Redesigning operating room booking in a tertiary care academic centre during the COVID-19 pandemic

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SUMMARY

With the closure of most operating rooms (ORs) during the coronavirus disease 2019 (COVID-19) pandemic, the traditional allocation of block OR time needed to be redesigned. An important factor permitting the treatment of patients in a prioritized fashion was our pre-existing centralized OR booking (CORB) framework, which already required surgeons to categorize the priority level for each patient. The CORB, in conjunction with the multidisciplinary OR oversight committee that was formed during COVID-19 to review and triage the urgent cases, allowed for prioritization of cases among surgical services. Centralized OR booking provided opportunities that were essential in OR planning during the pandemic, including the ability to plan surgeries to maximize OR efficiency, minimize the number of admissions on any given day to the wards and the intensive care unit, flatten the number of admissions over the week and provide the flexibility to ramp up or down the number of ORs as the crisis changed.

The coronavirus disease 2019 (COVID-19) pandemic resulted in the abrupt cessation of elective operating time as hospitals prepared for a surge of critically ill patients. While emergency surgeries proceeded, the remaining limited number of operating rooms (ORs) would enable access for very few other patients. At baseline, divisions are allocated block OR time that they distribute to surgeons, but the profound reduction in capacity required identification of the most urgent cases across all divisions. This required that the entire OR waiting list be prioritized in a fair, transparent and efficient manner. Historic booking practices in which surgeons "owned" a block of OR time and booked "their" patients would not ensure that a higher-acuity patient on another surgeon's list would be treated equitably. Modified booking strategies were needed and had to be accepted by the surgeons, be flexible enough to respond to the changing constraints and allow for management of the growing number of urgent and semiurgent cases that accrued. Important factors that allowed us to transition quickly and effectively to identify patients with the most urgent needs were our pre-existing centralized OR booking (CORB) framework and the creation of a multidsicplinary oversight committee.

The implementation of a CORB system at our 2 hospital sites began in 2017 and was met with considerable resistance initially. The intent of the program was to provide patient-centred care; improve efficiency, consistency and timeliness of booking; maximize utilization of OR time; track surgical wait lists; address inconsistencies in wait times; and streamline administrative support. The CORB books individual surgeons' patients into a block of assigned elective time based on acuity, wait time and estimated operative time. Acuity level is documented by the surgeon on the request for admission from P0 to P6, with P0 (urgent) cases booked within 2 weeks and P1 (semiurgent) cases booked within 1 month.

Our established CORB and prioritization of the entire surgical wait list of more than 4000 patients was crucial during the COVID-19 crisis. While at baseline we ran 19 ORs across our 2 hospitals, the number of ORs was reduced to 6 (3 at each site). Elective surgery was restricted to only the most urgent cases (P0), as beds and personal protective equipment were mobilized for COVID-19 patients. Cardiac surgery cases were diverted, as per ministry decision, to another designated hospital. While the existing prioritization provided critical information, it did not allow for the prioritization of patients across surgeons or services. Therefore, block allocation was suspended, and all OR time was transferred to the surgical mission for distribution as urgent "flex" time. An OR oversight committee was formed and included representation from surgery, anesthesiology, nursing leadership, division chiefs, CORB and administration leads, and a clinical ethicist. Each specialty developed standard criteria for their definition of cases requiring P0 and P1 priority levels. These criteria were proposed by the division chiefs after consultation with their members and were based on outcomes from the published literature, recommendations from national societies and consultation with the hospital tumour boards.

Weekly, the surgeons reviewed their wait lists and submited their most urgent cases to their division directors, who vetted all requests and brought the most urgent cases forward for review by the group. Patients were prioritized if they had life-or-limb-threatening conditions, there were no alternative therapies, delay would have a negative impact on outcome and/or they were at imminent risk of requiring emergency surgery. Each case was presented briefly for the committee members to agree that the patient met the criteria. Difficult decisions were discussed with the ethicist. Because the relative urgency of a P0 or P1 case varied among the surgical specialties, the committee selected the patients thought to have the greatest need for surgery after these discussions. As a result of the prioritization criteria and the limited OR availability, patients selected for surgery were almost all cancer and vascular surgery patients. Patients who were not able to be booked were re-reviewed the following week.

Over the subsequent weeks, as 6 more ORs became available, our standardized priority classifications, centralization of patient selection by the OR oversight committee and the presence of the CORB to orchestrate and prepare patients with very short notice facilitated the scheduling of 100–120 P0 and P1 patients per week. Centralization had the added benefit of being able to use the ORs at both hospital sites and plan cases to mirror bed availability. This was particularly important as the number of patients with COVID-19 peaked, resulting in the OR oversight committee and the CORB booking only day surgery cases for an entire week. In addition, centralized booking enabled equalizing ("flattening") the number of patients requiring admission on any day independent of which service or surgeon would have normally operated on that day before COVID-19. In addition, surgeons used either half days or full days, depending on the cases prioritized. Previous OR distribution times to surgeons, as well as the hospital in which they were normally based and operated, were not taken into account. This provided an opportunity to maximize the use of both hospital sites for most surgical disciplines, thereby allowing patients to have their surgeries as quickly as possible.

It seems likely that the COVID-19 crisis will continue for some time. There will be new patients entering the queue along with the backlog of elective patients waiting for surgery. To balance these needs while maintaining access to the OR for the most urgent cases, we will move to a hybrid model with urgent flex time distributed by the OR oversight committee as well as block OR time directed to the surgical specialties. The proportion of flex and block OR time will vary depending on the COVID-19 situation and the resulting availability of hospital resources. With the reintroduction of block OR time, patients with less urgent but life-altering diseases will finally have an opportunity to have their surgeries. However, in our health care system, which was lacking sufficient surgical resources before the pandemic, without a major increase in OR resources the backlog of patients is expected to take an excessive period of time to treat.

Although centralized OR booking was met with initial resistance, it provided many opportunities that were essential for fair and efficient OR planning. These included the ability to prioritize cases among surgical services, maximize OR use across sites, control the number of admissions and provide the flexibility to ramp up or down the number of ORs as the crisis evolved. With the success of this approach to OR booking over the past weeks, there has been a culture change in the hospital with surgeons accepting the benefits of the OR oversight committee working in conjunction with the CORB.

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