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SHORT COMMUNICATION

Safe resumption of elective surgery: a Latin American proposal

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The current COVID-19 pandemic has had a disproportionate impact on healthcare practice around the world, imposing a strain on most systems that has exposed weaknesses. As such, in Latin America (LATAM) most countries have experienced suspension of significant schedules surgical procedures to decrease the demand on healthcare services in the face of this pandemic. Therefore, proposals to resume these services are needed, as there is a major backlog to be resolved. This paper intends to generate a basic framework to adapt locally to reinstate scheduled procedures as safely as possible.

This proposal is based on an unstructured review of the current literature, and on Confederación Latinoamericana de Sociedades de Anestesiología (CLASA) webinars on this subject with international experts in the field.

Resumption is recommended when the incidence of local COVID-19 infection rate is decreasing.[1] Institutions should consider these four aspects before resumption:[2] space, stuff, staff, and system, each graded as red, amber, or green. It is recommended that all four should have a green grading to consider resuming activities (Table 1).

There are significant implications regarding perioperative SARS-CoV-2 infections. This is a two-way problem: transmission of infection to a surgical patient and the reverse to healthcare personnel and other patients. Current cohorts have observed that surgical patients who develop COVID-19 infection have unacceptable risks of morbidity and mortality, with rates up to 20%.[3] Also, the risk to healthcare providers, in particular anesthesiologists who deal with the airway, have led to major morbidities with at least a 10% infection rate and tremendous number of deaths (in LATAM, more than 70 anesthesiologists have died as of October 2020, unpublished data).

Dexter et al.[4] have proposed multiple evidence-strategies to diminish the risks of contamination both from and to the patient.

To decrease contamination from the patient:

a) Test patients for nasal SARS-CoV-2 with either a reverse transcriptase Polymerase Chain Reaction (PCR) test or even consider an SARS-CoV-2 antigen test as close to the procedure as possible, ideally hours before the procedure, but no more than 48-hours before.[5] This closes the window to identify infected asymptomatic patients, and could potentially detect whether an infected patient is still not contagious, which could result in false nega-

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Table 1 Institutional considerations as proposed by the Royal College of Anaesthetists, Association of Anaesthetists, and Intensive Care Society.

Institutional considerations as proposed by the Royal College of Anaesthetists, Association of Anaesthetists, and Intensive Care Society	
Space	RED: If Operating Rooms (ORs) or Postanesthesia Care Units (PACU) are used for overflow critical care patients. AMBER: If the process of having isolated COVID+ and COVID- areas is almost completed. GREEN: no current risk of Intensive Care Unit (ICU) overflow.
Staff	RED: Anesthesia staff required for ICU backup support. AMBER: ICU personnel stretched, and anesthesia backup possible. GREEN: No risk of anesthesia support of ICU.
Stuff	RED: Institutional restriction of Personal Protection Equipment (PPEs), medications, and resources like critical care, dialysis machines, and ventilators. AMBER: Available resources but uncertain supplies. GREEN: Good stock of all these resources.
System	RED: If a) independent COVID-19 pathways, b) COVID-19 testing (that has been considered in local protocols as essential), c) structured protocols to care for the patients, or d) ancillary services (preanesthetic assessment, acute pain management, and adequate postoperative follow-up) are NOT available. AMBER: In the process of being available. GREEN: Already available.

tive antigen tests, as these require larger viral loads to detect infection (i.e., significantly less sensitive) than PCR tests. Antigen testing has even been promoted as a more practical way to identify infectious individuals.

b) Decrease nasal contamination (source of viral shedding) with iodine povidone nasal swabs, and oral chlorhexidine washes at concentrations even as low as 0.05%.

To decrease contamination to the patient:

a) Rigorous hand washing after every interaction with the patient and environment.
b) Oropharyngeal decontamination decreases surgical site infections. When caring for the airway, which is highly contaminated, the use of double gloves should become standard, and these should be discarded immediately after use.
c) Periodically wipe the anesthesia work area (a major area for fomite contamination) with hypochlorite (0.1%) or benzalkonium chloride (0.1%) to eliminate Sars-CoV-2.
d) Wipe injection ports with disinfectants before administering medications.

All these interventions, which overall are economically viable, may be culturally difficult to implement in LATAM countries, but if adopted and maintained, this crisis could eventually have some benefit for patients, leading to an overall decrease in general perioperative infectious risks in LATAM.

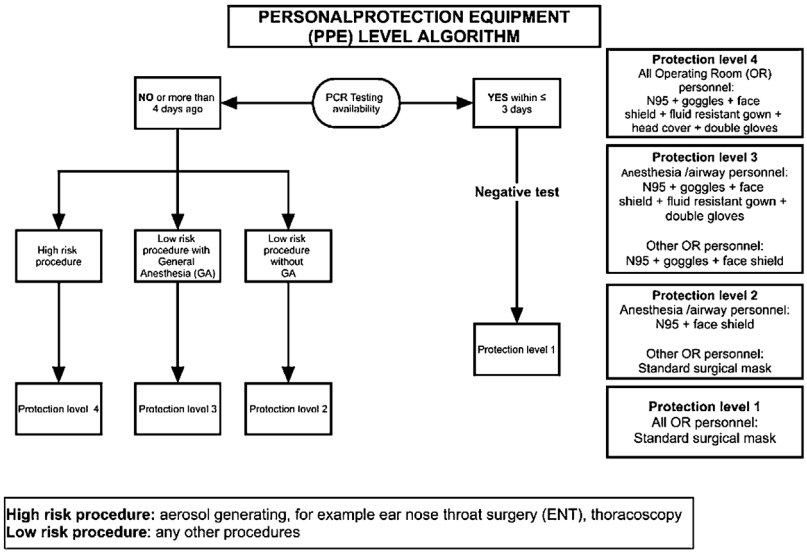
When considering the previous aspects, we have devised three evidence-based algorithms (based on current knowledge) to facilitate the resumption of surgical procedures.

In Figure 1A, we propose a Personal Protection Equipment (PPE) rationalization algorithm. Similar to the coronavirus epidemic of Sars-CoV-1 in 2003, in which airway interventions led to a 13-fold increase in infections in anesthesia personnel, a high risk (10%) of infection has been observed for anesthesiologists involved in the care of current COVID-19 patients. With significant numbers of deceased anesthesiologists worldwide, it seems reasonable to exceed WHO recommendations for PPEs, as proposed by Lockhart, where head and neck coverings are recommended when caring for these patients. Extreme protective measures have been found to be successful at protecting personnel, as shown in an Italian hospital and in the UK where up to May 2020 no anesthesiologists or intensivists had died from COVID-19 infections.

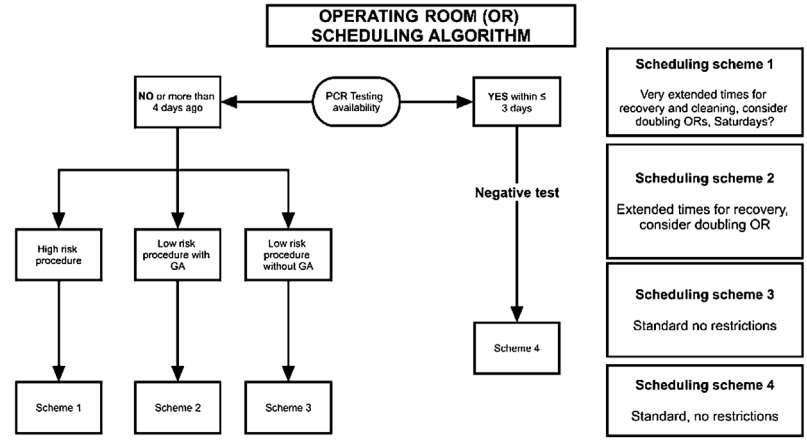
As important as PPE availability is the use of stringent doffing routines to minimize infections. In Figure 1B, we propose a scheduling algorithm. The risk of cross-contamination is a serious aspect to consider; although the ideal, dedicated isolated negative pressure operating rooms are not feasible in LATAM, we propose this scheme to minimize it. This was adapted from the evidence-based approach of Dexter et al in conjunction with the recommendations of the University of California at San Francisco (UCSF).

In Figure 1C, we propose a Postoperative (POP) care flow algorithm. As stated before, it is necessary to decrease the risk of contagion to other patients and healthcare personnel after any surgical procedure. Ideally, the Postanesthetic Care Unit (PACU) should have physically independent modules for each patient with negative pressure ventilation, which is not possible in most LATAM countries, risking cross-contamination in this phase of care. Therefore, it is necessary to define rational approaches to minimize this risk. Infection auditing on behalf of anesthesia departments is still in its infancy in LATAM. This pandemic could be the trigger to establishing them, so that strategies to reduce perioperative infections can be spearheaded by anesthesia department in these institutions.

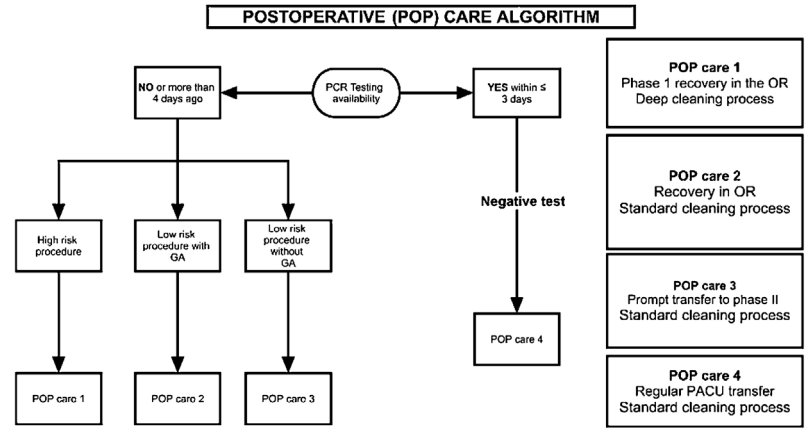
This paper proposes a framework with which anesthesia in LATAM can implement the process of safely resuming scheduled surgical procedures during the Sars-CoV-2 pandemic.



A. Personal protection equiment (PPE) for healthcare personnel



B. Scheduling strategy for procedures



C. Postoperative (POP) management algorithm

Figure 1 Proposed algorithms for PPE use (A), scheduling (B), and postoperative management (C). Based on Dexter et al., and UCSF algorithms.

Authors' contributions

Pedro F Ibarra: MD, MSc was responsible for most of the article.

Juan C Duarte: MD collaborated with ideas and significant text adjustments.

Conflicts of interest

The authors declare no conflicts of interest.

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