


# Transplant Pharmacists' Experience With Telehealth During the COVID-19 Pandemic

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Karen Khalil, PharmD<sup>1</sup> , Demetra Tsapepas, PharmD, MBA<sup>2,3</sup>, and Patricia West-Thielke, PharmD<sup>4</sup>

## Abstract

**Background:** The adoption of telehealth became a necessity for healthcare organizations during the COVID-19 pandemic. Transplant pharmacists are integral members of the multi-disciplinary care team who quickly adapted application of these technologies to ensure continuity of care.

**Objective:** To assess transplant pharmacists' experience with telehealth during the COVID-19 pandemic.

**Methods:** A 23-question online survey was developed to assess transplant pharmacists' experience with telehealth during the COVID-19 pandemic.

**Results:** Forty-five pharmacists responded to the survey from a broad range of transplant centers. The majority of respondents indicated infrequent use of telehealth (98%) before the COVID-19 pandemic, but this was significantly changed during the pandemic with only 9% reporting infrequent use. Pharmacists anticipated a decrease in future use, but 91% of respondents stated they would like to continue utilization of telehealth in their practice post-pandemic.

**Conclusions:** The adoption of telehealth during COVID-19 was widespread and has the potential to facilitate continuity of care. Though pharmacists anticipated a decrease in future use, a majority favored continued utilization of telehealth in their practice.

## Keywords

telehealth, telemedicine, transplant, pharmacist, COVID-19

## Introduction

Telehealth and telemedicine refer to the exchange of medical information from one entity to another through electronic communication to improve a patient's health.<sup>1</sup> Telehealth is a broad term that refers to remote non-clinical services including provider training, administrative meetings, continuing medical education, and clinical services.<sup>1</sup> Telemedicine refers specifically to remote clinical services for the provision of direct patient care. Telehealth practices can include the provision of asynchronous and synchronous care.<sup>2</sup> Asynchronous care involves sequential transmission of medical information between the provider and a patient while synchronous care utilizes real-time interactive technologies such as two-way interactive videos. Remote patient monitoring and mobile health care services via technological devices and smartphone applications are other types of telemedicine that require the adoption of tools for use in the home setting.<sup>3</sup> The adoption of telehealth became a necessity for healthcare organizations during the COVID-19 pandemic.

Several regulatory changes surrounding telehealth benefits were implemented as a result of the COVID-19 pandemic. Prior to the expansion under the 1135 waiver authority, Medicare coverage of telehealth services was limited to beneficiaries living in rural areas. As of March 6, 2020, the Centers for Medicare & Medicaid Services (CMS) expanded Medicare's telehealth benefits under the 1135 waiver authority to pay for services rendered in the office, hospital, and

<sup>1</sup>Department of Pharmacy, NYU Langone Health, New York, NY, USA

<sup>2</sup>Department of Surgery, Columbia University Irving Medical Center, New York, NY, USA

<sup>3</sup>Department of Transplantation, New York-Presbyterian Hospital, New York, NY, USA

<sup>4</sup>Department of Surgery, University of Illinois Hospital, Chicago, IL, USA

## Corresponding Author:

Karen Khalil, Department of Pharmacy, NYU Langone Health, 560 1st Ave, Third Floor, TH 380, New York, NY 10016, USA.

Email: [karen.khalil@nyulangone.org](mailto:karen.khalil@nyulangone.org)

patient's place of residence with no rural requirement.<sup>4</sup> This includes a specific set of services such as evaluation and management visits, mental health counseling, and preventative screening through telehealth. The Office for Civil Rights (OCR) issued a Notification of Enforcement Discretion regarding COVID-19 and remote telehealth communications; "covered health care providers will not be subject to penalties for violations of Health Insurance Portability and Accountability Act (HIPAA) Privacy, Security, and Breach Notification Rules that occur in the good faith provision of telehealth during the COVID-19 nationwide public health emergency."<sup>5</sup> As a result of the COVID-19 pandemic, many states applied an interstate licensing waiver, removing the in-state licensure requirement; however, current state laws and reimbursement policies vary by state and continue to change.<sup>6</sup>

Per United Network of Organ Sharing (UNOS) bylaws and CMS accreditation standards, each transplant team requires a pharmacology expert to be a member of the team. This is universally accepted as transplant pharmacists who provide care to patients pre- and post-transplant as part of the multidisciplinary team. This includes both inpatient and outpatient care. The role of transplant pharmacists includes but is not limited to, optimizing medication therapy management and providing direct patient medication counseling.<sup>7</sup>

Given the need to increase access to care while following the Center for Disease Control's (CDC) recommendation for social distancing, telehealth was adapted to deliver care at a distance, when possible.<sup>8</sup> Since transplant recipients are at high risk for infection given their immunosuppressed state, there was a greater push to keep them home and quarantined to minimize their risk of viral infection during the COVID-19 pandemic.<sup>9-11</sup> In order to maintain high quality direct patient care without face-to-face interactions, transplant programs needed to adopt telehealth into their daily practice.<sup>12,13</sup> This would not be the first instance of telehealth use within transplant practice. Historically, transplant pharmacists and providers have utilized telehealth to adjust patients' immunosuppression doses over the phone, however, telehealth use was generally limited. Adoption of telehealth services during the COVID-19 pandemic was widespread, but differed among transplant institutions. Herein we sought to assess transplant pharmacists' experience with telehealth during the COVID-19 pandemic.

## Study Method

A 23-question online survey was developed (survey questions detailed in the Supplemental Information) to assess transplant pharmacists' experience with telehealth during the COVID-19 pandemic. The survey was completed using the RedCap platform and contained branch logic to assess utilization and satisfaction with telehealth. Surveys were distributed via the listservs of the American Society of Transplantation Transplant Pharmacy Community of Practice and the American College of Clinical Pharmacy Immunology/Transplantation Practice and Research Network. Pharmacist members were

invited to voluntarily submit a survey response about their current telehealth utilization and experiences. There was no individual contact with transplant programs. Each center was allowed to submit a single response. For institutions with more than one transplant pharmacist, the email distribution message requested that each transplant center comprehensively summarize experiences from all pharmacists across all organ types and to reply only once. The study was approved by the University of Illinois at Chicago Institutional Review Board, and the survey remained open between July 22, 2020 and August 17, 2020. All surveys were included in the analysis and descriptive statistics were used to summarize results.

## Results

There were 45 responses to the survey. The majority of respondents were female (76%) and 30-59 years of age (87%). Transplant center characteristics where respondents practice are summarized in Table 1.

The majority of pharmacists reported infrequent use of telehealth before the COVID-19 pandemic (71% "never" and 27% "seldom"); however, from March to August 2020, the adoption of telehealth significantly increased. During the

**Table 1.** Transplant Center Description

Center Characteristic	n (%)
Practice setting	
Academic urban	37 (82.2)
Academic rural	2 (4.4)
Community urban	5 (11.1)
Community rural	1 (2.2)
Number of organ transplants per year	
<50	4 (8.9)
50-100	6 (13.3)
101-200	11 (24.4)
201-300	11 (24.4)
301-400	6 (13.3)
>400	7 (15.6)
Type of organ transplant	
Heart	32 (71.1)
Lung	26 (57.8)
Liver	36 (80)
Intestine	4 (8.9)
Kidney	45 (100)
Pancreas <sup>a</sup>	30 (66.7)
Other <sup>b</sup>	6 (13.3)
Population type	
Adult	16 (35.6)
Pediatric	5 (11.1)
Both	24 (53.3)

<sup>a</sup>includes simultaneous pancreas-kidney, pancreas after kidney, pancreas alone.

<sup>b</sup>other included hand, uterine, islet, vascular composite allografts.

pandemic, pharmacists reported implementing a practice of telehealth either “often” (40%) or “fully integrated and part of routine practice” (51%). The devices most commonly used for telehealth services by the practitioner included laptop computers (55%) and smartphones (25%). The majority of pharmacists utilized a combination of both multiway video and audio-only (57%) devices. Table 2 summarizes transplant pharmacists’ telehealth experiences including the reasons for use, the settings where it was implemented, the barriers from the pharmacists’ perspective, and platforms that were utilized. Pharmacists reported the most common reasons for telehealth use included pre-transplant and post-transplant care and medication teaching. The most commonly reported barriers to telehealth use included patient knowledge of technology and technological constraints at the institution. A variety of platforms were utilized, however, the most commonly reported was Zoom. When asked about their anticipated use of telehealth

following the pandemic, respondents projected a decrease in future use [“seldom” (31%), “often” (49%), and “fully integrated and part of routine practice” (20%)]. However, 91% of respondents stated they would like to continue utilization of telehealth in their practice post-pandemic.

Only 6 (13%) of respondents reported conducting surveys to assess patient satisfaction. Of those, all reported scores of 4 or 5, with 5 being most satisfied. Reasons reported for satisfaction included convenience for routine visits and safety. Only 4 of the respondents (2%) reported conducting surveys to assess team satisfaction. Of those respondents, all reported scores of 4, with 5 being most satisfied. Reasons reported for lack of satisfaction included technological challenges. When asked which platforms are preferred by practitioners Zoom (30%), Doximity (26%), Cisco Webex (19%), and MyChart (19%) were the highest-rated. When asked which platforms are preferred by patients Zoom (35%), Facetime (27%), Doximity (15%), and MyChart (15%) were the highest-rated. Respondents also noted BlueJeans, Microsoft Teams, system telehealth platform, and phone calls as preferred by practitioners and patients.

**Table 2.** Transplant Pharmacy Telehealth Experiences

Reasons for Telehealth	n (%)
COVID screening call for waitlist	10 (22.2)
Medication teaching	31 (68.9)
Pre-transplant	34 (75.6)
Inpatient <sup>a</sup>	19 (42.2)
Post-transplant	39 (86.7)
Barriers	
Technological constraints at the institution	23 (53.5)
Patient knowledge of technology	35 (81.4)
Healthcare provider acceptance	3 (7)
Reimbursement concerns	10 (23.3)
Privacy concerns	9 (20.9)
Lack of coordinated effort	21 (48.8)
Other <sup>b</sup>	4 (9.3)
Platforms utilized	
Amwell	3 (6.8)
Cisco webex	10 (22.7)
Doxy.me	4 (9.1)
Doximity	13 (29.5)
Zoom for healthcare	9 (20.5)
MyChart	11 (25)
Zoom	20 (45.5)
Facebook messenger	1 (2.3)
Google hangout	5 (11.4)
Skype	7 (15.9)
FaceTime	13 (29.5)
Phone calls	13 (29.5)
Other <sup>c</sup>	10 (22.7)

<sup>a</sup>Inpatient services = medication consultation, medication reconciliation, patient education.

<sup>b</sup>other = hard to evaluate physical signs, difficult to find quiet space, no webcams, lack of access to email, provider knowledge of technology, getting in contact with the family.

<sup>c</sup>other = Microsoft teams, BlueJeans, FaceTime, system telehealth platform, Webex, Pexip, WhatsApp.

## Discussion

The COVID-19 pandemic has resulted in the need to transform healthcare delivery.<sup>10</sup> Organizations and clinicians had to quickly adapt and implement remote mechanisms to best serve their patient populations. Information technologies, such as the adoption of telehealth, has served a critical role in facilitating the ability to continue seamless care for vulnerable patient populations.<sup>11,12</sup> The use of telehealth in transplant centers has the potential to ensure continuous care while minimizing a patient’s exposure to the hospital or clinic setting. Adoption of telehealth practices facilitates continued care with all multidisciplinary care team members, including pharmacists. Telehealth allows transplant patients to receive uninterrupted care from the comfort and safety of their home.<sup>12</sup>

Regulatory barriers preventing the widespread adoption of telehealth were lifted by CMS in March 2020.<sup>4</sup> Most organizations were able to freely implement telehealth to continue providing services for their patients regardless of their location, using a multitude of platforms, and while continuing to generate revenue for services.

In this study, we report on the provision of pharmacy services through telehealth for the care of transplant patients at a diverse set of transplant centers with representation from all organ types and program sizes. Infrequent use of telehealth, defined as responses of “never” or “seldom”, decreased from 98% pre-pandemic to 9% during the pandemic. Though the majority of respondents had reported infrequent use of telehealth prior to the pandemic, approximately half of the respondents reported that they were using telehealth services “often” or in a “fully integrated manner and part of routine practice” after the onset of the global pandemic. The flexibility

of information technology allows telehealth to be conducted utilizing a variety of devices and modalities to ensure successful patient follow up. While this was a practice that was quickly adopted in the setting of an emergency, many pharmacists were concerned that the integration of telehealth would not persist as routine practice. Although not specifically asked in the survey, this lack of uncertainty regarding continued use is likely due to the barriers that were reported. A limitation to consider is that questionnaire surveys are associated with potential for selection bias since responses may come from transplant centers that may have strong opinions about a practice. There was, however, diverse representation from transplant pharmacists among centers with varying center volumes, locations, and organ types which may mitigate this concern for bias. Additionally, the small sample size and response rate only allows for limited descriptive statistical analyses. Despite these minor shortcomings, this study summarizes the reflections on telemedicine from the transplant pharmacy community and provides important insights on the past, present, and most importantly, future of telemedicine services for transplant patients by pharmacists.

## Conclusion

The quick onset of an emergency demonstrates the important need for the healthcare industry to be nimble and prepared for the unexpected. This also demonstrates the desire for pharmacists to adjust to their patients' needs to ensure continuity of care, in this case using telehealth. The adoption of telehealth during COVID-19 was widespread to facilitate continuity of care. Though pharmacists anticipated a potential decrease in future use, a majority favored continued utilization of telehealth in their practice.

## Appendix

### Abbreviations

CMS	Centers for Medicare & Medicaid Services
OCR	Office for Civil Rights
HIPAA	Health Insurance Portability and Accountability Act
CDC	Center for Disease Control

### Author Contributions

All authors equally contributed to the concept/design of this study, data collection, analysis, and interpretation, drafting of the article, as well as critical revision and approval of the article.

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### ORCID iD

Karen Khalil  <https://orcid.org/0000-0001-7350-0418>

### Supplemental Material

Supplemental material for this article is available online.

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