CORRESPONDENCE

COVID-19 NOTES

To rapidly communicate short reports of innovative responses to Covid-19 around the world, along with a range of current thinking on policy and strategy relevant to the pandemic, the Journal *has initiated the Covid-19 Notes series.*

Surgery Scheduling in a Crisis

On March 15, 2020, leaders at New York–Presbyterian Columbia University Medical Center made a decision unprecedented in the hospital's 100-year history. At the epicenter of the Covid-19 pandemic and facing the possibility of exhausting its supply of personal protective equipment (PPE), ventilators, and intensive care unit (ICU) beds, the hospital indefinitely suspended all elective surgery. Then, during the surge, critical care capacity was more than doubled by converting 23 operating rooms (ORs) into ICUs. This transformation left us with only three functioning ORs, which, coupled with the redeployment of surgeons, anesthesiologists, and nurses, severely limited our ability to perform surgery. We could continue to do procedures that were emergencies (such as for penetrating trauma) or urgent (such as for a symptomatic, expanding aneurysm). However, with hospital operative time cut by 90%, semiurgent procedures would have to be triaged.

We developed a triage system that took into account not only clinical urgency, but also expected intensity of resource utilization. Degree of urgency was defined on the basis of how long surgery could be delayed without causing harm to the patient: less than 24 hours (emergency), 1 to 2 days (urgent), or 3 to 7 days (semiurgent). Resource demand was estimated with a resource-intensity classification (RIC) for personnel (surgeons, anesthesiologists, and nurses); technology (ventilators and dialysis machines); expendable supplies (PPE and blood products); and postoperative resources (ICU beds). For each resource, expected consumption was classified as low, medium, or high; categories of overall resource intensity ranged from class I (simplest) to class IV-B (most resource-intensive).

During the surge and peak phases of the pandemic, a hospital-appointed review committee was formed. Patients whose cases were classified as emergencies or urgent went directly to the OR, but semiurgent cases (e.g., a traumatic fracture needing internal fixation or a herniation with worsening neurologic symptoms requiring discectomy) were evaluated by the committee, which then approved patients for surgery. The committee considered relative clinical urgency and RIC-estimated resource demands. Thus, during resource shortages, certain "high RIC" operations, such as a major hepatectomy, might receive lower priority than operations expected to require fewer resources, such as a colon resection. By mid-April, we were able to simplify the RIC by eliminating resources that were no longer in short supply, such as PPE and ventilators, from assessments.

Our flexible triage system remains relevant as we enter the recovery phase. For the foreseeable future, our rate-limiting resources will be ORs and beds, and the massive backlog of elective cases will pose an even greater challenge. We have therefore relied on a modification to the triage system that involves evaluating cases with a 3×3 matrix, with relative urgency plotted against the indicated procedure's degree of resource intensity. Each surgical service categorizes its proposed cases on this grid weekly, a protocol that has helped us allocate available resources equitably.

Although our crisis-inspired scheduling system was invaluable, a sudden 90% reduction in operative capacity could not have been weathered without the cooperation of surgeons and patients to postpone hundreds of elective operations. These postponements have necessitated remote clinical monitoring to keep this heterogeneous group of surgery-deprived patients stable; such monitoring is a notable (if unrecog-

nized) example of pandemic mitigation. These patients now form a long (socially distanced) line as we gradually resume elective scheduling. As we apply ourselves — and our urgency–intensity matrix — to this challenge, we must take the lessons learned in these unprecedented times to heart. If the Covid-19 storm cloud is indeed to have a silver lining, crisis-era resource consciousness should become part of surgery's new normal.

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