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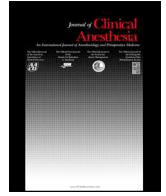
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## Correspondence

## Using a pre-procedure COVID-19 huddle to improve operating room safety



Dear Editor,

The global coronavirus disease 2019 (COVID-19) public health emergency has amplified the need to deliver safe and efficient perioperative care while preventing the spread of infection among health-care staff and patients. Recommendations for perioperative care in this context, including contact and droplet isolation precautions, negative pressure operating rooms, and specialized personal protective equipment (PPE), have been published [1–3]. However, due to the rapidly evolving understanding of COVID-19-related care, their operationalization is challenging and unevenly applied.

Huddles are brief, highly focused “stand-up” meetings that enhance care coordination by enabling collaborative and efficient information exchange and by fostering a shared view of current conditions [4,5]. We describe a newly designed and operationally integrated pre-procedure huddle, grounded in tenets of high reliability, to ensure guideline-adherent practice for perioperative COVID-19 care.

The pre-procedure COVID-19 huddle was conceived in response to the need for aligning the perioperative care team on required preparations for each COVID-19 patient despite continual updates to local policy regarding PPE, room turnover, and other preventative practices. The huddle was designed by a multidisciplinary team - front-line anesthesiologists, surgeons, and nurses, as well as the operating room (OR) director and leaders in perioperative quality and safety. The huddle participants include the OR Desk Nurse in Charge, Anesthesia Floor Leader, OR Staff Nurse, Attending Anesthesiologist, Attending Surgeon, and Post-Anesthesia Care Unit (PACU) Charge Nurse. The huddle is initiated by the OR Desk Nurse-in-Charge and the Anesthesia Floor Leader, who convenes the huddle after the surgeon books the procedure with the OR Desk Nurse in Charge. Participants discuss the risk of contamination (COVID-19 status), risk of aerosolization, need for a negative pressure OR, and minimum personnel for the case – this discussion then informs plans for obtaining and using PPE, transporting the patient to and from the OR, and location of post-procedure recovery. These items were chosen from issues encountered in safety reports, direct feedback from staff, and training drills, while keeping a view to required steps to perioperative patient flow. Huddle elements are described in Table 1.

We ran weekly drills to train our staff on the huddle process. Each week, we used a different case to simulate the pre-procedure COVID-19 huddle (ex. emergency laparotomy), with a group of anesthesiologists, nurses, and surgeons, while clarifying current policies and collecting feedback from front-line staff. Staff feedback regarding the huddle and drills was positive among anesthesiologists, nurses, and surgeons. Examples include: “*The Wed morning drills are great but how about every day for the next 1-2 weeks?*”, “[*Surgeon*] went to yesterday's drill and thought it was terrific”, “... the drill went extremely well in the cardiac pod this morning”. “[*Nurse*] ... it was helpful to practice as a team and talk through concerns. I feel like we are all on the same page.” Constructive

feedback was used to improve the huddle, such as adding the PACU Charge Nurse to aid in recovery planning and incorporating plans to minimize staff in the case, to avoid excess exposure and PPE use.

We anticipate that the pre-procedure COVID-19 huddle will be generalizable at other institutions and other peri-procedural settings, as it covers required aspects of care (ex. risk for contamination, choice of PPE, plans for recovery location) while remaining agnostic to specific changes in policy. And using live training drills to teach the huddle process has the added benefit of making a venue for clarifying policies and collecting feedback. Although we eagerly anticipate the day that this huddle will no longer be needed for COVID-19, we feel that this

Table 1

## Pre-procedure COVID-19 huddle.

Pre-procedure huddle for COVID-19 pathway (person under investigation [PUI] and confirmed infection)

Purpose: establish clear plan for procedure prior to transport of patient to operating room  
OR huddle should include the following roles, organized by the Nurse-In-Charge and Anesthesia Floor leader

1. Huddle leadership: OR Desk Nurse in Charge and Anesthesia Floor Leader
  2. OR Staff Nurse and Attending Anesthesiologist
  3. Surgical Attending (via phone, if off-site)
  4. PACU Charge RN (if not going to ICU) - communicate post-op needs/plan
- What is the risk of contamination?
    - Patient on COVID-19 pathway (PUI/COVID-19 positive)
    - Unable to obtain clear screening history (ex. acute stroke, emergency case)
  - Is this an aerosol generating procedure?
    - Intubation or extubation
    - Bronchoscopy, tracheostomy, endoscopy, colonoscopy, lung biopsy, jet ventilation, or other aerosolizing risk
  - Who are the minimum staff for this case? (to avoid excess exposure and PPE use)
  - Choose negative pressure operating room for aerosolizing procedures
  - Confirm plans for PPE (refer to current PPE policy)
    - Type: Contact with droplet (gown/gloves/surgical mask/eye protection) vs Strict Isolation (add N95/PAPR)
    - Location: general PPE distribution center vs emergency PPE cart

For any further questions regarding PPE or fit checking, page Biothreat Transport plan:

- From preoperative location directly to OR
  - From operating room to postoperative location
- Determine which clinical staff will travel with patient and coordinate with sending/receiving unit
- Post-anesthesia recovery disposition (PACU, ICU, OR, SPU)

Footnote: OR – Operating Room, COVID-19 – Coronavirus Disease 2019, PPE – Personal protective equipment, ICU – Intensive care unit, PACU – Post anesthesia care unit, RN - registered nurse, PUI - person under investigation, PAPR - powered air-purifying respirator, SPU - special pathogens unit.

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type of huddle might be applicable to other perioperative cases involving other transmissible diseases, such as measles and tuberculosis.

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### Declaration of competing interest

None.

### References

- [1] Infection control: severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Centers Dis Control Prev n.d.. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html> (accessed April 16, 2020).
- [2] Dexter F, Parra MC, Brown JR, Loftus RW. Perioperative COVID-19 defense: an evidence-based approach for optimization of infection control and operating room management. *Anesth Analg* 2020. <https://doi.org/10.1213/ANE.0000000000004829>.
- [3] Herman JA, Urits I, Kaye AD, Urman RD, Viswanath O. COVID-19: general anesthesia precautions. *J Clin Anesth* 2020:109840. <https://doi.org/10.1016/j.jclinane.2020.109840>.
- [4] Scoville R, Little K, Rakover J, Luther K, Mate K. *Sustaining improvement* Cambridge 2016.
- [5] Brady PW, Muething S, Kotagal U, Ashby M, Gallagher R, Hall D, et al. Improving situation awareness to reduce unrecognized clinical deterioration and serious safety events. *Pediatrics* 2013;131:e298–308. <https://doi.org/10.1542/peds.2012-1364>.

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