

Pharmacy Practice In Telehealth: Adapting To The Post-COVID-19 Era

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Abstract

The COVID-19 pandemic catalyzed significant changes in healthcare delivery, leading to the rapid adoption of telehealth services across all medical fields, including pharmacy practice. Telepharmacy, the provision of pharmaceutical care via telecommunication, emerged as an essential service during the pandemic. This review explores how pharmacy practice has adapted to the post-COVID-19 era through telepharmacy, examining the challenges, benefits, and future applications of virtual patient care. As telepharmacy continues to evolve, it promises to expand access to healthcare, improve patient outcomes, and offer innovative ways to deliver pharmaceutical care. However, several barriers must be addressed, including regulatory limitations, technological access, and the need for training.

Keywords Telepharmacy, pharmacy practice, telehealth, COVID-19, virtual patient care, post-pandemic healthcare.

Introduction

The COVID-19 pandemic significantly disrupted global healthcare systems, creating an urgent need for remote healthcare solutions. In response, healthcare providers rapidly adopted telehealth services to minimize in-person contact and reduce the spread of the virus. Pharmacy practice was no exception, with telepharmacy emerging as a critical tool in maintaining patient care during the pandemic. Telepharmacy, the remote provision of pharmaceutical services through telecommunication, allowed pharmacists to deliver essential care, including medication management, counseling, and disease management, while maintaining social distancing protocols.

As the pandemic recedes, telepharmacy remains an integral part of healthcare delivery. This review examines how pharmacy practice has adapted to telehealth during the COVID-19 pandemic

and explores the future applications of telepharmacy in a post-pandemic healthcare environment. It highlights the challenges, benefits, and potential future directions for telepharmacy as healthcare continues to shift towards virtual care.

1. Adoption of Telepharmacy During the COVID-19 Pandemic

1.1 Rapid Transition to Telepharmacy

Before the pandemic, telepharmacy was primarily used in rural or underserved areas where patients had limited access to healthcare services. However, the onset of COVID-19 led to an unprecedented expansion of telepharmacy services as healthcare providers sought to minimize physical contact between patients and pharmacists (Nouri et al., 2020). Regulations that previously limited telepharmacy practices were relaxed, allowing for the widespread implementation of remote services. Pharmacists adapted quickly, incorporating video calls, phone consultations, and electronic prescribing into their daily workflows.

1.2 Telepharmacy Services Offered

During the pandemic, telepharmacy encompassed a broad range of services, including:

- **Medication Management:** Pharmacists used telecommunication tools to review medication regimens, monitor for drug interactions, and adjust dosages remotely. This was especially crucial for patients with chronic conditions, such as diabetes and hypertension, who required ongoing medication adjustments (Bokolo, 2020).
- **Patient Counseling:** Pharmacists provided medication counseling via video or phone, ensuring that patients understood their treatment plans and adhered to their prescribed medications. This service proved essential in maintaining medication adherence during lockdowns (Omerovic et al., 2021).
- **Chronic Disease Management:** Telepharmacy allowed pharmacists to monitor chronic diseases like asthma, diabetes, and cardiovascular diseases remotely. This service helped prevent exacerbations and emergency room visits, which were particularly important during the

pandemic when hospital resources were strained (Webster et al., 2021).

2. Challenges of Telepharmacy

While telepharmacy offers numerous benefits, several challenges emerged during its rapid adoption.

2.1 Technological Barriers

One of the primary challenges of telepharmacy is access to technology. Telepharmacy requires both patients and pharmacists to have reliable internet connections, video conferencing tools, and electronic health record systems (Alexander et al., 2020). For patients in rural areas or those with limited digital literacy, these technological barriers can hinder access to telepharmacy services. Additionally, pharmacists needed to rapidly adopt new telecommunication tools, which required time and training.

2.2 Regulatory Challenges

The regulatory environment surrounding telepharmacy varied significantly by region, with some areas relaxing restrictions on remote care more than others. The lack of consistent regulations created confusion among pharmacists about what services they were allowed to provide remotely. Furthermore, reimbursement for telepharmacy services was often unclear or inadequate, limiting the financial sustainability of telepharmacy for some pharmacies (Sasaki et al., 2021).

2.3 Patient Privacy and Data Security

Telepharmacy requires the transmission of sensitive health information over the internet, raising concerns about patient privacy and data security. While telecommunication tools improved access to care, they also increased the risk of data breaches and unauthorized access to patient information. Pharmacies had to ensure that their telepharmacy platforms were compliant with privacy regulations such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States or similar regulations globally (Rodrigues et al., 2020).

2.4 Training and Integration

For telepharmacy to be effective, pharmacists needed to rapidly integrate telehealth platforms into their existing workflows. This

required training on new software, adjusting communication methods, and learning to manage patient consultations remotely. Many pharmacists faced challenges in finding the time and resources to complete this training during the pandemic's peak (Poudel et al., 2021).

3. Benefits of Telepharmacy in Healthcare Delivery

Despite the challenges, telepharmacy offers several significant benefits that have made it an attractive option for healthcare delivery during and after the pandemic.

3.1 Increased Access to Care

One of the primary benefits of telepharmacy is the ability to reach patients who otherwise would not have access to pharmaceutical care. This is particularly true for patients in rural or underserved areas, where healthcare facilities may be far away (Poudel et al., 2021). Telepharmacy reduces travel time and costs for patients and provides them with timely access to medication reviews and consultations.

3.2 Enhanced Medication Adherence

Telepharmacy has been shown to improve medication adherence, as it allows pharmacists to conduct more frequent check-ins with patients. Through virtual consultations, pharmacists can provide real-time advice and support, ensuring that patients understand how to take their medications correctly (Al-Quteimat & Amer, 2020). This is especially important for patients managing complex medication regimens or those at risk of non-adherence.

3.3 Improved Patient Outcomes

Studies have shown that telepharmacy improves patient outcomes by enhancing chronic disease management and reducing the risk of medication errors. By allowing pharmacists to monitor patients more closely and adjust their medications remotely, telepharmacy can help prevent complications and reduce hospital admissions (Webster et al., 2021).

3.4 Cost Savings for Healthcare Systems

Telepharmacy also offers cost savings for both patients and healthcare systems. Patients save on travel costs, while healthcare providers can deliver care more efficiently, reducing the need for

in-person consultations and hospital visits. Telepharmacy can also help prevent costly complications by ensuring that patients receive appropriate medication management (Alexander et al., 2020).

4. Future Applications of Telepharmacy in Post-Pandemic Healthcare

As telepharmacy becomes more established in the post-COVID-19 era, several future applications are emerging.

4.1 Integration with Telemedicine

Telepharmacy is expected to become an integral part of broader telemedicine services. As healthcare systems continue to embrace virtual care, pharmacists will increasingly collaborate with other healthcare providers to deliver comprehensive telemedicine services. This will allow for seamless medication management alongside other healthcare services, improving care coordination and patient outcomes (Rodrigues et al., 2020).

4.2 Expansion into Outpatient and Long-Term Care Settings

Telepharmacy has the potential to expand into outpatient and long-term care settings, where medication management is critical for preventing hospital readmissions and managing chronic conditions. Pharmacists can use telepharmacy to monitor patients in these settings, ensuring that they are taking their medications correctly and adjusting dosages as needed (Omerovic et al., 2021).

4.3 Incorporation of Artificial Intelligence (AI)

The integration of artificial intelligence (AI) into telepharmacy has the potential to revolutionize medication management. AI algorithms can analyze patient data to identify potential drug interactions, recommend dosage adjustments, and predict adherence issues. These tools can assist pharmacists in delivering more personalized and effective care remotely (Sasaki et al., 2021).

4.4 Regulatory and Policy Development

For telepharmacy to reach its full potential, regulatory frameworks must continue to evolve. Policymakers will need to develop consistent regulations for telepharmacy, including clear guidelines on reimbursement, data security, and scope of practice. Establishing these frameworks will ensure that telepharmacy

remains a sustainable and secure option for delivering pharmaceutical care (Rodrigues et al., 2020).

Conclusion

Telepharmacy has emerged as an essential tool in pharmacy practice during the COVID-19 pandemic, providing patients with continued access to medication management, counseling, and chronic disease care. As healthcare shifts towards more virtual care models in the post-pandemic era, telepharmacy will play a critical role in expanding access to care, improving patient outcomes, and enhancing medication adherence. However, challenges such as technological barriers, regulatory issues, and data security concerns must be addressed to fully realize the potential of telepharmacy. With advancements in technology and supportive regulatory frameworks, telepharmacy is poised to become a permanent fixture in modern healthcare.

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