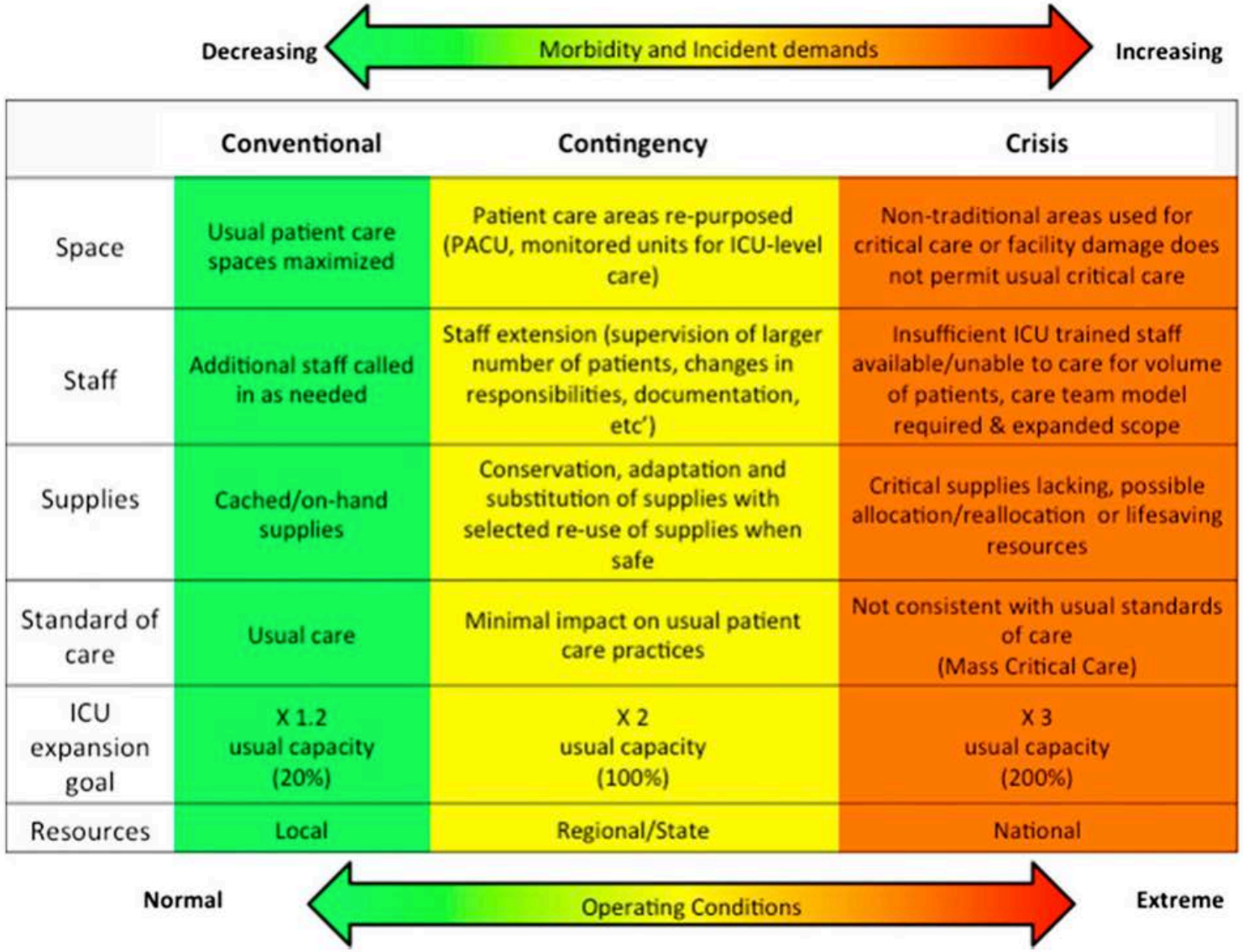
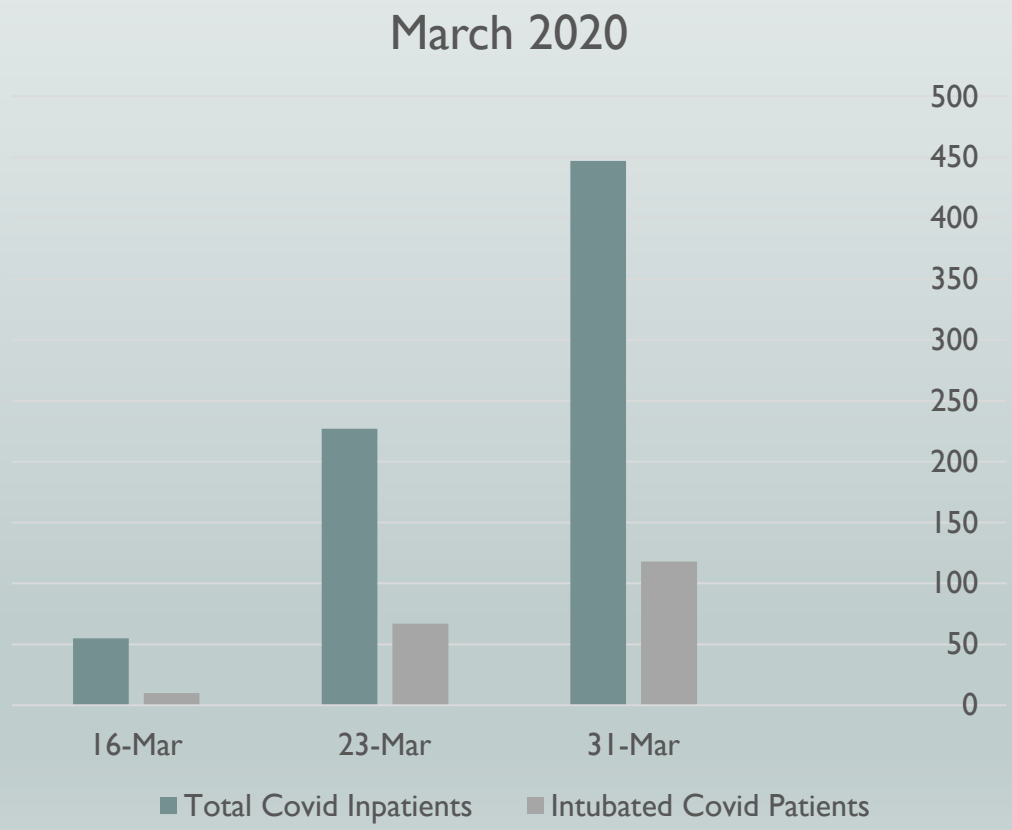


Figure 2 – *A framework outlining the conventional, contingency, and crisis surge responses. PACU = post-anesthesia care unit. (Adapted with permission from Hick et al.[2])*

Christian MD, Devereaux AV, Dichter JR, Rubinson L, Kissoon N; Task Force for Mass Critical Care; Task Force for Mass Critical Care. Introduction and executive summary: care of the critically ill and injured during pandemics and disasters: CHEST consensus statement. Chest. 2014 Oct;146(4 Suppl):8S-34S. doi: 10.1378/chest.14-0732. PMID: 25144202; PMCID: PMC7094437.

SPRING SURGE 2020

	Total Inpatient Beds	Total Adult ICU Beds
Baseline	862	114*
Spring surge		



* Some of the ICUs are routinely staffed for a combination of ICU and SDU patients

OUR ABILITY TO EXPAND SPACE FOR PATIENT CARE SO RAPIDLY DEPENDED UPON:

- Suspension of all elective procedures – ORs, cath labs, etc were all closed for anything other than emergency cases
- Near total absence of all non-covid admissions

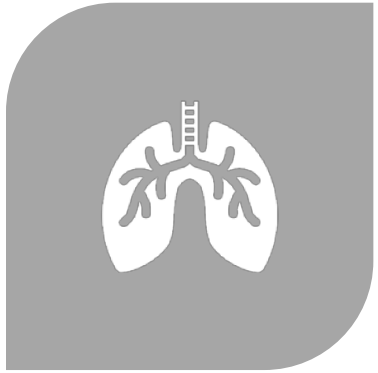
OUR STAFFING ABILITY TO EXPAND BEYOND OUR USUAL ICUS RELIED UPON AVAILABLE MEDICAL, NURSING AND RT STAFF.

- **RNs**:
  - OR and PACU RNs, available since the ORs were closed
  - Many, many traveler and volunteer RNs
- **RTs**: heavy overtime for our own RTs, and liberal use of travelers when they were available (this became a real staffing crisis)
- **Medical staff**
  - ICU attending docs (PCCM) – our labs were closed, so research faculty pulled to help staff the extra ICUs
  - Voluntary PCCM faculty was given opportunity to cover the ICUs as primary or consultant attendings
  - PCCM fellows were pulled off research and electives and dispersed into the various ICUs and pop-up ICUs
  - Hospitalists were given lectures and training to help staff the ICU and high-acuity SDUs
  - Medicine residents were also pulled from electives to staff the ICU and SDUs
  - Medicine fellows were pulled to function as “super-residents” in many of the ICUs
  - Medicine PAs were not in use in our MICU but did expand their coverage on floor and SDU teams, and PAs are used in all our other ICUs
- Crisis standards of care allowed suspension of ACGME rules limiting trainees’ ICU time, allowing us to staff the pop-up ICUs with medicine residents (in addition to house staff and Pas from other departments)

STAFFING IN THE ICUS:

- MICU staffed by 2 PCCM attendings and 1-2 fellows
- CCU staffed by 1 cardiology attending, 1 PCCM attg, fellows
- Other existing ICUs staffed by their own intensivists (cardiac anesthesia, surgical critical care, neurocritical care, pediatric critical care), with consultation from PCCM fellows and/or attendings and embedded medicine residents
- Pop-up ICUs (previously PACUs, ORs, and SDUs) staffed by combinations of intensivists from PCCM and anesthesia critical care, cardiologists, hospitalists, and fellows and residents from all departments.
- Utilized tele-ICU and hospitalists to help staff our community hospital's ICU

PROCEDURE TEAMS:



INTUBATION TEAM (ANESTHESIA)

LINE TEAM (VASCULAR SURGEONS AND INTERVENTIONAL RADIOLOGISTS)

PRONING TEAM (PT/OT)

FALL/WINTER SURGE ADJUSTMENTS:

- The ORs and cath labs have reopened to approx. 50% expected and have not had to drop further
- Non-covid admissions are back up to near normal
- Traveler RNs and RTs are very challenging to find (and very expensive to pay for)
- The residents are back to regular ACGME guidelines
- As a result, in the fall/winter surge, we haven't opened any pop-up ICUs, but have adjusted some of our usual pathways; for example
  - Post- TAVR pts are going to cardiac SDU rather than the CCU
  - Routine post-ops are spending the night in the PACU rather than going to the SICU or neurosurgical ICU.
  - We do not have the procedure teams available.

HOW HAVE WE AVOIDED LEAVING PATIENTS IN THE ED FOR PROLONGED PERIODS?

- Spring:
  - Many available ICU beds and staff
  - No running ORs or procedure suites (except emergencies)
  - Almost no admissions for anything other than covid
- Fall/Winter:
  - More challenging – ORs and cath labs open at 50%, non-covid admissions back near baseline, no additional ICUs have opened.
  - **Rely on close, constant communication with our bed management system to constantly try to free up beds in all the ICUs, prioritizing transfers out of the ICUs to general med/surg and SDU beds rather than prioritizing those admissions from the ED**
- Biggest challenge currently is transfers from our outside hospitals – when their ICUs are full and they have someone in their EDs, it can often take quite a few hours to arrange for an ICU bed at our main campus.

UPSIDE

- One important good outcome to our surge last spring has been a new level of collaboration among all the critical care groups in the hospital, with weekly (or more) all-ICU meetings during the spring to discuss the latest covid findings (what we were seeing as well as what was being reported in literature and social media), and treatment reminders and updates as information became available. These tailed off in late spring but were easily reinstated in the fall. This collaboration and ongoing close communication were critical to providing equivalent care in all the ICUs.