

RAG time: rapid access general surgery — a shared-care protocol to convert after-hours inpatient to daytime outpatient surgery

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SUMMARY

A rapid access general surgery (RAG) pilot protocol was implemented at the Vernon Jubilee Hospital in January 2021 in which surgeons seeing patients in the emergency department (ED) could access operating time set aside once per week. Appropriate patients discharged from the ED were scheduled into this time, usually with a different surgeon than the initial triaging surgeon. In this article, we discuss the outcomes of the pilot project. This innovative reorganization of existing resources converted many patients from after-hours to scheduled outpatient daytime surgery with decreased hospital bed utilization.

After-hours surgery has been associated with poorer patient outcomes^{1,2} and burnout among health care workers.³ Having a dedicated operating room (OR) for daytime emergency surgery has been shown to reduce complication rates and length of hospital stay (LOS) in addition to improving access and efficiency.^{3,4} However, some community hospitals do not have the volume to support a dedicated acute care surgery service that justifies a dedicated daytime OR for emergency cases. Surgeons at those hospitals then have only 2 options for patients presenting to the ED: book them after hours for unscheduled surgery or send them home to be seen in the clinic and booked electively in scheduled time. The main impediment to sending patients home, though it may be safe to do so, is the uncertain wait time until patients can be scheduled for surgery and the possibility that they might return to the ED while waiting.

The purpose of the rapid access general surgery (RAG) pilot project was to create a third option for OR time. Based on a successful established protocol at Vernon Jubilee Hospital (VJH) for a rapid access clinic for endoscopy,⁵ we created a new protocol in which appropriate patients were triaged by the on-call general surgeon and discharged to be scheduled for surgery with the first available surgeon in dedicated OR time. The goal was to convert some after-hours cases to scheduled daytime surgery.

PILOT PROJECT

The VJH is a regional hospital in the North Okanagan of British Columbia, Canada. It has 196 funded beds and serves a catchment population of more than 120 000. The hospital is funded for 5 ORs and provides emergency general surgery, orthopedic and obstetrics/gynecology services 24 hours a day. Coverage for otolaryngology and urology is shared with other regional hospitals. Ophthalmology services are largely delivered at a satellite facility. After hours, all surgical services must compete for a single OR to perform emergency surgery.

The RAG time protocol is summarized in Box 1. One half day per week on Thursdays was set aside. It was up to the on-call surgeon's discretion whether to send patients home to book into this time. If unused by 7 days prior, the

Box 1. Protocol for RAG OR time

- Patient presents to the ED and is deemed an appropriate candidate for RAG time protocol by the on-call general surgeon. Examples considered appropriate for RAG time include
 - sub-acute cholecystitis
 - crescendo biliary colic with multiple ED visits
 - choledocholithiasis post-ERCP
 - gallstone pancreatitis stable for discharge
 - incarcerated hernias without bowel obstruction
 - reducible hernias with multiple ED visits
- On-call surgeon dictates a priority consultation and arranges any needed laboratory work or investigations or consultation with anesthesiology before patient discharge.
- On-call surgeon completes OR booking form with a target wait of 2 weeks.*
- On-call triage surgeon hands over case to RAG time surgeon on duty for the next available RAG time slate.
- Patient is discharged and scheduled in RAG time.
- Surgery is performed by RAG time surgeon.

ED = emergency department; ERCP = endoscopic retrograde cholangiopancreatography; OR = operating room; RAG = rapid access general surgery.

*General surgery OR time left unbooked for RAG time on Thursday afternoons is reallocated to other patients waiting for elective surgery only if unused 7 days prior.

time was allocated to patients waiting for elective surgery so the time would not be wasted. We sought input from surgeons, administration, OR booking staff, nurses and anesthesiologists before implementation of the protocol. Based on this input, surgeons agreed to dictate a priority consultation, complete all investigations and obtain an anesthesiology consult if required before discharging the patient from the emergency department (ED).

The intended duration of the pilot project was 6 months, January to June 2021; however, after interim evaluation, it was extended to December 2021. Patients

were tracked prospectively by health authority staff during the pilot study. The 6 months before implementation of the protocol, July to December 2020, were analyzed for comparison. This evaluation was a quality-improvement project and deemed low risk, so was exempt from full research ethics review.

OUTCOMES

Of the 47 weeks in which RAG time was available, patients meeting criteria were booked in 25 (53%) of those weeks. In the remaining 22 weeks, all unused RAG time was allocated to other patients waiting for elective surgery.

There were 31 patients booked using RAG time. Of these, 30 (97%) were discharged from the ED and 1 remained in hospital from the time of booking. Twenty-nine patients (94%) had daycare surgery and 1 was admitted the day of surgery. The mean wait time from booking to surgery was 1.6 weeks (range 1–6 weeks). Surgeries in patients booked using RAG time included 14 laparoscopic cholecystectomies, 11 inguinal hernia repairs, 2 colon resections, 2 incisional hernia repairs, 1 umbilical hernia repair and 1 portacath removal.

One procedure was postponed because of a blood thinner not being discontinued; this patient was rebooked 2 weeks later for laparoscopic cholecystectomy after having waited a total of 3 weeks.

There were no differences in mean number of after-hours cases per week of any urgency class before and after RAG implementation (Figure 1). However, considering only emergency surgeries with an urgency classification of “within 24 hours,” the proportion of laparoscopic cholecystectomies performed decreased

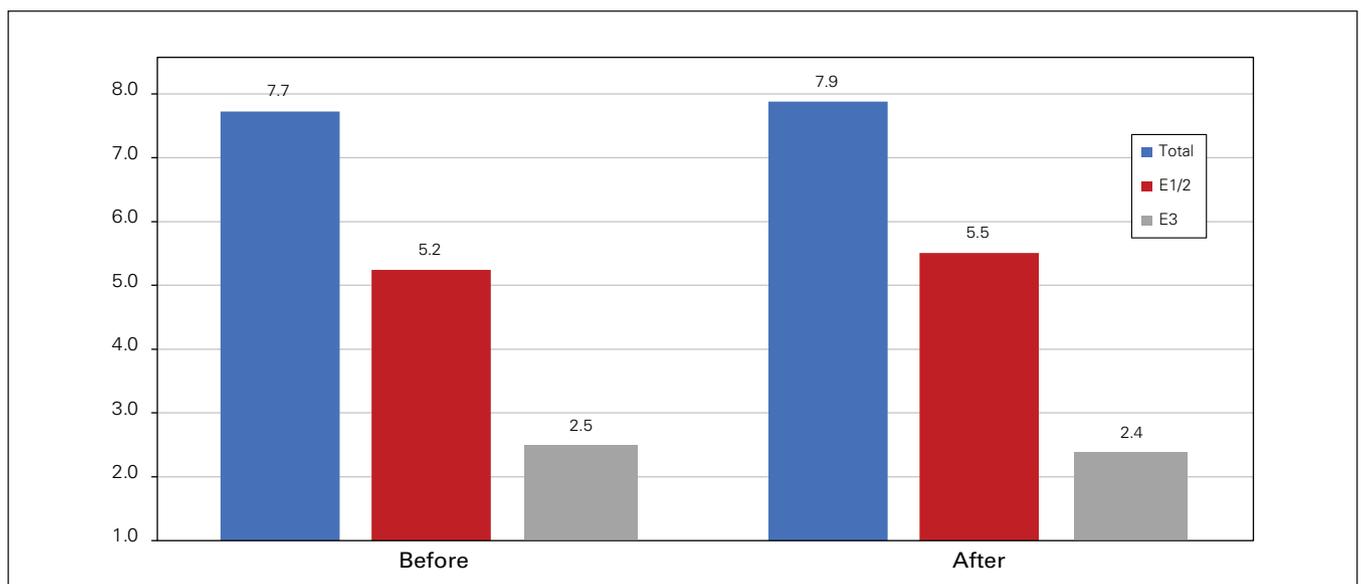


Fig. 1. Mean number of general surgery procedures performed after hours before and after implementation of the rapid access general surgery (RAG) time protocol. E1 = emergency class within 1 hour; E2 = emergency class within 8 hours; E3 = emergency class within 24 hours.

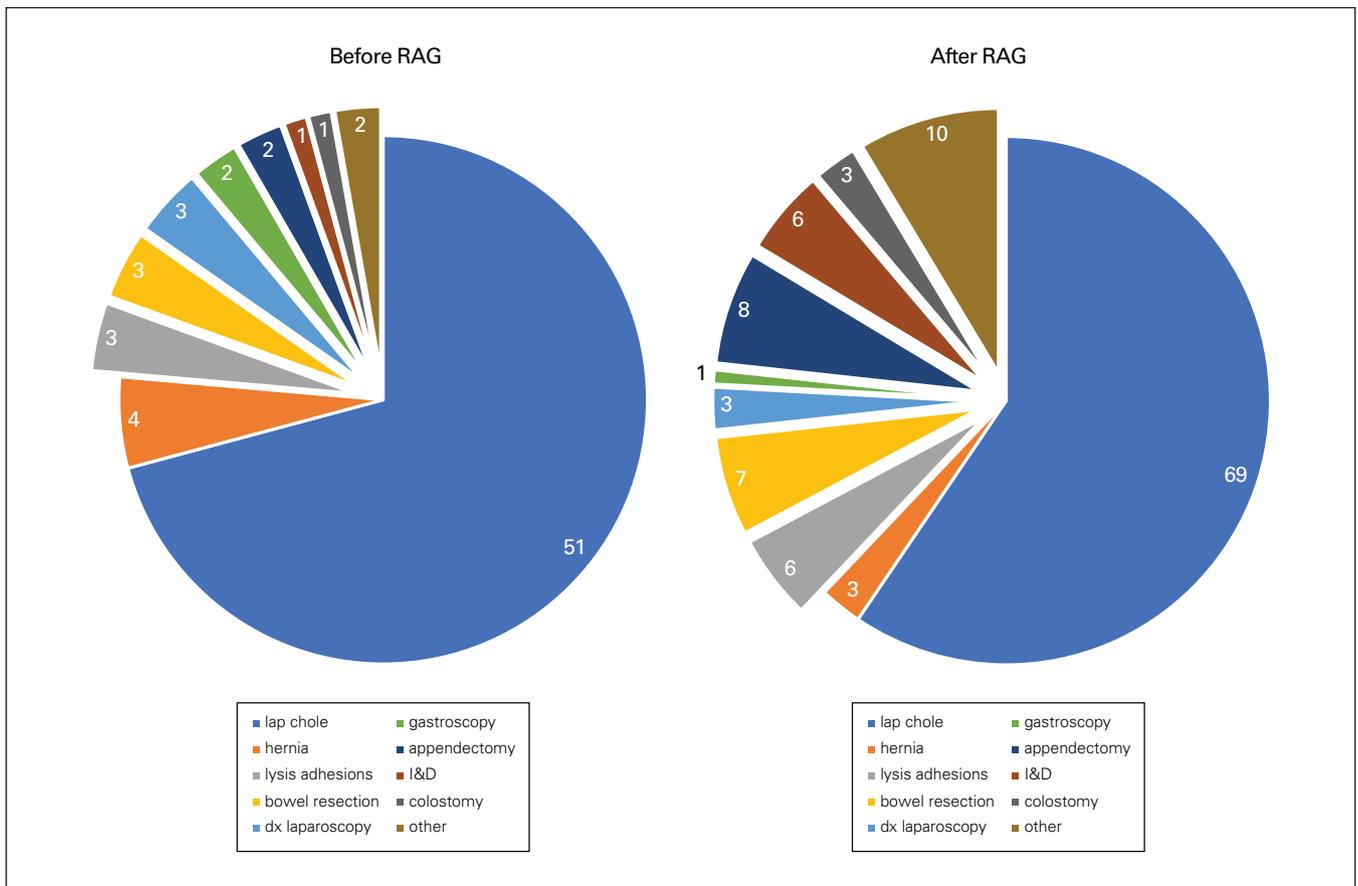


Fig. 2. Types of “within 24 hour” after-hours general surgery procedures before and after implementation of the rapid access general surgery (RAG) time protocol. dx = diagnostic; I&D = incision and drainage; lap chole = laparoscopic cholecystectomy.

from 71% to 60% (Figure 2). The proportion of “within 24 hours” hernia repairs also decreased from 5.6% to 2.6%. Taken together, there was a significant reduction in emergency laparoscopic cholecystectomies and hernia repairs (55/72 v. 72/116, $p = 0.041$) compared with all other “within 24 hours” emergency cases.

EVALUATION

As with the previously implemented shared-care protocols for rapid access endoscopy,⁵ no ongoing funding was required to sustain our new protocol for RAG OR time. RAG time has been a collaborative reorganization of existing resources that has created a sustainable third option for select patients presenting to the ED, improving access and wait times while reducing after-hours surgery and inpatient hospital bed utilization.

This quality-improvement project was limited in that there was no formal patient chart review; thus, we were unable to delve deeper into the exact number of patient bed-days saved. Patients who have emergency surgery after hours typically stay at least 1 night at our hospital. Assuming all 30 patients discharged from the ED would have been admitted for emergency surgery, this would

have been a small but notable reduction in bed utilization. However, we don't know how many of these patients would have otherwise been sent home and booked for scheduled surgery or how long they would have waited in the absence of a RAG time protocol.

We could not objectively evaluate whether the decreased number of cholecystectomies and hernia repairs done after hours translated into reduced surgeon, anesthesiologist and nurse burnout, though anecdotal reports of high satisfaction with the new protocol were consistent among our group of general surgeons.

Certainly, this project has been a positive proof of concept that RAG OR time and other shared-care protocols are sustainable initiatives with benefits not only to patients and surgeons, but also to OR nursing staff and anesthesiologists. Converting after-hours surgery to daytime surgery may reduce burnout among health care workers in addition to improving bed utilization and is worthy of further study.

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