A guiding principles checklist for Otolaryngologic surgery in the COVID-19 era

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Abstract

The COVID-19 pandemic has had a dramatic impact on surgical workflows. There is an abundance of ever-changing information and protocols are reflexively modified on a daily basis. As many otolaryngologic procedures are shown to have higher risk of viral transmission—so-called aerosol generating procedures—it is imperative that multidisciplinary care teams are provided updated, timely, and consistent information. A single page "Guiding Principles" surgical checklist was developed to discuss 7 key factors: patient information, staff wellness, risk minimization, prioritization, resource utilization, key society criteria, and communication. This was completed for every patient requiring otolaryngologic surgery and was distributed to the care teams involved. It provided the most information for those on the front-line and allowed for cogent pre-, intra-, and post-operative planning.
Introduction

The rapidly evolving healthcare climate in the COVID-19 era has led to an abundance of information, modified on an almost daily basis. Keeping up-to-date to ensure the safety of the healthcare providers and support staff is vital to the healthcare system. Certain procedures have been deemed higher risk for viral transmission due to their risk of aerosol generation (AGPs)\(^1\). Many Otolaryngology procedures fall under the spectrum of AGPs\(^2\). The nasal cavity and nasopharynx have been shown to contain higher viral concentrations of the coronavirus\(^3\), thus placing an increased risk of disease transmission to all those involved in these procedures. Multiple societies—including the American Academy of Otolaryngology, American Society of Pediatric Otolaryngology, and American Society of Anesthesiologists—have provided specific guidelines regarding these procedures. However, these policies sometimes contain differing or contradictory information. Many institutions have also developed their own methods, such as daily emails or meetings, to communicate vital information during this crisis. Many guidelines have been developed and published without regard for children. Our incident command leadership structure provided Guiding Principles for Surgical Procedures. These principles were developed in the setting of a free-standing children’s hospital. This developed into a broader document that highlighted the key guiding principles of efficient patient care and allowed for input from the entire healthcare team under a shared decision-making model that can be used agnostic of age or specialty.
Guiding Principles Checklist

A single page document was developed by surgical leadership to ensure self-awareness for the risks of and justification for performing a surgical procedure in the COVID-19 era. We adapted the principles and developed a process to ensure that all front-line providers had access to the most relevant information and were in agreement about the risks, benefits, justifications, and alternatives of for all surgical procedures. The checklist was completed prior to scheduling surgery for any patient deemed to require surgery. The checklist was distributed amongst the healthcare team, including the surgical, anesthesia, and medical teams. A hypothetical checklist example of a patient undergoing a tracheostomy is attached (Figure 1).

Components of the checklist included 7 guiding principles:

1. Patient information
   a. This section contained a brief history of the patient. Goals of the surgery were described using a “patient first” approach along with further justification regarding quality and safety.

2. Staff wellness
   a. Ensuring the health and wellness of all individuals involved was deemed essential. Many times, this question is never asked or discussed. Our goal was to involve the front-line providers and ask two very important questions: 1) are staff and faculty mentally prepared to do the case and 2) are they asymptomatic with no viral symptoms?

3. Risk minimization
96  a. Finding ways to minimize risk of potential spread was another key
97  principle. We identified key individuals in the healthcare team with highest
98  risk of exposure and delineated those deemed non-essential to the
99  specific procedure.

4. Prioritization

101  a. This section allowed for a discussion about the timing of the case. The
102  surgical team had to justify the time-sensitive nature of the procedure and
103  how completion of the procedure would impact the patient’s health and
104  hospital course.

5. Resource utilization

106  a. This area focused on options for patient management. Multiple treatment
107  algorithms (ex. incision and drainage for abscess versus medical
108  management) were highlighted along with expected outcomes. Similar to
109  informed consent, this section allowed all members of the team to
110  understand the indication of a given procedure and participate in a cogent
111  discussion.
112  b. Additionally, proper consideration of personal protective equipment (PPE)
113  resources and utilization of COVID testing is determined given some
114  organizations have limited resources.

6. Key society criteria

116  a. This area was the highlight of our checklist. To provide clarity despite the
117  abundance of information available, this area provided up-to-date, case
118  specific information regarding PPE and pre-procedure COVID testing.
b. We included our own institutional PPE algorithm along with other key society guidelines.

c. This provided thoughtful insight for the surgical team regarding institutional PPE options, while remaining cognizant of risk stratification and national recommendations.

d. Open sharing of each society’s guidelines led to constructive conversations within the healthcare team.

7. Communication

a. In this era of abundant information, nothing is more important than appropriate communication.

b. Our communication ladder for any cases where there was uncertainty for resource utilization or if should proceed was as follows: requesting surgeon communicated with division head, who then communicated with the Surgeon-in-Chief.

c. The requesting surgeon also communicated with the anesthesia and medical teams on certain components of the check list.

Conclusion

With the continuously evolving healthcare climate, it is important to provide the most current information to those on the front-line. It is clear how we continue to respond to COVID rapidly evolving and adjudication of resources to safely care for patients will continue to be predicated on supply chains, availability and if supply can meet the demand. The checklist prompts team members to stay abreast of rapidly evolving
institutional policies and guidelines from our specialty societies. The preservation of highly skilled workforce is a priority\textsuperscript{1}. Our multidisciplinary “Guiding Principles” checklist has provided a voice to the entire healthcare team. It provides a framework for communication, patient-centered care, teamwork, trust, and safety. We hope implementation of similar checklists can provide assurance and comfort to others in these difficult times.


Figure 1 Legend:

“Guiding Principles” checklist for a hypothetical patient requiring a tracheostomy.
COVID-19 Procedural Areas Guiding Principles – Patient medical record number

Surgical Procedure: Tracheostomy, Bronchoscopy (AGP procedure)
Disposition: Post op ventilation in PICU
Care Team: Otolaryngology, Anesthesia, PICU

• **Patient information** ("patient first" focus)
  - 7-month-old male hx of Chrom 9 duplication, hypotonia, G-tube dependence, dysgenesis corpus callosum, intubated for respiratory failure
  - High risk exposure of the health care team given AGP due to need for intubation and open airway at time of tracheotomy.
  - Acute on chronic respiratory failure. Goal is stable airway as pathway to transition home.

• **Staff and Faculty** (health and wellness is critical):
  - Surgical staff and faculty asymptomatic, mentally prepared to do case
  - Anesthesia staff: ***
  - PICU staff: ***

• **Minimize risk of exposure**
  - Patient asymptomatic? Family asymptomatic?
  - COVID testing status?
  - Surgical team involved: ENT Attending and ENT fellow. Resident involvement pending COVID status.
  - Anesthesia team: ***
  - PICU team: ***

- Prioritization of procedures:
  - Unable to be discharged due to current intubation and inability to extubate, prolonged hospital stay
  - Needs to be done now to maintain and/or improve patient health

- Resource Utilization:
  - Option A: Proceed with AGP with appropriate PPE as per current institutional guidelines
  - Option B: Delay intervention, continue inpatient stay/intubation, plan to complete surgical procedure at another time

- **Key Society Criteria** (review/update information daily):
  - Lurie PPE Algorithm in Inpatient Setting (3/27/20). **Recommend** review with anesthesia and PICU teams as multiple health care providers interface
  - American Society of Pediatric Otolaryngology – supports this as a high risk AGP care event and appropriate use of PPE for AGP
  - American Academy of Otolaryngology Head and Neck Surgery - supports limiting care currently to time-sensitive and emergent problems and the routine use of appropriate PPE when treating patients in all age groups.
  - American Society of Anesthesiologists- supports appropriate preoperative testing and proceeding if deemed urgent, use of appropriate PPE

- Communication and Guidance:
  - Plan for standard PPE given negative COVID testing
  - Surgeon, Division Head, and Surgeon-in-Chief have reviewed and agree to proceed

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