IMPACT OF HOSPITAL LOCKDOWN SECONDARY TO COVID-19 AND PAST PANDEMICS ON SURGICAL PRACTICE: A LIVING RAPID SYSTEMATIC REVIEW

Yung Lee [a, b], Abirami Kirubarajan [c], **Nivedh Patro** [a, b], Melissa Sam Soon [a, b], Aristithes G. Doumouras [a, b], Dennis Hong [a,b]

(a) Division of General Surgery, McMaster University; (b) Centre for Minimal Access Surgery (CMAS), St. Joseph's Healthcare, McMaster University (c) Temerty Faculty of Medicine, University of Toronto

BACKGROUND

The COVID-19 pandemic has disrupted health services worldwide.[1,2] Among concerns of nosocomial transmission and PPE shortages, many hospitals have undergone lockdown procedures limiting staffing and services.

Surgical practice has been particularly affected with many centres cancelling elective procedures during the pandemic and redeploying surgical staff and trainees to other areas of frontline care.[3]

While there were numerous guidelines and editorials on the topic, a systematic assessment of the literature had not yet been published. We aimed to conduct one of the first systematic reviews on the impact of lockdown measures on surgical practice, including both the current COVID-19 pandemic and previous epidemics.

METHODS

Primary aim:
Investigate the impact of epidemics and lockdowns on surgical outcomes and non-OR procedures.

Secondary aim:
Investigate the impact of epidemics on surgical practice, including delivery of surgical care and infections among healthcare workers (HCWs) and patients.

Medline, EMBASE, CENTRAL, and PubMed were systematically searched from database inception to April 2020. Ongoing surveillance was carried out until May 29, 2020. Date are reported in accordance with PRISMA standards.

RESULTS

Primary Aim

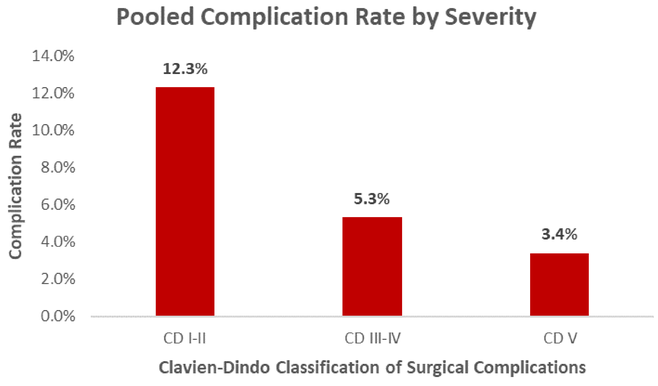
3948
patients (53.9% female, median age 62.0 years)

2095
surgeries with reported outcomes

21%
pooled complication rate

20.9%
pooled complication rate among surgeries during COVID-19

1.1%
mortality secondary to complications from COVID-19



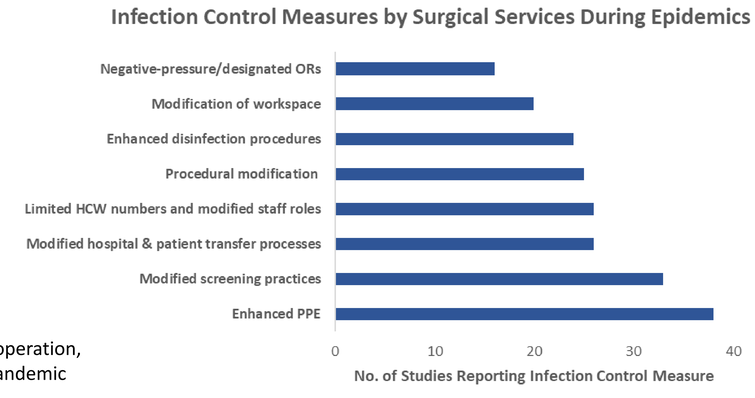
Secondary Aim

405
HCW across 11 studies reporting on HCW outcomes

6.2%
pooled HCW infection rate during epidemics

8.6%
pooled HCW infection rate during COVID-19

16.0%
patients testing positive for COVID-19 following operation, of 1203 patient outcomes reported during the pandemic



DISCUSSION

This systematic review investigated the impact of epidemics on surgical outcomes and practice including 61 relevant studies across 17 different countries. Worldwide shortages in PPE as well as the numerous cases of HCW infection have highlighted the importance of infection control, which has been outlined in our review. We have identified potential strategies employed to mitigate risks such as the greater use of PPE and negative pressure ORs. The Centers for Disease Control and Prevention had previously recommended the postponement of elective surgeries during the COVID-19 pandemic.[4] Of note, our review also found that the overall complication rate did not seem to be increased based on the distribution of elective and emergency cases.

Lockdown measures, including cancellation of elective surgeries, surgical outpatient clinics, telehealth services, and hospital-based referrals were noted in about half of the studies. We were unable to stratify our results in terms of lockdown measures taken as this information was not consistently reported across the studies. Much of the available literature was limited to case series and smaller scale retrospective studies conducted in diverse health systems across the world, therefore reducing generalizability of considerations such as infection control and lockdown guidelines.

REFERENCES

1. Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. N Engl J Med. 2020;382(8):727e733. https://doi.org/ 10.1056/NEJMoa2001017.
2. Emanuel EJ, Persad G, Upshur R, et al. Fair allocation of scarce medical resources in the time of covid-19. N Engl J Med. 2020;382(21):2049e2055. https://doi.org/10.1056/NEJMsb2005114.
3. Zheng MH, Boni L, Fingerhut A. Minimally invasive surgery and the novel coronavirus outbreak: lessons learned in China and Italy. Ann Surg. 2020;272(1). https://doi.org/10.1097/SLA.0000000000003924.
4. Interim U.S. Guidance for Risk Assessment and Work Restrictions for Healthcare Personnel with Potential Exposure to COVID-19 | CDC.