



Introducing the COVID-19 Surgical Huddle and Checklist: The Novel Dangers We Face Require Novel Adaptations to Our Current Safety Mechanisms

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Abstract

Safe surgical practice is vulnerable to errors in the evolving pandemic of COVID-19. Our well-established routines, which safeguard patients against adverse events and complications, are falling short with the increased burdens on the team, the process and the communication. This perspective examines these multifactorial stressors and consequences for the team and patient and puts forward the concept of a pre-operative huddle, guided by a targeted checklist, for the surgical team operating upon a COVID-19 positive or suspected patient.

Introduction

The WHO Surgical Safety Checklist was developed to decrease errors and adverse events, and increase teamwork and communication in surgery [1]. Implementation of the three stages, 19-item checklist significantly reduces morbidity and mortality and is now globally utilized [2]. However, in these unprecedented times of the COVID-19 pandemic, we must recognize that our well-established safety checklist falls short of its noble aims. The challenges to safe operating in a COVID-19 positive or suspected patient are presently being realized on a global scale, and we propose the introduction of an extra step in the process: A preoperative team huddle guided by a targeted checklist, to occur prior to patient retrieval and to include all members of staff who would be involved in the case. While it will appear time-consuming in what may be an urgent situation, these minutes spent addressing the complexities and outlining the procedure can save time and stress during the case and subsequently reduce the risk to patient and healthcare workers due to unnecessary exposure. Here we will address some of the challenges and how the preoperative team huddle and checklist can overcome to provide the safest arena for the team and patient.

Communication and Personal Protective Equipment (PPE)

Communication, the cornerstone of surgical safety, is profoundly hampered by the presence of PPE. The need for clarity for all team members of the flow through anesthesia and surgery is paramount. Intraoperatively, the difficulties with stress, discomfort and muffling due to PPE leave much space for error.

A team working in a stressful environment, such as a non-avoidable and hence likely urgent operation on a COVID-19 patient, is vulnerable to the breakdown of PPE process. This breakdown of PPE processes and its consequences carries risk to the whole team. However, in ensuring team safety with PPE we must not compromise the usual surgical processes, such as communication which keep our patients safe. The preoperative huddle should be a time to acknowledge this vulnerability and delineate the steps in detail, anticipating any particular elements which require signaling and thereby reducing the risk of communication errors intraoperatively.

Lines of communication to outside of the Operating Room (OR) must be kept open via a safe method: Use of a telephone carries risk of self-contamination, poor vocalization through masks and will need cleaning post-operatively. Our teams have elected to use whiteboard sheets with markers to hold up to clean runners outside of the OR.

Unfamiliar Staff

As the healthcare worker population is affected, staff reassignment is likely to occur with limited opportunity for training. We must keep in mind that our familiar team may not be possible, and

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SURGICAL HUDDLE CHECKLIST FOR SUSPECTED OR CONFIRMED COVID-19 PATIENT

- To occur prior to retrieval of patient to OT
- ALL members of team must be present
- Please consider the difficulties in communication in PPE and use this opportunity to minimise risk of error intraoperatively
- Consider that unfamiliar staff may be present

<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">STAFFING REQUIREMENTS</div> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm all team members present at huddle (ALL those who will attend to the case MUST BE PRESENT) <input type="checkbox"/> Confirm clinical need for extra staff <input type="checkbox"/> Introduce all team – name and role <input type="checkbox"/> All staff confirm suitable for COVID+ case Donning and Doffing trained /Any personal concerns re PPE / health <input type="checkbox"/> All team to sign sign-in sheet for contact tracing <input type="checkbox"/> Ensure copy of OT flow chart available in OT and all staff familiar with protocol for transferring patient, personnel, equipment and communication across zones <input type="checkbox"/> Confirm role of each team member with detail <input type="checkbox"/> Allocate to 'dirty' team / 'clean' team <input type="checkbox"/> Confirm location of each team member during case <input type="checkbox"/> Confirm presence of appropriate level PPE for each member of team <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 60%;">Role and location during case</th> <th style="width: 25%;">Name</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="background-color: #fce4ec;">Dirty team FULL PPE</td> <td>Anaesthetist 1+2</td> <td></td> </tr> <tr> <td>Anaesthetic assistant</td> <td></td> </tr> <tr> <td>Scrub Nurse</td> <td></td> </tr> <tr> <td>Floor nurse</td> <td></td> </tr> <tr> <td>Perfusionist</td> <td></td> </tr> <tr> <td>Surgeon 1 + 2</td> <td></td> </tr> <tr> <td rowspan="3" style="background-color: #fff9c4;">Transition zone team FULL PPE</td> <td>Anaesthetic assistant (induction room)</td> <td></td> </tr> <tr> <td>Perfusionist (perfusion room)</td> <td></td> </tr> <tr> <td>Scout nurse (clean stock room)</td> <td></td> </tr> <tr> <td rowspan="2" style="background-color: #fff9c4;">Outside theatre zone No PPE Buddy for doffing</td> <td>Anaesthetic runner (corridor)</td> <td></td> </tr> <tr> <td>Scrub runner (corridor and second stock room)</td> <td></td> </tr> </tbody> </table>		Role and location during case	Name	Dirty team FULL PPE	Anaesthetist 1+2		Anaesthetic assistant		Scrub Nurse		Floor nurse		Perfusionist		Surgeon 1 + 2		Transition zone team FULL PPE	Anaesthetic assistant (induction room)		Perfusionist (perfusion room)		Scout nurse (clean stock room)		Outside theatre zone No PPE Buddy for doffing	Anaesthetic runner (corridor)		Scrub runner (corridor and second stock room)		<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">PATIENT CONFIRMATION</div> <ul style="list-style-type: none"> <input type="checkbox"/> State patient, procedure and consent (make sure PHOTOCOPY of all paperwork available which can be disposed of at end of case) <input type="checkbox"/> Confirm patient COVID status and location <input type="checkbox"/> Any high risk components of operation stated (airway management/ high speed tools) <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">ANAESTHESIA REQUIREMENTS</div> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm who is to be present during intubation <input type="checkbox"/> Difficult airway? Consider implications re staffing / equipment <input type="checkbox"/> State Intubation and lines plan <input type="checkbox"/> Discuss potential complications and outcomes <input type="checkbox"/> Confirm all equipment required is available <input type="checkbox"/> Any equipment or staffing concerns? <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">SURGICAL REQUIREMENTS</div> <ul style="list-style-type: none"> <input type="checkbox"/> State steps of operation clearly including equipment <input type="checkbox"/> Any specialist requirements such as CPB / cell salvage <input type="checkbox"/> Discuss potential complications and outcomes <input type="checkbox"/> Confirm all equipment required is available <input type="checkbox"/> Any equipment or staffing concerns? <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">FINAL CONSIDERATIONS</div> <ul style="list-style-type: none"> <input type="checkbox"/> Any communication signals needed during case : Outline clearly for all staff <input type="checkbox"/> Any concerns from any team member
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Image 1: Surgical huddle checklist for suspected or confirmed COVID-19 patient.

variable experience can be expected in replacement staff working out of their comfort zone. Unfamiliarity will impact upon the flow of communication and our actions cannot be anticipated in the same way. We must set the tone in the calm pre-operative huddle to establish the team limitations, instill confidence and alleviate anxiety through clarity in outlining the process and expectations. Staff must each be aware of their role, PPE requirement and location during the case. Their suitability for the role should be confirmed at the huddle, including don and doffing training and any personal concerns regarding health, PPE and endurance, especially for longer cases. The huddle is an opportunity to confirm the correct staff will be in the correct place in correct PPE whilst in a controlled environment, minimizing unnecessary stress during the case.

Operating Room Logistics

While a clear flowchart of OR logistics regarding patient, personnel, communication and equipment transfer during a COVID+ case should be in place long before required, the huddle is the time to ensure all staff are familiar with the steps to achieve an uncontaminated safe working environment. Each team member must meticulously adhere to the predetermined process to maintain the integrity of protective measures.

Further novel measures in establishing safety are required including assignment of roles within risk-zones of the OR and confirming the presence of adequate PPE for each member of the team in each zone. Time and staffing management around high risk components of the process, such as intubation, must be declared at the huddle and noted by all staff. Requirements of changing PPE and crossing zones with closed access points must be clarified to avoid contamination. Each member of the team must be familiar with

the donning and doffing areas, the process and their access in and out. Determining these measures should be done in a clear cohesive checklist in advance of the patient being present.

Equipment

In many ORs, it will be necessary to minimize door opening during COVID+ cases to bring in equipment. However, any disposable equipment, such as spare gloves, sutures etc, within the contaminated zone will need to be disposed of if unused at the end of the case. Confirming necessary items prior to surgery will permit availability in OR without breaching the contaminated zone whilst also reducing wastage during this resource heavy epoch. Any specific equipment such as US, echo, and cell-salvage or bypass machinery should be discussed at the huddle and set up prior to retrieval of the patient to avoid unnecessary door opening. Establishing precise requirements of the team at this stage avoids confusion or stress intraoperatively which in turn assists the team in maintaining the integrity of the OR and PPE (Image 1).

Sample Checklist

Image 1 represents a starting point for surgical teams to develop a huddle checklist for suspected or positive COVID-19 patients undergoing surgery. It is not validated, and is not intended to replace the three stages WHO checklist, but to be used in conjunction with, and as a separate step prior to retrieval of the patient. It is built with the challenges discussed above in mind but is open to adaptation to fit individual units and teams.

Summary

As healthcare workers committed to providing surgical care to our patients, we face unknown and frightening challenges in the

evolving crisis. We must pre-empt these challenges, declare them for what they are, prepare for them and take control of what we are able to. As Martin Luther King tells us “Our very survival depends on our ability to stay awake, to adjust to new ideas, to remain vigilant and to face the challenge of change”.

We propose the pre-operative huddle and checklist, prior to the infectious patient leaving the ward, is an opportunity to harness the powerful safety features of the WHO checklist, with adjustment to our new circumstance to provide clarity and safety to all involved.

Contributorship Statement

Both authors have contributed in the visualization and realization

of this article. Louise Kenny conceptualized the project and Morgan Learoyd performed the graphics and put the manuscript together.

References

1. World Health Organization. WHO Surgical Safety Checklist.
2. Haynes AB, Weiser T, Berry W, Lipsitz S, Breizat AHS, Patchen Dellinger E, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med.* 2009;360(5):491-9.