



Telemedicine as a new platform of care: assessing quality of care for the endocrine surgical patient—a narrative review

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Background and Objective: Expansion of reimbursement for telehealth under the Center for Medicare and Medicaid Services emergency COVID-19 pandemic waiver has allowed for wider implementation of telehealth as an accepted modality for delivering and receiving healthcare. In a specialty such as endocrine surgery, where complications are rare and recovery after surgery is usually uneventful, telemedicine is a viable option for postoperative visits and may be an acceptable alternative for in-person preoperative consultation in select cases. Therefore, our objective was to construct a narrative review describing the developing role of telemedicine in endocrine surgery, i.e., thyroidectomy and parathyroidectomy, and its current utilization and perception in the peri-COVID-19 pandemic era.

Methods: A PubMed search was conducted with the terms “telemedicine” and “endocrine surgery”. All articles reviewed were in English, published between 2000–2022, and studies conducted within the United States. Each article was screened for relevance based on title and abstract.

Key Content and Findings: Since the 1970s, the use of telemedicine has grown and become more accessible in the early 2000s, allowing for a greater number of patients to access specialist care despite technological barriers and regulatory requirements. With the COVID-19 pandemic and the increased need for virtual healthcare, new concerns regarding patient privacy, confidence, and physician utility and reimbursement have evolved. Within endocrine surgery, patient surveys for established and postoperative visits show satisfaction with telehealth visits in terms of privacy, duration of the physician encounter, interaction with physicians, and completeness of care. However, several accessibility factors need to be addressed to lower the no-show rate of telehealth visits.

Conclusions: Telemedicine has been shown to have a valuable role in the endocrine surgery clinic, which has been forced to expand due to the COVID-19 pandemic. In order to continue to grow with the needs of patients, increased accessibility, improvements in new patients’ perceptions of their care, and physician revenue loss due to decreased in-office procedures are sources of further research.

Keywords: Telemedicine; endocrine surgery; telehealth

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Introduction

The Centers of Medicare and Medicaid Services (CMS), defines telehealth as the “exchange of medical information from one site to another through electronic communication to improve a patient’s health” (1). Over time, this has come to encompass a variety of modalities including phone calls, video calls, and the exchange of photos over Health Insurance Portability and Accountability Act (HIPAA) compliant media. Over the past 50 years, telehealth has evolved with technologic improvements, expanding care into rural settings and allowing physician specialists to reach these patient populations (2,3). Increasingly, telehealth is utilized for postoperative visits in certain surgical fields, namely patients who received straightforward operations with minimal risk of morbidity or mortality, including thyroidectomy and parathyroidectomy (2,4-6). Acceptance and integration of telehealth across all medical specialties changed with the COVID-19 pandemic and requirements to social distance, delay elective surgery, and conserve personal protective equipment. We reviewed journal articles assessing the role of telehealth in endocrine surgery and the perceptions held by patients and physicians to better understand where we are now and where we need to be to better adapt to patient and provider needs as technology and public health trends change. We present the following article in accordance with the Narrative Review reporting checklist (available at <https://aot.amegroups.com/article/view/10.21037/aot-22-7/rc>).

Methods

We queried PubMed for journal articles containing the terms “endocrine surgery” and “telemedicine” for the years 2000 to 2022. Inclusion criteria included that the text be in English with healthcare and patient surveys conducted within the United States. Articles were screened based on pertinent information in the title and abstract; articles were excluded if they pertained to the medical management of endocrine diseases only. *Table 1* is a summary of our research strategy. Additional information regarding telehealth reimbursement was sought from the CMS.

Main body

History

Over the past 50 years, telemedicine has been used to record and distribute medical information across large

distances to further patient care and improve learning across continents. Historically, the use of telemedicine was limited by technological capabilities, ease of access, and information quality (2,3). In the 1970s, telemedicine was expensive, slow, and cumbersome to develop. It was not until the 1980s and 1990s that digital technology and the Internet made these systems more accessible and cheaper. Urquhart *et al.* demonstrated as recently as 2010 that patients would need to travel to specialized centers to participate in telehealth. These centers contained not only the bandwidth necessary for teleconferencing but were staffed by trained personnel who would demonstrate how to use the technology and troubleshoot issues as they arose. Depending on the encounter type, some staff were expected to assist with exposure of skin, incisions, or elicit a history and physical on behalf of the physician. In their study, 39 of 149 patients underwent a telemedicine visit at specialized telehealth centers after undergoing parathyroidectomy for primary hyperparathyroidism at a rural Wisconsin hospital between 2006 and 2010. Their results show reduced patient burden quantified as lower cost of follow up due to reduced miles and time spent traveling. However, the average distance traveled to a telehealth center remained 48.5 miles with a maximum of 796 miles (2).

2000–2020

In the years leading up to the COVID-19 pandemic, the use of telemedicine expanded gradually, finding a niche in follow-up appointments for surgical procedures with minimal postoperative complications (4). Endocrine surgeries such as thyroidectomy and parathyroidectomy have been proven to have minimal morbidity and mortality with proven safety of performance in the ambulatory setting (5,6). The postoperative evaluation of incisions and return to both baseline vocal function and activity level lend themselves to telehealth (7). In a study by Zheng *et al.*, 134 of 137 patients (98%) who underwent telehealth postoperative visit after thyroidectomy or parathyroidectomy required no additional in-person encounters and were discharged from follow-up. Of the three patients who required in-person follow-up, two were due to a scheduling error and the third was due to unsatisfactory vocal recovery requiring laryngeal ultrasound. The authors also found reimbursement to be comparable between in-person and telehealth visits, though there were difficulties with reimbursement for new patient visits when conducted across state lines due to physician licensure. Additionally, 70 clinical hours were liberated over

Table 1 The search strategy summary

Items	Specification
Date of search	4/6/2022
Databases and other sources searched	PubMed
Search terms used	“endocrine surgery”, “telemedicine”
Timeframe	2000–2022
Inclusion and exclusion criteria	Inclusion: English, United States, all study types Exclusion: non-English language, scope limited to endocrinology
Selection process (who conducted the selection, whether it was conducted independently, how consensus was obtained, etc.)	Independent

the course of the two-year study, and patients were found to save an average of 124 miles with a median of 2.4 hours driving to and from the clinic. These findings imply cost savings to the clinic in terms of ancillary staff, supplies, and use of clinic facilities as well as savings for the patient in terms of mileage and time spent traveling (7).

2020–present

With the advent of the COVID-19 pandemic came requirements to maintain social distancing, defer elective procedures, and preserve personal protective equipment. As of March 2020, CMS made telehealth reimbursements equivalent to in-person visits on an emergent and temporary basis for the duration of the COVID-19 pandemic, whereas this was previously limited to rural patients (1). Private payors quickly followed suit. In September of 2020, Beninato *et al.* surveyed members of the American Association of Endocrine Surgeons to assess the impact of COVID-19 on endocrine surgery practice volume, compensation, use of technology in healthcare, and changes to practice patterns. All physicians reported suspension of elective procedures, 37.7% were reassigned to additional duties, 74.6% reported a decrease in clinical volume, and the median number of cases backlogged was 30. To adapt, surgeons reported scheduling backlogged cases during block time and after hours; they also reported an increase in new consult visits via telehealth from 6.8% pre-pandemic to 73.3% at the peak of the pandemic. Telehealth was increasingly utilized for postoperative visits, 15.1% to 77.5%, and for routine follow-ups, 15.3% to 81.8%. Endocrine surgeons also reported a decrease in the frequency of in-office procedures such as ultrasound

(71.2% decreased to 63.4%), fine needle aspiration (51.2% to 46.5%) and laryngoscopy (34.2% to 21.5%). Seventy percent of respondents reported a reduction in compensation as practice changes were implemented; of these respondents, 73% found this reduction to fall within the 0–25% range (8).

There have been few studies to assess patient perception of telehealth visits specifically within endocrine surgery. One such study was conducted by Jeraq *et al.* in which 100 new and established patients were surveyed after telehealth visit. When compared to new patients, returning patients were generally found to be more satisfied with the privacy of their visit, confident in their evaluation, and more likely to perceive that they were included in the development of their treatment plan. One conclusion by the authors is that an initial telemedicine visit can establish rapport and identify gaps in patient work up, but an in-person pre-operative appointment can provide the perception of more time spent with and privacy for new patients (9). In another patient satisfaction survey, Schumm *et al.* assessed the telehealth experience with an electronic medical record-integrated platform for postoperative follow-up after thyroidectomy and parathyroidectomy. In their experience of 85 patients, 53 who opted for telehealth and 32 who preferred in-person visits, there were similar patient satisfaction scores between telehealth and in-person experiences with younger white women preferring telehealth (10).

Limitations of previous telemedicine studies

Many telehealth patient satisfaction surveys are limited by inherent bias—only patients with access to telehealth compatible technology are included in these studies. Kemp *et*

al. conducted a retrospective study with multivariate analysis to determine the risk factors associated with telehealth and in-person clinic no-show rates. The study was conducted across surgical specialties with endocrine surgery having the lowest odds ratio of no-show. However overall, there was a higher rate of no-show for telehealth than in-person visits with African Americans, American Indians, and Alaskan Natives having the highest rates of no-show. The authors cite patient concerns such as lack of privacy and inability of the provider to perform a comprehensive physical exam as possible reasons for this. The authors also recommend having a dedicated social worker who can screen patients for appropriateness for telehealth follow-up with regards to access to the necessary technology (11).

Conclusions

The COVID-19 pandemic has comprehensively changed the way healthcare is delivered, offering the option of telehealth for patient and provider convenience and satisfaction in the appropriate setting; this includes the endocrine surgeon's clinic. However, the current state of access, infrastructure, and reimbursement are tenuous as this healthcare delivery modality is disproportionately underutilized by low socioeconomic populations and reimbursement is partly based on an emergency waiver with an as yet unknown expiration. Like several authors before us, we believe that if telehealth is to grow, more studies need to be conducted to evaluate the accessibility and perception of care across varied patient populations. Buy-in from CMS and private insurers are also needed to continue development as hospital networks and physician practices work to expand their telehealth capabilities.

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Footnote

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