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## Patient preference for time-saving telehealth postoperative visits after routine surgery in an urban setting



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## ABSTRACT

**Background.** Focusing on high-value delivery of health care, we describe our implementation of telephone postoperative visits as alternatives to in-person follow-up after routine, low-risk surgery in an urban setting. Our pilot program assessed telephone postoperative visit feasibility as well as patient satisfaction and clinical outcomes.

**Methods.** We offered telephone postoperative visits to all clinically eligible, in-state patients scheduled for appropriate low-risk operations. An advanced practitioner conducted the telephone postoperative visit within 2 weeks of the operation and discharged patients from routine follow-up if recovery was satisfactory. We reviewed the medical records to identify encounters and adverse events in the 30-day postoperative period.

**Results.** Telephone postoperative visits were opted for by 92/94 (98%) clinically eligible, in-state patients. Most patients cited convenience (55%), travel (34%), and time (22%) as their main motivations. The average patient opting in was 55 ± 16 years old (range 23–88, 8% > 65) and lived 22 ± 26 miles from our clinic (range 0.9–124). Of 50 patients completing telephone postoperative visits, 48 (96%, 2 were not asked) were satisfied with the telephone postoperative visit as their sole postoperative visit, 44 (88%) of whom required no additional follow-up. On average, telephone postoperative visits lasted 8.6 ± 3.9 minutes, compared with the 82.8 ± 33.4 minutes for preintervention, postoperative visit time. Adding travel times, we estimate each patient saved an average of 139–199 minutes or 94–96% of the time they would have spent coming to clinic. No instances of major morbidity or mortality were identified on chart review.

**Conclusion.** Many patients find telephone postoperative visits more convenient than in-clinic visits. Moreover, estimates of time saved are compelling. Amid changing regulations and reimbursement, our findings support the growing use of telehealth for postoperative care of routine, low risk operations.

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Traditionally, the in-clinic, postoperative visit (CPOV) has been the concluding bookend of a patient's surgical experience: a venue for ensuring that patients are meeting postoperative milestones, for evaluating and managing complications, and for offering counseling,

education, and support. While an important element of surgical care, these visits also impose a time and cost burden on patients due to missed work, travel, and other necessary arrangements.<sup>1,2</sup> Moreover, after low-risk procedures, these visits often consist mainly of a cursory evaluation and approval of the patient's progress without any interventions or activity that would require the physical presence of the patient in the clinic.<sup>1,3</sup> Encouragingly, several pilot studies have shown that in low-risk patients, telephone, video, and asynchronous, online, telehealth postoperative visits are safe alternatives to a routine CPOV.<sup>4–9</sup> Indeed, the extremely low rate of adverse outcomes in patients undergoing both telehealth and traditional in-clinic follow-up has made some even question the necessity of any routine, scheduled CPOV after low-risk surgery.<sup>9</sup> Beyond seemingly equivalent outcomes, telehealth visits decrease patient travel

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time, increase patient satisfaction, and free up clinic slots for new patients and urgent visits.<sup>4,9</sup>

As with many aspects of our health care system, the discourse surrounding the use of telehealth modalities for the delivery of health care services, including postoperative follow-up, has been in constant flux.<sup>10</sup> In particular, the relevant reimbursement considerations and licensure requirements continue to evolve.<sup>10–12</sup> Until recently, most payors would not provide parity of reimbursement for telehealth visits, with some exceptions granted based on geography or on the distance between patient and provider locations. Trends toward new reimbursement models, such as managed care and bundled services, along with payors increasingly allowing clinicians to bill for certain types of telemedicine encounters, have offered increasing flexibility. Nevertheless, coverage models in many states still impose restrictions on patient settings, eligible technologies, or distance and geography.<sup>11</sup> Moreover, many states continue to require a full license for health care providers offering telehealth services to patients located in their state, thus constraining the use of telehealth across state lines.<sup>12</sup>

In light of these challenges, it is not surprising that many of the studies supporting the use of telehealth for postoperative follow-up have been conducted at Veterans Affairs Medical Centers (VAMCs).<sup>4–6,8</sup> Given the unique patient population and financial and operational characteristics of VAMCs (including the ability for VAMC physicians to treat patients at any VAMC throughout the United States with only one active medical license from a single state<sup>13</sup>), we sought to examine whether the findings of these studies were generalizable to other settings and patient populations. Therefore, we conducted a pilot study to evaluate the feasibility and effects of offering telehealth visits for postoperative follow-up after routine, low-risk surgery in the context of an urban, academic medical center.

## Materials and Methods

### Setting

This work was conducted in the practice of one surgeon within the Division of Gastrointestinal Surgery at the University of Pennsylvania Health System. This surgeon sees outpatients at the Perelman Center for Advanced Medicine and operates at the 789-bed Hospital of the University of Pennsylvania (HUP) as well as at the Perelman Center for Advanced Care (PCAM) SurgiCenter, both located in downtown Philadelphia, PA. In 2015 and 2016, 17,047 and 17,148 operations, respectively, were performed at these 2 facilities.

### Groundwork

As per the guiding practices in our health system for implementing innovative processes, prior to starting this pilot, we conducted an informal, needs-assessment survey to determine whether undertaking the logistic efforts of offering telehealth postoperative follow-up was worth pursuing. This survey was administered to all patients being scheduled for inguinal hernia repairs, umbilical hernia repairs, and laparoscopic cholecystectomies with 7 surgeons within the HUP Division of Gastrointestinal Surgery. This survey aimed to determine preliminarily whether offering postoperative telehealth visits was a worthwhile endeavor in our setting and patient population by identifying the interest of the patients in phone and video telehealth visits and in sharing pictures of wounds via our electronic patient portal (myChart, Epic Systems Corporation, Verona, WI). Of 35 patients surveyed, 24 (69%) reported being interested in a telephone postoperative visit with the advanced practitioner (AP) working with the surgeon, 13 (37%) were interested and able to have a videoconference with the AP, and 11 (31%) were interested and able to upload pictures of their incisions to the electronic patient portal. Because this initial survey was

conducted prior to submitting our project proposal to the University of Pennsylvania's Institutional Review Board (IRB), no demographic information or other PHI were collected for the 35 patients completing the survey.

Originally, we planned on conducting these visits using secure, 2-way audiovisual communication technology. At the time, however, the Health Insurance Portability and Accountability Act-compliant video vendor services available at our health system had not been fully integrated into our electronic medical record (EMR). Using this system would therefore, have required duplication of the scheduling processes in our clinic, creating inefficiencies and potential for error. Moreover, our preliminary survey suggested that while a majority of patients were interested in phone call visits, interest and ability to participate in video-based follow-up was much less. Furthermore, studies at other institutions supported the use of phone calls as a sufficient modality for telehealth postoperative follow-up in certain clinical contexts.<sup>4–6,8</sup> Therefore, while waiting for the technology of our video vendors to become suitably implemented, we opted to proceed with telephone postoperative visits (TPOVs). In so doing, we were able to troubleshoot the logistic considerations common to the delivery of both phone- and video-based, telehealth follow-up, while also learning whether telephone conversations without video would suffice for appropriate postoperative follow-up in our setting and patient population. By evaluating telephone calls as an acceptable modality, we also hoped to continue to promote flexibility of telehealth modality and thereby avoid creating new disparities by excluding patients without access to appropriate, video-capable devices and/or cellular or wireless connectivity.<sup>8,9</sup>

To facilitate tracking these visits, a new, TPOV-specific type of outpatient visit was created in PennChart, the University of Pennsylvania Health System Epic Systems outpatient EMR. Moreover, the Epic SmartText and SmartPhrases features were used to create TPOV-specific, documentation templates to ensure consistent symptom assessment and data recording across all TPOVs.

Finally, enabling TPOVs required submitting a policy proposal to the Pennsylvania Department of Health.<sup>14</sup> This work was also reviewed by the IRB of the University of Pennsylvania and was determined to qualify as a quality improvement initiative that does not meet the definition of human subject research, therefore, not requiring further IRB review.

### Target population

Telehealth follow-up was offered during the preoperative clinic visit to low-risk patients being scheduled for routine, low-risk operations, including but not limited to the repair of umbilical, inguinal, and minor ventral or incisional hernias, laparoscopic cholecystectomies and appendectomies, and others.

Patients were excluded if the attending surgeon deemed them not appropriate for telehealth follow-up given clinical comorbidities that might complicate postoperative recovery. No specific, a priori criteria were used to define clinical appropriateness; rather, this determination was based on the discretion of the attending surgeon after a holistic review of the clinical picture of the patient. Post hoc, the reason(s) for exclusion were recorded.

Given our geographic location, most of the patients seen in our surgical practice come from Pennsylvania, New Jersey, and Delaware. When we were designing and conducting this pilot, however, and up until the time of writing, the only neighboring states offering reciprocity for Pennsylvania medical licenses were New York and Maryland.<sup>12,15</sup> Because our surgeon and advanced practitioner (AP) only held licenses in the state of Pennsylvania (and thus could only offer telehealth services to patients located in Pennsylvania at the time of the call), patients who neither lived nor worked in Pennsylvania were tracked but were not offered the option of telehealth follow-up.

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