



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents lists available at ScienceDirect

Journal of the American Pharmacists Association

journal homepage: www.japha.org

ADVANCES IN PHARMACY PRACTICE

Evaluation of patient satisfaction and perceptions of a long-acting injectable antipsychotic medication administration service in a community-based pharmacy during the COVID-19 pandemic

Leighton N. Mascari, Sharon S. Gatewood^{*}, Tana N. Kaefer, Pramit Nadpara, Jean-Venable R. Goode, Ericka Crouse

ARTICLE INFO

Article history:

Received 15 September 2021

Accepted 16 January 2022

Available online 31 January 2022

ABSTRACT

Background: The coronavirus disease 2019 (COVID-19) pandemic, restrictions, and social distancing requirements for medical offices reduced scheduling availability and increased virtual televisits by providers. COVID-19 restrictions created a barrier to health care access for patients who are being administered long-acting injectable antipsychotics (LAIs) in an already vulnerable population.

Objective: To describe an LAI medication administration service at a community-based pharmacy during the COVID-19 pandemic, to evaluate patient satisfaction with the administration of LAIs by a pharmacist service in a community-based pharmacy during the COVID-19 pandemic, and to compare the patient's perceptions of receiving LAIs in a community-based pharmacy with those in another setting previously used for medication administration.

Practice description: Independent full-service community-based pharmacy.

Practice innovation: Implementation of an LAI administration service after an increase in provider referrals of patients to the community-based pharmacy during the COVID-19 pandemic.

Evaluation methods: A 4-month prospective convenience sample study conducted to evaluate the LAI medication administration service. The survey containing 32 questions was adapted with permission from a previous survey administered in a large grocery store chain to a similar population. Survey results were reported using descriptive statistics.

Results: Eleven patients completed the survey. A total of 82% of patients strongly agreed that they felt comfortable with receiving this service at the community-based pharmacy and were satisfied with the privacy during the service. Seventy-one percent of patients who received this service elsewhere strongly agreed the LAI medication administration service was more convenient than a similar service received elsewhere, yet only 18% of patients strongly agreed that the community-based pharmacy was near their work or home.

Conclusion: A medication administration service for LAIs was developed in a community-based pharmacy, and patients were satisfied with the service. Further research needs to be completed to evaluate health outcomes and financial implications of this service for the patient and health care system.

© 2022 American Pharmacists Association[®]. Published by Elsevier Inc. All rights reserved.

Disclosure: The authors declare no relevant conflicts of interest or financial relationships.

Previous presentation: This paper has been presented at American Pharmacists Association Annual Meeting, March 2021 (Virtual), and at the University of North Carolina Research and Education Symposium, May 2021 (Virtual).

*** Correspondence:** Sharon S. Gatewood, PharmD, BCACP, FAPhA, Associate Professor, Virginia Commonwealth University School of Pharmacy, 410 N. 12th St, Richmond, VA 23298.

E-mail address: ssgatewood@vcu.edu (S.S. Gatewood).

Background

Schizophrenia is a major public health concern throughout the world. According to the National Institute of Mental Health, the prevalence of schizophrenia ranges from 0.25% to 0.64%, with the prevalence of schizophrenia among noninstitutionalized individuals being 0.33%–0.75% across the globe.¹ The symptoms include hallucinations, delusions, disordered speech, disorganized behavior, and catatonic behavior. In

Key Points**Background:**

- Schizophrenia is a mental health condition that is associated with morbidity, disability, and mortality that can be treated successfully with pharmacological agents.
- The role of the community-based pharmacist has expanded beyond dispensing to include administering injectable medications.

Findings:

- Patients were satisfied with receiving their long-acting injectable antipsychotics at a community-based pharmacy compared with other health care settings.
- Patients were confident in the community-based pharmacist's ability to administer a long-acting injectable medication.

addition, patients living with schizophrenia experience negative symptoms including flat affect and reduced emotional expression. Although the prevalence of schizophrenia is less than 1% of the population globally, it is a chronic mental health disorder that severely affects interpersonal relationships and quality of life for people living with schizophrenia. The estimated average life lost for people living with schizophrenia in the United States is 28.5 years, and an estimated 4.9% of people living with schizophrenia die from suicide.^{2,3} In addition, this chronic mental disorder is associated with higher health care costs and economic burdens such as homelessness and impairment in the ability to work and hold interpersonal relationships.⁴ In 2013, the economic costs associated with schizophrenia were estimated to be \$155.7 billion, and United States rehospitalization costs related to antipsychotic non-adherence were estimated to be \$1,479 million in 2005.⁵

While schizophrenia is associated with significant morbidity, disability, and mortality, its symptoms can be managed using a combination of pharmacologic and non-pharmacological treatments. The first treatment for schizophrenia was developed in 1952 with the discovery of chlorpromazine. The first second-generation antipsychotic available as a long-acting injection was introduced in 2003 and has been further developed into longer-lasting formulations that continue to increase adherence by reducing pill burden and the number of injections given yearly.⁶ Formulations can be given bi-weekly to twice yearly, depending on the medication. Long-acting injectable antipsychotics (LAIs) are important to increase medication adherence of people living with psychiatric disorders, specifically schizophrenia. In addition, LAIs produce more consistent plasma levels, decreasing negative and positive symptoms of patients living with schizophrenia.⁶ The current LAI medications available on the market include aripiprazole monohydrate (Abilify Maintena), aripiprazole lauroxil (Aristada), fluphenazine deaconate (Prolixin), haloperidol decanoate (Haldol), olanzapine pamoate (Zyprexa Relprevv), paliperidone palmitate (Invega

Sustenna, Invega Trinza, Invega Hafyera), risperidone microspheres (Risperdal Consta), and risperidone subcutaneous (Perseris).

Community-based pharmacists are the most accessible health care providers and have become “care extenders to counter primary care provider shortages.”⁷ The role of the community-based pharmacist has continued to expand beyond traditional dispensing roles in the community including the administration of vaccines and injectable medications.⁸ In 2017, the American Pharmacist Association Stakeholder Conference on Improving Patient Access to Injectable Medications met to discuss the pharmacist's role in injectable medication administration to increase access to care and improve adherence, quality of care, and access to knowledgeable health care providers.⁹ Furthermore, the role of the pharmacist continues to be important for direct patient care, triaging of patients, and consultations for minor ailments in collaboration with other health care providers during the coronavirus disease 2019 (COVID-19) pandemic.¹⁰ Restrictions on medical offices for social distancing requirements created a decrease in scheduling availability in addition to the decrease in nonemergent appointments and procedures being provided in most healthcare facilities. This created an opportunity for community-based pharmacists to collaborate with mental health providers and to administer LAIs in an already vulnerable population while adding potential revenue for pharmacist clinical services.¹¹

Objectives

The primary objective of this study was to describe the LAI medication administration service at a community-based pharmacy during the COVID-19 pandemic. The secondary objectives were to evaluate patient satisfaction with the administration of LAIs by a pharmacist service in a community-based pharmacy during the COVID-19 pandemic and to compare the patient's perceptions of receiving LAIs in a community-based pharmacy to another setting previously used for medication administration.

Practice description

Bremo Pharmacy is an independent community-based pharmacy in Richmond, VA, with 2 locations, a closed-door long term care (LTC) pharmacy and a community-based pharmacy. Both pharmacies are located in a suburban area near 2 large hospital systems, including an academic teaching hospital. The community-based location primarily serves older adults and sponsored residential persons living in the community. In addition, Bremo Pharmacy has a United States Pharmacopeia (USP) 800-compliant nonsterile compounding lab. Bremo Pharmacy LTC serves patients living with intellectual and physical disabilities in group homes and LTC facilities across the Commonwealth of Virginia. Bremo Pharmacies offer many pharmacist-led patient care services including health screenings, Bioidentical Hormone Replacement Therapy consults, food sensitivity testing, medication therapy management consults, and medication administration. In addition, Bremo Pharmacy provides appointment-based medication synchronization and durable medical equipment with a large focus on compression garments and hosiery.

Table 1
Patient satisfaction with LAI service at community-based pharmacy (n = 11)

Patient satisfaction survey statements	Average Likert Scale responses
1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree	
I was satisfied with the privacy I received during the service.	3.8 ± 0.40
It was easy to schedule an appointment at a time that was convenient to me.	3.8 ± 0.40
I felt comfortable with receiving this service at the pharmacy.	3.8 ± 0.40
The pharmacy where I received this service was near my home or work.	2.8 ± 0.87
I trusted the pharmacist who provided this service today.	3.8 ± 0.40
The pharmacist clearly communicated to me.	3.8 ± 0.40
The pharmacist listened carefully to what I had to say.	3.9 ± 0.30
I felt confident in the pharmacist's ability to administer the injectable medication.	3.9 ± 0.30
The pharmacist was knowledgeable about the service provided.	3.8 ± 0.40
There was enough time scheduled for the appointment. (n = 10)	3.8 ± 0.42
I would recommend this service to others if they needed this service.	3.8 ± 0.40

Abbreviation used: LAI, long-acting injectable.

Practice innovation

During the COVID-19 pandemic, Brema Pharmacy received a steady growth of referrals from local health care offices, resulting in the expansion and enhancement of a pharmacist-provided medication administration service for LAIs. The community-based pharmacy had been providing injections of medications to some patients; however, the COVID-19 pandemic, restrictions, and social distancing requirements for medical offices and reduced scheduling availability caused providers and patients to seek other settings to receive their LAI medication administration. In addition, local psychiatry offices were conducting virtual televisits; therefore, patients were unable to get their LAI medication administered during their office visit. Patients were referred to the pharmacy by providers via word of mouth. Upon identifying this need for patients in the community, the service was marketed on social media and the pharmacy website to continue to promote the medication administration service. In addition, Brema Pharmacy is listed as a Local Care Center on the Otuska Patient Support Directory for patients who use aripiprazole monohydrate (Abilify Maintena) and are looking for medication administration services in their area.

In addition to the increase in the number of visits seen monthly at the community-based pharmacy, the medication administration appointments were further developed into a comprehensive service. Because patients were not being seen in-person but most commonly virtually, the clinical pharmacist saw a need and an opportunity for the collection of subjective and objective information while the patients were at the pharmacy as described below. Furthermore, the clinical pharmacist implemented a standardized medication administration form with questions for the patients to answer to assess any adverse effects from the LAI medications being administered. Finally, a procedure to follow up on missed

appointments by pharmacists was created to increase adherence to medication administration appointments among patients.

At the community-based pharmacy, the medication administration service by a pharmacist occurs in private clinic spaces. The appointments are reserved for 20 minutes and are scheduled on a Health Insurance Portability and Accountability Act (HIPAA)-compliant web-based calendar that sends appointment reminders to the patients. The patient arrives at the appointed time and is greeted by a pharmacy staff member. At the time of service, the patient pays a medication administration fee for the medication administration service. For some LAI medications, the fee is waived, and payment is received from a medication manufacturer through a patient assistance program. During the COVID-19 pandemic, the patient is screened for COVID-19 with a temporal thermometer and a verbal symptom questionnaire. The patient completes a medication administration form and signs consent for injection by the pharmacist. The patient brings their LAI medication with them to the pharmacy, or the pharmacy has their LAI medication ready to be administered. For subjective information, the pharmacist asks a standard questionnaire to document hyperprolactinemia (breast tenderness and growth, galactorrhea), anticholinergic effects (urinary retention, dry mouth, constipation, blurred vision, etc.), and extrapyramidal symptoms (dystonia, akathisia, parkinsonism, bradykinesia, tremor, and tardive dyskinesia). For subjective information, the pharmacist assesses the patient for changes in movements or akathisia that are witnessed over time as the patient receives the LAI medication. After the assessment, the pharmacist prepares the LAI and administers it to the patient. The encounter is documented in an E-care plan on the pharmacy dispensing system, and the medication administration form is faxed to the provider. A follow-up E-care plan is scheduled on the due date of the patient's next injection for the pharmacist to follow up on any missed appointments and to document communication with the patient or provider. Finally, the pharmacist schedules the next appointment for the patient's medication administration on the HIPAA compliant web-based calendar, and the encounter is completed.

Evaluation methods

The medication administration service was evaluated over 4 months using a patient satisfaction survey. The survey was adapted from a previous survey administered in a large grocery store chain with permission from the authors.¹² The survey contained 32 questions with 10 demographic questions obtaining gender assigned at birth, the number of years being administered an LAI, whether the patient was referred to the pharmacy, whether the patient received an LAI in another health care setting, and LAI medications administered. Fourteen 4-point Likert-scale questions collected information about perceptions of the LAI appointments with the pharmacy, perceptions regarding ease of making appointments, and perceptions of the pharmacist administering an LAI. In addition, six 4-point Likert-scale questions were used to collect information to compare the service in a pharmacy with that in other health care settings. Finally, 2 optional open-ended response questions were collected for qualitative feedback. The paper-based survey was offered by the pharmacist

Table 2
Patient Satisfaction with LAI Service at community-based pharmacy versus service provided elsewhere (n = 7)

Patient satisfaction survey statements	Average Likert Scale responses
1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree	
The pharmacist communicated the process of medication administration as clearly as the person who provided this service elsewhere.	3.7 ± 0.49
The pharmacist was as knowledgeable or more about the service provided than the person who provided this service elsewhere.	3.7 ± 0.49
The pharmacist listened carefully to what I have to say as the person who provided this service elsewhere.	3.7 ± 0.49
This service was more convenient than a similar service received elsewhere.	3.7 ± 0.49

Abbreviation used: LAI, long-acting injectable.

administering the medication at the end of a medication administration service to all patients identified between the ages of 18 to 89 years old, administered an LAI, and voluntarily consented to participate in the study. In addition, the pharmacist administering the LAI medication consented the patient for the study. Because of the vulnerability of the study population, an institutional review board–approved consent tool was available if a pharmacist was concerned about a patient's ability to consent to the study. Surveys completed by caregivers were excluded from the study data. The data were manually input into an Excel spreadsheet (Microsoft Office), and the survey results were analyzed using descriptive statistics.

Results

During the 4-month study period, 40 patients were enrolled in the LAI medication administration service. Eleven patients completed the survey, with 1 patient omitting answering multiple demographic questions and 1 person omitting answering their gender assigned at birth. The majority who answered the demographics questions were female (56%, 5 out of 9 participants), with an average age of 40 years (± 14.9) ranging between 20–60 years old. Eighty percent of patients who answered the demographic questions surveyed (8 out of 10 participants) have been administered an LAI for more than a year. In addition, 80% of patients surveyed (8 out of 10 participants) were referred by a provider to the community-based pharmacy for the medication administration service. Of the patients surveyed, 4 patients indicated that they received aripiprazole monohydrate (Abilify Maintenance), 4 patients indicated that they received paliperidone (Invega Sustenna and Invega Trinza), and 1 patient indicated that they received haloperidol decanoate (Haldol). In addition, 1 patient declined to answer the question of which LAI they were receiving, and 1 patient indicated that they were receiving Depakote, which is not an injectable LAI.

Patients agreed that they were satisfied with the privacy while receiving an LAI by a pharmacist and felt comfortable with receiving this service at the pharmacy. The pharmacist was trusted by the patients, and they felt that the pharmacist listened carefully to them during the administration

appointments. Patients were confident in the pharmacist's ability to administer the injectable medications and felt that the pharmacist was knowledgeable about the service provided. Patients reported that they would recommend this service to others and were satisfied with the time scheduled for the medication administration appointments. In addition, it was found that the community-based pharmacy was not near the patient's home or work of most patients (Table 1).

Of the patients who completed the survey, 64% of patients (7 of 11 participants) had received an LAI in another health care setting. These 7 patients were satisfied with using the pharmacy compared with other health care settings for the administration of their LAI medication. The patients agreed that the pharmacist was as knowledgeable or more about the service provided, and the service was as convenient or more than a similar service received elsewhere, yet the community-based pharmacy was not physically near the patient's home nor their work. Furthermore, the patients reported that the pharmacist communicated the medication administration process as clearly as or more than another health care provider in another health care setting (Table 2).

Finally, when asked about the medication administration service during the COVID-19 pandemic, patients were satisfied with the pharmacy's cleanliness to prevent the spread of COVID-19 and felt safe coming to the pharmacy for this service (Table 3). When asked about receiving the service during the COVID-19 pandemic compared with other health care settings, the patients agreed that they felt safe or safer receiving this service in the pharmacy because of the COVID-19 pandemic, and the patients felt that the pharmacy was as clean as or cleaner than other settings used for medication administration (Table 3).

At the end of the survey, 2 optional open-ended response questions were included for qualitative feedback. Patients enjoyed this service because of the friendliness and promptness of the pharmacist that can occur in a smaller setting such as a community-based pharmacy. A patient filled in the open-ended question; I enjoy this service because "I have more time to ask questions and smaller number of people in the office," and multiple people reported that they felt that the staff were friendly, polite, and fast. In addition, patients commented that the service could be better if "it wasn't so far away from home" and "I wouldn't change nothing."

Practice implications

This study supports the need for a pharmacist role in mental health services such as medication administration beyond the current pandemic further developing interprofessional collaboration for the benefit of the patient. Patients are as satisfied or more satisfied with receiving an LAI in a community-based pharmacy compared with other health care settings and this service gives providers a resource for patient care. These findings are comparable to the larger study conducted by Mooney et al.¹² in a large grocery store chain, as patients were satisfied with a LAI medication administered by a pharmacist. Furthermore, the implementation of the LAI administration service supports pharmacists continuing to be accessible health care providers during national emergencies, such as experienced during the COVID-19 pandemic. This study creates a framework for an appointment-based model

Table 3

Patient satisfaction with LAI service at community-based pharmacy during COVID-19

Patient satisfaction survey statements	Average Likert Scale responses
1 = Strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree	
I am satisfied with the pharmacy's cleanliness to prevent the spread of COVID-19. (n = 11)	3.8 ± 0.40
I feel safe coming to the pharmacy for this service during COVID-19. (n = 11)	3.8 ± 0.40
I felt more safe receiving this service in the pharmacy due to COVID-19 compared to a similar service received elsewhere. (n = 7)	3.6 ± 0.53
I felt the pharmacy was as clean or cleaner compared to elsewhere that I received this service. (n = 7)	3.7 ± 0.49

Abbreviation used: LAI, long-acting injectable.

for pharmacists to provide a medication administration service in a community pharmacy.

The implementation of this service is an opportunity for community-based pharmacists to be involved in outpatient mental health treatment of patients. High patient satisfaction with the LAI medication administration service provides evidence for the continued offering of this service at the community-based pharmacy. According to the data in this study, patients are willing to travel to a pharmacy that is not near their home or work to receive these services. Furthermore, Mooney et al.¹² found that 86% of the participants reported that it was convenient to schedule an appointment; however, about one-third of patients reported that the service was not close to their work or home. Therefore, increasing the number of community-based pharmacists providing this service could improve patient access to medication administration services, which could improve adherence. Increased adherence improves the health of patients and decreases health care costs, providing savings to payers, specifically in the decrease of hospitalization rates related to patient nonadherence.¹³ In addition, this service was implemented in an urban area with resources for patients for mental health services, and patients were still required to drive to the community-based pharmacy that was not near their work or home to receive their LAI medication; therefore, this service implemented in rural areas with less access to mental health care services could provide more resources to patients living in these areas.

The information gleaned from this study can be used to leverage payment with payers and health care providers seeking services for patients owing to patient satisfaction. Unfortunately, payment for medication administration fees is a financial burden to many patients. After the implementation of this medication administration service, Brema Pharmacy piloted a Behavioral Health Integration (BHI) program with a local psychiatry office to receive payment for services and to collaborate further with providers in medication monitoring associated with LAIs. Since 2017, Medicare has been providing payment to physicians and nonphysician practitioners for BHI services. BHI is a novel collaborative care model between a designated health care provider and mental health care provider. This interprofessional care model integrates a pharmacist into the mental health care team as a designated clinical staff member. Centers for Medicare and Medicaid Services (CMS) has

provided guidance on the reimbursement for this care model that improves patient outcomes with mental or behavioral health conditions. This collaborative psychiatric model includes a treating practitioner, psychiatric consult, and behavioral health manager, and this model is billed on the basis of complexity. Alternatively, CMS provides a general BHI CPT code to be billed monthly for BHI services. The general BHI code includes a treating practitioner and qualified clinical staff to provide collaborative psychiatric care to the patient. Within this model, the pharmacist's role, as designated clinical staff, can be facilitation and coordination of treatment including pharmacotherapy in collaboration with the provider. In addition, the pharmacist can monitor the patient using validated rating scales and can provide a continuous relationship with the patient to improve patient care and outcomes.¹⁴

Finally, for limitations, the study reflects data from 2 pharmacy locations in 1 city and a small population size, which limits the generalizability to other types of populations. In addition, when the patients were asked whether they would like to complete the survey, some reported that they did not have time because of transportation needs supported by family, friends, or ride services or because of work or other appointments.

Conclusion

The medication administration service was successfully developed in a community pharmacy for patients seeking medication administration services for LAIs during the COVID-19 pandemic, and this creates a framework to be replicated in community pharmacies to increase patient care, opportunity for collaboration with providers, and financial opportunities. Overall, patients are satisfied with the medication administration service for LAIs in a community-based pharmacy, which shows that medication administration services should be expanded to more community-based pharmacy settings. More research needs to be done to understand adherence rates in this model of pharmacist-led medication administration service and patient perceptions of stigmas of receiving mental health services in a community-based pharmacy compared with other health care settings. Furthermore, the financial implications of adherence of patients and rate of hospitalizations need to be further studied to promote payment for pharmacist services in the community-based pharmacy by health care payers.

References

1. National Institute of Mental Health. Schizophrenia. Available at: <https://www.nimh.nih.gov/health/statistics/schizophrenia>. Accessed August 18, 2021.
2. Olfson M, Gerhard T, Huang C, Crystal S, Stroup TS. Premature mortality among adults with schizophrenia in the United States. *JAMA Psychiatry*. 2015;72(12):1172–1181.
3. Palmer BA, Pankratz VS, Bostwick JM. The lifetime risk of suicide in schizophrenia: a reexamination. *Arch Gen Psychiatry*. 2005;62(3):247–253.
4. National Institute of Mental Health. Schizophrenia. Available at: https://www.nimh.nih.gov/sites/default/files/documents/health/publications/schizophrenia/21-mh-8082_schizophrenia.pdf. Accessed August 18, 2021.
5. Cloutier M, Aigbogun MS, Guerin A, et al. The economic burden of schizophrenia in the United States in 2013. *J Clin Psychiatry*. 2016;77(6):764–771.
6. Crocq MA. Histoire des traitements antipsychotiques à action prolongée dans la schizophrénie [A history of antipsychotic long-acting injections in the treatment of schizophrenia]. *Encéphale*. 2015;41(1):84–92 [in French].

7. Goode JV, Owen J, Page A, Gatewood S. Community-based pharmacy practice innovation and the role of the community-based pharmacist practitioner in the United States. *Pharmacy (Basel)*. 2019;7(3):106.
 8. Hogue MD, Grabenstein JD, Foster SL, Rothholz MC. Pharmacist involvement with immunizations: a decade of professional advancement [published correction appears in *J Am Pharm Assoc (Wash DC)*. 2006;46(3):308]. *J Am Pharm Assoc (2003)*. 2006;46(2):168–182.
 9. Skelton JB, Rothholz MC, Vatanka P. Report of the APHA stakeholder conference on improving patient access to injectable medications. *J Am Pharm Assoc*. 2017;57(4):e1–e12.
 10. Elbeddini A, Prabakaran T, Almasalkhi S, Tran C. Pharmacists and COVID-19. *J Pharm Policy Pract*. 2020;12:36.
 11. Hayden JC, Parkin R. The challenges of COVID-19 for community pharmacists and opportunities for the future. *Ir J Psychol Med*. 2020;37(3):198–203.
 12. Mooney EV, Hamper JG, Willis RT, Farinha TL, Ricchetti CA. Evaluating patient satisfaction with pharmacist-administered long-acting injectable antipsychotics in the community pharmacy. *J Am Pharm Assoc (2003)*. 2018;58(4S):S24–S29.e2.
 13. Sun SX, Liu GG, Christensen DB, Fu AZ. Review and analysis of hospitalization costs associated with antipsychotic nonadherence in the treatment of schizophrenia in the United States. *Curr Med Res Opin*. 2007;23(10):2305–2312.
 14. Medicare Learning Network. Behavioral health integration services. Available at: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/BehavioralHealthIntegration.pdf>. Accessed August 18, 2021.
- Leighton N. Mascari, PharmD**, Pharmacist, Brema Pharmacies, Richmond, VA; at time of study: PGY-1, Community-Based Pharmacy Practice Resident, Brema Pharmacy, Richmond, VA
- Sharon S. Gatewood, PharmD, BCACP, FAPhA**, Associate Professor, School of Pharmacy, Virginia Commonwealth University, Richmond, VA
- Tana N. Kaefer, PharmD**, Clinical Services and Residency Site Coordinator, Brema Pharmacies, Richmond, VA
- Pramit Nadpara, PhD, MBA, MS, BSPHarm**, Associate Professor, School of Pharmacy, Virginia Commonwealth University, Richmond, VA
- Jean-Venable R. Goode, PharmD, BCPS, FAPhA, FCCP**, Professor and PGY-1 Community-Based Pharmacy Practice Residency Director, School of Pharmacy, Virginia Commonwealth University, Richmond, VA
- Ericka Crouse, PharmD, BCPP, BCGP**, Associate Professor, School of Pharmacy, Virginia Commonwealth University, Richmond, VA