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# Development of an innovative adult attention-deficit hyperactivity disorder clinic

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## Abstract

Pharmacist-psychiatrist collaborative clinic models in specialty mental health clinics are limited, and there has been only 1 report of a clinic focused on adult attention-deficit hyperactivity disorder (ADHD). In this article, we describe the successful implementation of a pharmacist-psychiatrist collaborative practice agreement in an adult ADHD clinic at an academic medical center. Adult patients diagnosed with ADHD after a comprehensive assessment, including a full neuropsychological evaluation, were enrolled in the collaborative treatment clinic. The collaboration was a partnership between a psychiatry department and a school of pharmacy at a public university. We report the details of 58 patients and 774 patient encounters at the collaborative pharmacist-psychiatrist practice from March 2015 through June 2018. The visits were billed using traditional medical billing codes for follow-up visits. Pharmacist practice opportunities included psychiatric evaluation, medication management, counseling, and referral to auxiliary services. Challenges to the clinic's success included limited pharmacist time, prescriptive authority, and reimbursement for services from payors. A collaborative practice model targeted at adult ADHD patients may be a unique clinic setting for psychiatric pharmacists.

**Keywords:** psychiatric pharmacist, ADHD, collaborative, mental health, medication therapy management

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## Background

Attention-deficit hyperactivity disorder (ADHD) has a prevalence of 4.4% in adults and 11% in school-aged children.<sup>1,2</sup> It is a chronic illness that manifests first in childhood and extends into adulthood in a significant proportion of cases.<sup>3,4</sup> According to the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition,<sup>5</sup> adults must have exhibited several symptoms of ADHD by the age of 12. Symptoms of adult ADHD share many features with those of children, including inattention and impulsivity that result in difficulties at work, in relationships, and impaired mood regulation.<sup>2,4</sup> Inattentiveness in adults

may manifest as difficulty sustaining attention or completing projects that have been initiated, making careless mistakes, being easily distracted, or forgetting appointments and obligations. Impulsive symptoms include temper outbursts, inability to wait patiently (eg, in lines, traffic), interrupting others or finishing their sentences, or risky behaviors such as speeding.<sup>2</sup>

Adults with untreated ADHD have a variety of negative economic, social, and health outcomes compared to their non-ADHD counterparts. They have less stable employment and relationship histories. Additionally, they have higher risk of uncontrolled blood pressure; elevated body mass index; increased rate of sexually transmitted diseases; and anxiety, mood, and substance use disorders.<sup>6-8</sup> The ADHD treatment has been demonstrated to mitigate these risks.<sup>9-11</sup> The estimated economic impact of untreated ADHD is in excess of \$40 billion in children and adolescents.<sup>12</sup> In adults, ADHD is associated with significantly higher health care costs.<sup>13</sup>

Stimulants remain as the mainstay of treatment for adult ADHD and are associated with a large effect size (0.7 to 0.9) in reducing symptoms.<sup>14-16</sup> Potential for adverse effects, misuse, and diversion of stimulants requires judicious therapeutic oversight, and the pharmacist is well versed in the properties and regulation of controlled substances. Moreover, pharmacists can use their clinical knowledge of drug formulations and pharmacokinetic profiles of stimulants to optimize treatment. Pharmacists have improved clinical outcomes and costs while reducing adverse effects in other diseases, such as diabetes. However, description of the pharmacist's role in collaborative practice models in specialty mental health clinics is limited.<sup>17,18</sup> A recent publication<sup>19</sup> described a pharmacist-psychiatrist collaborative practice for ADHD although there were no details regarding patients served or billing reported. Given the national shortage of psychiatrists in the United States,<sup>20</sup> increasing access to care by utilizing psychiatric pharmacists becomes vital for patients with chronic disorders, such as ADHD.

We describe the development, implementation, and outcomes of a collaborative practice model focusing on adult ADHD patients. The clinic is a collaboration between a board-certified psychiatric pharmacist and attending psychiatrists within an academic health system.

## Day-to-Day Activities

### Practice Setting

The University of California, San Diego (UCSD) Adult ADHD Program was established in 1995 by 1 of the authors (D.F.), and it is the first clinical program of which

**TABLE 1: Demographics for unique patients (N = 58)**

Demographic	n (%)
Male	40 (69)
Female	18 (31)
Race	
White	41 (71)
Asian	3 (5)
Other or mixed	14 (24)
Attention-deficit hyperactivity disorder diagnoses	
Primarily inattentive	19 (33)
Combined	21 (36)
Unspecified	18 (31)
Payors	
Private	33 (57)
Public	6 (10)
Self-pay/other	19 (33)

we are aware that is devoted to the diagnosis and treatment of adult ADHD. Beginning in 2014, the program was restructured to incorporate a pharmacist (K.L.) in a collaborative practice with the program's attending psychiatrist. Data from clinic visits between March 2015 and June 2018 are presented here.

### Patient Population

Aside from patients who had already established care with the psychiatrist, new adult patients aged 18 and older were eligible for referral to the ADHD program. Those who met ADHD diagnostic criteria during the assessment process were then eligible to be treated within the pharmacist-psychiatrist collaborative clinic. During 2015 to 2018, there were 58 patients who contributed to 774 patient encounters (Table 1). Of 58 patients, 40 (69%) were male, 41 were white (71%), and the average age  $\pm$  SD at the time of the initial visit was  $45 \pm 17$  (range: 20 to 75) years. Of 774 encounters, 575 (74%) were office visits, and 199 (26%) were refill requests and/or telephone encounters (Table 2). Most visits were billed at level 4, current procedural terminology (CPT) code of 99214 (51%).

### Pharmacist's Qualifications and Credentialing

The pharmacist-psychiatrist collaborative model was established through an interdepartmental memorandum of understanding among stakeholders at the school of pharmacy and department of psychiatry at UCSD. A board-certified psychiatric pharmacist (a faculty from the school of pharmacy) and the attending psychiatrist (director of the adult ADHD program) agreed that a

**TABLE 2: Characteristics of pharmacist encounters (N = 774)**

Visit and Billing Details	n (%)
Type of visits	
Completed office visits	575 (74)
Refills/telephone orders	199 (25)
Billing	
CPT 99213 code	176 (23)
CPT 99214 code	399 (52)
Nonbillable	24 (3)
Unknown	175 (23)

CPT = current procedural terminology.

collaborative model would be successful given the mutual expertise of each party. The pharmacist was credentialed by the health system and possessed a national provider identification and a US Drug Enforcement Agency (DEA) license. The DEA license was critical to the collaborative model due to the extensive use of Schedule II medications for ADHD. The psychiatric pharmacist's qualifications have been previously described along with major components of the collaborative practice agreement.<sup>21</sup>

## Practice Description

In March 2014, the psychiatric pharmacist was phased into the collaborative practice model over 6 months. The pharmacist was introduced to each patient, and all patients received a letter informing them of the change in the ADHD clinic. After 6 months, patients were seen under the new collaborative model in which patients were seen by the pharmacist and psychiatrist.

The ADHD clinic was held 1 half day per week for follow-up and consultation with the pharmacist and psychiatrist. Pharmacists only provided care to patients who already had established care with the psychiatrist. During 30-minute scheduled follow-up visits, the pharmacist saw the patient first to provide medication therapy management per request by the psychiatrist; the pharmacist was then joined by the psychiatrist to discuss the treatment plan. Service provided by the pharmacist was an integral part of the overall service provided by the psychiatrist during each patient encounter. While the pharmacist was seeing 1 patient, the psychiatrist was seeing another patient. The medical assistants took patients' vital signs, scheduled appointments, received phone messages, and triaged refill requests. The psychiatric pharmacist also precepted postgraduate year 2 psychiatric pharmacy residents (n = 3), ambulatory care pharmacy residents (n = 2), and introductory pharmacy practice experience students (n = 5) over the study period. Patients had pharmacist-psychiatrist follow-up visits minimally every 3 months;

more frequent visits were necessary when initiating or changing medication(s).

## Baseline Diagnostic and Neuropsychological Evaluation

The diagnostic assessment in the adult ADHD program consisted of a rigorous neuropsychological evaluation overseen by a credentialed neuropsychologist and included a detailed childhood and adult history and assessment of ADHD symptoms (using rating scales) as well as potential cognitive, mood, anxiety, and other comorbid psychiatric and language/processing/development disorders. A test of variables of attention, a commercial, computer-based performance test, was conducted as part of the assessment battery.<sup>22</sup> The neuropsychologist prepared a detailed report that included stated symptoms, rating scale results, and interpretation of neuropsychological battery.

## Diagnostic Consultation Meeting

Once the neuropsychological report was completed, an initial meeting between the psychiatrist, pharmacist, and patient was conducted. The goals of this meeting were to (1) clarify any aspects of the patient's presentation or history that were not elucidated in the report; (2) allow the psychiatrist to make a final diagnosis based on the information; (3) explain assessment findings and diagnosis to the patient; (4) discuss treatment options; and (5) offer pharmacotherapy for ADHD if appropriate.

Patients diagnosed with ADHD and interested in receiving medication treatment were introduced to the pharmacist-psychiatrist collaborative practice model and given an initial prescription and instructions to follow up with the psychiatric pharmacist.

## Follow-Up Visit Activities

During follow-up visits, the psychiatric pharmacist evaluated the patient's response to medication therapy, symptom improvement, side effects, and adherence. The pharmacist also reviewed objective data, including vital signs, recent labs (if available), and reports from California's prescription drug monitoring program. The pharmacist obtained a substance use history (alcohol, tobacco, caffeine, illicit drugs) and full medication history including ADHD treatment. After discussing each patient case with the attending psychiatrist, the pharmacist and psychiatrist visited with the patient to clarify information, formulate the best treatment strategy, and discuss the treatment plan. Therapeutic alternatives and referrals to other providers were discussed if appropriate. Patient visits were limited to 30 minutes with 15 minutes between appointments for documentation. Each patient encounter

was documented electronically in the medical record system. The psychiatric pharmacist documented relevant information, such as medication list, allergies, adherence, side effects, prescription drug monitoring program report, and vital signs along with a brief assessment and plan. Under the collaborative practice agreement and DEA license, the psychiatric pharmacist was able to initiate and modify medications as appropriate. The attending psychiatrist wrote a detailed note, billed for service, and closed the encounter.

In addition to patient encounters and documentation, the pharmacist spent about 2 hours per week processing medication refill requests.

## Billing and Reimbursement

Billing for this model of pharmacist-psychiatrist collaborative service provided to patients utilized an incident-to physician visit billing mechanism because the pharmacist portion of the service was an integral part of the overall visit provided by the psychiatrist. Because the patients seen by pharmacists were patients who already had established care with the psychiatrist, the CPT codes used were only applicable for established patients based on the complexity of care provided for each encounter. Description of CPT codes is available on the Centers for Medicare and Medicaid Services and the American Medical Association Web sites.<sup>23,24</sup>

There are five levels of CPT codes for established patients seen in an outpatient office, ranging from level 1 or CPT 99211 code to level 5 or CPT 99215 code. For the 99213 CPT code, the requirements for the 3 major key components are expanded problem-focused history, expanded problem-focused examination, and low-complexity medical decision making. The problem severity for 99213 CPT code is minor to moderate and includes a minimum of 15 minutes for the visit. For the 99214 CPT code, the requirements for the 3 major key components are detailed history, detailed examination, and moderate-complexity medical decision making. The problem severity 99214 CPT code is moderate to high and includes a minimum visit time of 25 minutes. For established patients, 2 of the 3 major key components (history, examination, and medical decision making) are required.

The memorandum of understanding provided a framework for compensating the pharmacy faculty's clinical time. Between March 2015 and June 2018, 575 office visits were completed (Table 2). More than half of the visits were billed at the CPT 99214 code for established patients.

Differences in insurance billing structures, inability for pharmacists to bill for visits, and consideration of faculty salary structures preclude conclusive estimates of return

on investment for faculty effort. Using Medicare payment rates for CPT 99213 and 99214 codes, the expected payment for these visits would have been \$19 360 and \$66 633, respectively, over the 3 years (\$28 664 per year on average).<sup>25</sup> The return on investment for the clinic model would need to be calculated based upon physician and pharmacy faculty salaries and other costs as they relate to the clinic procedures. Based on pharmacy faculty time for the ADHD clinic (10%) and average pharmacy faculty salary commensurate with that of the psychiatric pharmacist (\$181 457 ± 43 669), it is reasonable to assume that faculty time was covered by the annual revenue.<sup>26</sup>

## Barriers

Clinic expansion was limited by pharmacy faculty time and inability for the pharmacy faculty to bill directly for services. As described in a recent report<sup>19</sup> of a similar clinic model involving pharmacists, adding additional pharmacists to the clinic would allow increased patient access and capacity as well as improved monitoring of medications. This model may allow psychiatrists to see more new or high-risk patients, resulting in overall increased capacity for the entire clinic.

The clinic model may also be limited in other states where prescriptive authority (and DEA licensure) may not be available for pharmacists.

## Conclusion

Overall, faculty and their respective departments felt that the partnership was successful. The financial sustainability depends on clinicians' salary structures; however, the clinic is a significant opportunity for psychiatric pharmacists to meet the critical needs of the ADHD population. Future directions for the clinic include measuring clinical and patient satisfaction outcomes and overcoming barriers for expansion.

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