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Teaching and Learning Matters

Perceptions of pharmacy trainees completing a clinical experience in an HIV telemedicine clinic at an urban academic medical center

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Abstract

Objective: To describe the implementation of a pharmacy practice site in an HIV/AIDS clinic that would increase trainees' awareness of the application of telemedicine.

Educational activity: A description of an HIV/AIDS clinical experience detailing necessary components to create, develop, and implement a clinical service and rotation site using telemedicine. A pre- and post-telemedicine questionnaire was administered to pharmacy trainees at the start and completion of their clinical experience at an urban academic medical center providing HIV care to a state correctional system.

Educational activity—assessment: Twenty-seven trainees participated and completed the voluntary questionnaire (100% response rate). Of those 27, 13 were students, 10 were residents, and 4 were fellows. At baseline, 4% of trainees reported being knowledgeable/very knowledgeable about telemedicine. Upon completion of the clinical experience, 96% of trainees considered themselves knowledgeable/very knowledgeable. At the conclusion of the clinical experience, many trainees reported that the quality of care provided by telemedicine was similar to an in-person visit but no trainee reported that the quality of care was better.

Critical analysis of the educational activity: At this time, telehealth technologies are increasing exponentially and it is essential to train pharmacy students, residents, and fellows on these emerging technologies. Although it may be a challenge to identify resources such as space, time, and financial resources to initiate telemedicine services, clinical practice sites utilizing telemedicine should involve trainees in providing these services in order to promote knowledge and understanding of this rising field of health care.

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Keywords: Telemedicine; HIV; Pharmacy student; Pharmacy resident; Trainee; Department of corrections

Background

Telemedicine is defined by the American Telemedicine Association as the use of medical information exchanged

from one site to another via electronic communications to improve a patient's clinical health status.¹ In the United States, there are approximately 200 telemedicine networks covering 350 service sites.¹ According to IHS Technology, between 2013 and 2018, the global telehealth market is expected to grow tenfold as medical providers continue to implement this technology.² Pharmacists already play a vital role in a variety of clinical pharmacy practice settings; including retail, inpatient, as well as ambulatory care clinics

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yet their presence in a telemedicine clinic is often overlooked.³ It seems only natural that future pharmacists be trained in the area of telemedicine in order to fill a much-needed role in this quickly advancing field.

Telemedicine has the benefit of allowing providers to see patients in almost any location while providing a quality of care that is similar to a face-to-face visit and, in certain settings, may be improved when compared to traditional face-to-face visits.^{1,4} Telemedicine can decrease travel time, costs associated with travel, and allow providers to see more patients in a shorter amount of time.¹ It may provide potential cost savings for patients and providers. Telemedicine has been successfully used in rural settings where access to health care may be limited for many patients.⁵ In addition, clinical pharmacy services utilizing telemedicine have been implemented for conditions such as cardiovascular disorders, hepatitis C virus, or human immunodeficiency virus (HIV).^{6–8}

As telemedicine services expand, it is imperative to understand the pharmacist's role in this clinical practice using emerging technology. Questioning future pharmacy practitioners and postgraduate trainees on their perceptions of the telemedicine experience may assist preceptors in gaining valuable knowledge on how to provide trainees with adequate and advanced training in telehealth. Although a thorough literature search was performed, only one article was identified on the topic of telehealth training in medical schools. In a study published by Gschwendtner and colleagues,⁹ a survey was administered to medical students attending a medical conference where the majority of respondents believed telemedicine would become very useful in the future. The authors concluded the need for more information and suggested that universities should provide telemedicine lectures and practical experience during medical education.⁹ Currently, telehealth is not a required component of the curriculum at our institution, yet students have the opportunity to gain experience through the elective "Exploration of Telemedicine" that was created in 2013. This is the only student exposure to telehealth unless students participate in a clinical experience during their fourth professional year.

The purpose of this article was to describe a clinical experience for pharmacy students, residents, and fellows implementing telemedicine technology to provide HIV care to inmates in state correctional facilities and report opinions and perceptions of the trainees related to this clinical service.

Educational activity

Description of clinical experience

The telemedicine model used at our urban academic medical center provides real-time video conferencing between a patient and an interdisciplinary HIV medical team through a secure and encrypted connection. The telemedicine clinic

occupies three offices that are each equipped with internet access, a desktop computer, and high definition video conferencing equipment from Polycom[®] that allows for audio and video conferencing to occur in real time. The video conferencing devices allow up to four connections to occur simultaneously so that a physician, clinical pharmacist, case manager, and nurse with the patient at the remote-site can connect and be in the same virtual room. In addition, electronic stethoscopes and exam cameras created by AMD Global[®] are available to conduct a physical exam as needed.

The HIV team manages patients incarcerated in our state correctional system consisting of 26 prisons and is composed of two infectious diseases (ID) physicians, two ID pharmacists, and one case manager, all who have an active role in the clinic visit. On average, 15 patients are scheduled daily in this interdisciplinary clinic where a follow-up visit is scheduled for 15 minutes and an initial visit is scheduled for 30 minutes. Patients receiving HIV care are followed every three months, if deemed clinically stable based on virologic suppression, every six weeks for medication changes, or sooner as clinically warranted.

Advanced pharmacy practice experience (APPE) students as well as postgraduate residents and fellows participated in a required or elective ambulatory care clinical experience through the completion of a four to six week block of time or three to six month longitudinal rotation in HIV telemedicine in the correctional setting. Throughout the clinical experience, trainees of all levels were allowed opportunities to communicate in real time with the patient during the telemedicine visit. The ID pharmacist and trainees role in the telemedicine clinic included laboratory reviews, medication reconciliation, counseling and educating patients on new or modified antiretroviral regimens or opportunistic infection medications (e.g., side effects, drug interactions, dosing, administration, and pros and cons of alternative regimens), providing drug therapy recommendations as well as drug information, and sending all prescriptions to the dispensing pharmacy for renewal. Allowing trainees the opportunity to provide patient counseling and participate on all ID physician visits provided a unique and hands on way to learn about HIV and its management.

Although no pre-activity learner preparation was required, various activities such as topic discussions related to HIV and/or telemedicine, primary literature analysis, drug information retrieval, and documentation of clinical pharmacy progress notes in an electronic medical record were coupled with direct patient care and patient education to provide a clinical experience. During the first week of rotation, trainees would observe the preceptor along with their patient interactions and clinical responsibilities. After the first week, trainees were expected to participate in the telemedicine visit by completing medication reconciliations with the nurse, recommending interventions, and communicating to the health care team and patient these interventions in order to optimize patient care. Patients were assigned to the trainee by the preceptor and were based on

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