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The Effect of Long Acting Injectable Psychotropic Medication Provider Education on Advanced Practice Provider Knowledge

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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Assistant Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's DNP Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Andrew Makowski, Student

Dr. Evelyn Parish, Advisor

Running head: THE EFFECT OF LAI PSCHOTROPIC MEDICATION

Final DNP Project Report

The Effect of Long Acting Injectable Psychotropic Medication Provider Education on Advanced
Practice Provider Knowledge

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University of Kentucky

College of Nursing

Spring 2019

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Dedication

I would like to dedicate this project to my wife, Kristen. Thank you for supporting me during this program. Your encouragement has helped me finish this project, and I have been truly blessed to have you in my corner.

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Acknowledgements

I would like to recognize the chair of my project committee and also my advisor, Dr. Evelyn Parrish, for her guidance as I implemented my DNP project. I would like to thank Dr. Debra Hampton and Dr. Chizimuzo Okoli for their expertise and guidance as I developed my DNP project.

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Abstract

Schizophrenia is a debilitating disease that affects approximately 21 million people worldwide (APA, 2013). The gold standard of treatment of schizophrenia is antipsychotic medications. Unfortunately, approximately 50% of patients become non-compliant with their prescribed medications (Sadock, Sadock & Ruiz, 2015). The purpose of this DNP project was to determine the effect of implementing an education intervention regarding long acting injectable (LAI) antipsychotics on the knowledge of advanced practice providers working at a state psychiatric hospital. The advanced practice providers that participated in this DNP project completed a pre-education assessment, attended a brief educational session regarding LAI antipsychotics, and completed a post-education assessment two weeks later. Though the results were limited by the number of participants, it was found that after implementing an educational session regarding LAI antipsychotics advanced practice providers had improved knowledge about and self-efficacy in prescribing of LAI antipsychotics, and reported a greater willingness to prescribe LAI antipsychotics in the future.

Background and Significance

Problem Identification

Schizophrenia is a debilitating disease characterized by cognitive, behavioral and emotional dysfunctions that cause significant impaired occupational or social functioning. It typically presents with delusions, hallucinations and disorganized speech (APA, 2013). The overall lifetime prevalence of schizophrenia is approximately 0.7% among populations worldwide (APA, 2013) and more than 23 million people worldwide are affected by this disease (WHO, 2019). Schizophrenia is more common and typically presents earlier among males, but both males and females are affected by this chronic disease (WHO, 2019).

Context of the Problem

There is a two to three percent greater than expected early mortality rate among those with schizophrenia than the general population (WHO, 2019). Having a mental illness like schizophrenia is a barrier to appropriate medical care and is associated with medical morbidity and mortality (Gur et al., 2018). This is largely attributed to comorbid medical problems such as cardiovascular disease, metabolic disease and infections (WHO, 2018). Unfortunately, suicide is also a large contributing factor to mortality among those diagnosed with schizophrenia; nearly 20% of this population attempt and about 5%-6% die as a result of suicide (APA, 2013). Medication nonadherence is also associated with a greater risk for suicide and medical morbidity and mortality among people with schizophrenia (El-Mallakh & Findlay, 2015). Despite first-line antipsychotic medications being effective in approximately 70%-80% of this population, an estimated that 50% become nonadherent to their medication regimen (El-Mallakh & Findlay, 2015).

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Scope and Consequences of the Problem

Antipsychotic medications are the gold standard for schizophrenia treatment and consist of older first-generation antipsychotics and newer second-generation antipsychotics (Sadock, Sadock & Ruiz, 2015). Unfortunately, oral antipsychotic medication nonadherence is a frequent problem and is the most common cause of a psychotic relapse (Kaplan, Casoy & Zummo, 2013). The Clinical Antipsychotic Trials of Intervention Effectiveness study report that 74% of those diagnosed with schizophrenia become nonadherent with their antipsychotic medication within 18 months of the medication being prescribed (Higashi et al., 2013). Approximately 53% to 72% percent of those who are nonadherent with antipsychotic medications experience a psychotic relapse (Sadock, Sadock & Ruiz, 2015). However, Long Acting Injectable (LAI) antipsychotics are an alternative to traditional oral and older depot antipsychotics (Kaplan, Casoy & Zummo, 2013). LAIs are also associated with improved medication compliance and improved patient outcomes (Kaplan, Casoy & Zummo, 2013).

Evidenced Based Intervention

Provider education has been demonstrated to be an effective evidence-based intervention in improving knowledge about schizophrenia and its treatment (Turrina et al., 2008). LAI antipsychotics have been shown to increase the success of schizophrenia treatment by improving medication adherence, maintaining more consistent medication bioavailability, lowering symptom relapse rates, and improving patient outcomes (Brissos, Veguilla, Taylor, Balanza-Martinez, 2014). In comparison to oral antipsychotics, LAIs have also been associated with decreased number of ER visits, decreased lengths of hospital stays, and decreased rates of re-hospitalization among those with schizophrenia (Lafeuille et al., 2013). Provider education on LAI antipsychotics can also be a relatively inexpensive intervention to improve the care of those

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diagnosed with schizophrenia. The average cost per learner in continuing medical education is as low as \$37 (Sullivan, 2018).

When searching for educational opportunities regarding LAI antipsychotics a variety of published research papers and recommendations from health networks can be found, but no educational programs regarding LAI antipsychotics are currently available. The Psychopharmacology Institute (2018) has a published guide entitled “Long-Acting Injectable Antipsychotics: A Summary for Prescribers” which summarizes the most clinically relevant information regarding the use of LAI antipsychotics (Guzman, 2018). This guide is a four-page document written by Dr. Flavio Guzman, who is a psychiatrist and assistant professor of pharmacology at the University of Mendoza (Psychopharmacology Institute, 2018). This resource was intended to be used as a guide to reference the most clinically relevant features and prescribing facts of LAI antipsychotics (Guzman, 2018). For this DNP project the guide is used as the content for an educational session delivered to advanced practice providers. It was further chosen because it clearly presents who should receive LAI antipsychotics, the practical considerations of prescribing LAI antipsychotics, and the potential advantages and disadvantages of LAI antipsychotics (Guzman, 2018).

Purpose of the Project

The purpose of this project was to determine the effect of implementing an education intervention regarding LAI antipsychotics on the knowledge of advanced practice providers. The project aims were to identify barriers to prescribing LAI antipsychotics among advanced practice providers; assess the effect of implementing education regarding LAI antipsychotics on providers comfort in prescribing LAI antipsychotics; and examine the effect of implementing education regarding LAI antipsychotics on providers likelihood to prescribe LAI antipsychotics.

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Theoretical Model

The theoretical model that guided this DNP project was the Diffusion of Innovation Theory, which focuses on the dissemination of new information (Zhang, Yu, Yan, & Spil, 2015). The Diffusion of Innovation Theory categorizes an innovation into one of five possible qualities including the relative advantage, compatibility, complexity, trialability and observability of the innovation. If the innovation is perceived by others as beneficial, it will likely be adopted (Zhang, Yu, Yan, & Spil, 2015). This theory also states that the spread of innovation is a process by which people adopt new ideas, practices, and philosophies. When a new idea is developed, a limited number of people are initially open to the idea. With time, however, the new idea spreads to more people and may become accepted by most. The theory categorizes people into one of five categories (innovators, early adopters, early majority, late majority, and laggards) based on the state in which a person adopts an innovation (Kaminski, 2011).

When implementing an educational session on LAI antipsychotics, it was important to present the information of LAI antipsychotics as beneficial. It was also important to understand the characteristics of the advanced practice providers who would participate in the educational session. Based on the Diffusion of Innovation Theory, most advanced practice providers fall into the early majority category because they want proven applications that have reliable results. This includes utilizing prescribing practices that come with appropriate references. Considering these characteristics, it was likely that the advanced practice providers would perceive LAI antipsychotic education as a beneficial endeavor.

Review of Literature

LAI antipsychotics are an effective alternative approach to oral antipsychotics and can improve medication adherence to antipsychotic medication (Kaplan, Casoy & Zummo, 2013).

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Greene et al. (2018) reported that medication adherence and discontinuation were examined between two separate groups of patients that received LAI antipsychotics versus oral antipsychotics. Those who received LAI antipsychotics were more adherent and 20% less likely to discontinue their antipsychotic medication (Green et al., 2018). Adherence to antipsychotic medications is important because it is the leading preventative measure of symptom relapse among those with schizophrenia (Kaplan, Casoy & Zummon, 2013). LAI antipsychotics have shown to prevent symptom relapse. A systematic review by Zhornitsky and Strip (2012) indicated that psychotic relapse is lower with LAI antipsychotics versus oral antipsychotics. Further evidence-based support for the use of LAI antipsychotics can be found in The Electronic Schizophrenia Treatment Adherence Registry, an international long-term study of schizophrenia patients that are started on new treatment. A study from the registry data showed that after 12 months of switching from an oral to an LAI antipsychotic the percentage of patients that relapsed was considerably lower for those who received LAI antipsychotics versus those who took oral antipsychotics (14.6% vs 52.2%) (Olivares, Rodriquez-Martinez, Buron, Alonso-Escolano, Rodriguez, 2008). Rates of hospitalization and lengths of stay are also noted to be lower among those treated with LAI versus oral antipsychotics (Lafeuille et al., 2013). A systematic review by Park et al. (2018) found strong evidence that LAI antipsychotics have higher efficacy at treating schizophrenia. In the review, those treated with LAI antipsychotics had lower rates of relapse and shorter hospital stays as compared to those on oral antipsychotics (Park et al., 2018). Peng et al. (2011) found that after starting LAI antipsychotics, hospital rates among those with schizophrenia declined from 49.7% to 22.4 % and lengths of hospital stay declined from 7.3 to 4.7 days.

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Educational outreach visits can be effective in improving knowledge and changing practice among health care providers (O'brien et al., 2007). Educational outreach visits are face-to-face educational sessions in which trained individuals visit healthcare providers where they practice and provide education about their practice (O'Brien et al., 2007). This type of visit can be more effective than no educational intervention or other types of education such as distribution of educational materials (Grimshaw, 2004). Prescribing practices have specifically been influenced by educational outreach visits in several research studies (Freemantle et al., 2003; Fretheim et al., 2006; Soumerai, Salem-Schatz, & Avorn, 1999; Witt, Knudsen, Ditlevsen, & Hollnagel, 2004). For example, a randomized control trial which evaluated the effectiveness of educational outreach visits on prescribing practices among 162 healthcare providers in 69 practices found that smaller practices had substantial reactions to educational outreach visits (Freemante et al., 2003). Smaller practices improved in prescribing according to practice guidelines by 13.5%, versus larger practices that only improved by 1.4% (Freemante et al., 2003). Freemante et al. (2003) also found that no specific guideline proved more or less effective than other guidelines, rather, small practice size was most consistent with improved prescribing patterns.

A thorough review of the literature did not result in research pertaining to specific education of providers specifically about LAI antipsychotics. However, a review of the literature supports the notion that education sessions can improve provider knowledge regarding medications and prescribing practices on a variety of medications (Freemante et al., 2003, Avourn & Soumerai, 1983, Diwan et al., 1995).

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Agency Description

Setting

The DNP project was implemented at Eastern State Hospital (ESH) in Lexington, Kentucky. ESH is a state psychiatric hospital in Lexington, KY, that provides care to residents from the rural 50 counties of the eastern region of Kentucky. Up to 196 patients can be receive care at a given time by approximately 15 providers, which consists of psychiatrists, nurse practitioners and physician assistants (ESH, n.d.).

Target Population

Advanced practice providers, which included psychiatric mental health nurse practitioners and physician assistants, were the target population for this project. The inclusion criteria were board certified advanced practice providers (Psychiatric Mental Health Nurse Practitioners or Physician Assistants) who provided care to patients on an inpatient care unit at ESH. Exclusion criteria were advanced practice providers that worked solely in the admissions unit because LAI antipsychotics are not regularly prescribed by providers in the admissions unit. It was anticipated that the sample size would consist of 10 advanced practice providers; however, only four advanced practice providers participated in the educational intervention. The sample consisted of two psychiatric mental health nurse practitioners and two physician assistants.

Congruence of DNP Project and ESH

The mission of ESH is to instill hope, inspire recovery and improve the overall wellbeing of Kentuckians through providing excellent mental healthcare (ESH, n.d.). This mission is achieved through their values that include diversity, innovation, respect, compassion and teamwork (ESH, n.d.). The purpose of this DNP project was to improve the knowledge of advanced practice providers by implementing an educational session regarding LAI

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antipsychotics. This project contributed to ESH's mission by improving advanced practice providers knowledge of long acting injectable antipsychotics which will likely improve the wellbeing of many Kentuckians with mental illness.

Description of Stakeholders

The stakeholders of this project included the advanced practice providers, the chief medical officer and the chief nursing officer at ESH. Improvement in advanced practice provider knowledge regarding long acting injectable antipsychotics is likely most important to the key stakeholders, which are those diagnosed with schizophrenia.

Site-Specific Facilitators and Barriers

There were several people that facilitated the implementation of this project at ESH. Both the chief nursing officer and chief medical officer supported and approved this project. The chief medical officer was helpful in communicating between the primary investigator and the advanced practice providers, and allowed for the advanced practice providers to have time to complete the project during their regularly scheduled working hours. The assistant to the chief medical officer was also helpful in scheduling a designated room for the primary investigator to meet with the advanced practice providers. The only identified barrier was that some advanced practice providers were not able to participate in the project due to competing work obligations, such as patient needs, during the time of the educational sessions.

Project Design

A pre and posttest design was used to examine advanced practice provider's knowledge and level of comfort prescribing long acting injectable antipsychotics. An existing assessment tool to assess provider knowledge regarding LAI antipsychotics was unable to be found in the literature, so a pre and post education assessment tool was developed by the primary investigator.

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Face validity of the assessment tools were established by having expert psychiatric mental health nurse practitioners review and recommend edits to the assessment tools. The pre-education assessment tool (shown in Appendix A) examined the advanced practice providers' knowledge regarding the advantages, frequency of side effects and appropriate prescribing of LAI antipsychotics. It also assessed for qualitative data asking the advanced practice providers what they perceived as the largest barriers to prescribing LAI antipsychotics and if they were comfortable prescribing LAI antipsychotics. The post-education assessment tool (shown in Appendix B) again assessed the advanced practice providers' knowledge regarding the advantages, frequency of side effects and appropriate prescribing of LAI antipsychotics. The post-education assessment tool also asked if the advanced practice providers felt more comfortable prescribing LAI antipsychotics and if they thought they would prescribe LAI antipsychotics more often after receiving education about LAI antipsychotics. No demographic data on the advanced practice providers was collected because collecting such data with a small sample size would reduce anonymity.

Project Methods

Procedure

An expedited medical IRB application was submitted to and approved by the University of Kentucky Institutional Review Board. Advanced practice providers who were providing who met eligibility criteria at ESH were invited via email on January 18, 2019, to take part in the project. A message from the primary investigator was emailed by the ESH medical director, via departmental email, inviting the advanced practice providers to participate in the study. This message was the initial contact of the primary investigator with the advanced practice providers regarding this project. The email message described the study, requested the advanced practice

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providers participation in the study, and included an informed consent form. The advanced practice providers that volunteered to be in the study met with the primary investigator at ESH to complete the informed consent, to complete a 20-minute pre-education written assessment, and to attend a brief educational session on January 24, 2019. The advanced practice providers were then given a paper copy of the educational material by the Psychopharmacology Institute to review during their own time. The primary investigator met with the advanced practice providers at ESH two weeks later, on February 7, 2019, for a post education 20-minute written assessment.

Results

Pre and post education assessment results were compared to determine if there was a response to the educational intervention. No inferential analyses were completed because the small sample size. The pre-education assessment results showed that 75% of the participants were quite knowledgeable about most aspects of LAI antipsychotics. Every participant correctly answered the questions regarding LAI antipsychotics effects on risk of rehospitalization and the potential advantages of LAI antipsychotics. Results from the pre-education assessment also showed that every participant correctly answered which LAI antipsychotic requires a two-week bridge therapy with an oral antipsychotic. However, 75 % of the participants incorrectly responded to what should be done with an oral antipsychotic after the patient has a therapeutic level of a LAI antipsychotic. One participant answered 100% of the eight knowledge-based questions correctly, one participant answered 87.5% of the eight knowledge-based questions correctly, and one participant answered 75% of the eight knowledge-based questions correctly. Though most of the participants answered a majority of the questions correctly, one of the participants answered 50% of the knowledge-based questions incorrectly.

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Post-education assessment results revealed improved knowledge regarding LAI antipsychotics among the participants. Knowledge among the participants regarding what to do with an oral antipsychotic after a patient has a therapeutic level of a LAI antipsychotic improved from the pre-education assessment to the post education assessment (25% to 75%). Knowledge regarding who should receive LAI antipsychotics, side effects, and plasma concentrations all improved to 100% of the participants answering those questions correctly. However, the percentage of participants that correctly answered which LAI antipsychotic require a two-week bridge therapy dropped from 100% to 75%. The same participant that correctly answered 100% of the pre-education assessment questions, again answered 100% of the post education questions correctly. The participant that answered 87.5% of the pre-education assessment questions correctly again correctly answered 87.5% of the post education assessment questions. The participant that answered 75% of the pre-education assessment questions correctly answered 100% of the post-education assessment questions correctly. The participant that answered 50% of the pre-education assessment questions correctly answered 87.5% of the post-education assessment questions correctly. The percentages of correct response among the group of participants is shown in Table 1.

The pre-education assessment also asked the participants what they perceived to be the largest barriers to prescribing LAI antipsychotics. A common theme was mentioned by three of the participants. They wrote that the difficulty associated with finding a place for patients to receiving LAI antipsychotic injections after being discharged from the hospital was a considerable barrier to prescribing LAI antipsychotics. One of the participants also mentioned that cost was a barrier. Both the pre and post education assessments asked the participants to rate their comfort level of prescribing LAI antipsychotics on a Likert scale. Three of the four

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participants strongly agreed that they were comfortable prescribing LAIs prior to the education session. All of the participants strongly agreed after the education session. Each of the participants also strongly agreed that after the educations sessions they would prescribe LAI antipsychotics more often.

Discussion

The findings of this DNP project support the notion that implementing an educational session regarding LAI antipsychotics can improve the knowledge of advanced practice providers. The results also showed that educational sessions can improve advanced practice providers comfort level in prescribing LAI antipsychotics. Improving advanced practice providers knowledge and comfort levels of prescribing LAI antipsychotics may explain why the advanced practice providers believed they would prescribe LAI antipsychotics more often.

The results of this DNP project were similar to the results of prior research that implementing provider education can improve provider knowledge and comfort level (Dacey et al., 2012; Drexel et al, 2011); this is the first time that there has been an analysis to determine the effect of implementing an education intervention specific to APPs regarding LAI antipsychotics. This is important because of the number of APPs that are providing care to patients is rapidly growing (Auerbach, Staiger & Buerhaus, 2018). This is also important because of the impact that LAI antipsychotics can have in the treatment of those with schizophrenia.

The Psychopharmacology Institutes “Long-Acting Injectable Antipsychotics: A Summary for Prescribers” (Guzman, 2018) guide was of value to use for this project because it contains information that is of value to APPs. It contains the most relevant information of LAI antipsychotics including information regarding who should receive LAI antipsychotics, key prescribing facts, and the potential advantages and disadvantages of LAI antipsychotics. It is

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unknown if the guide has been used as the content of an educational session in prior studies, but the guides succinct format allowed for the educational session of this DNP project to be brief and focused on the information that is most applicable to APPs practice. Though the guide is valuable, it only gives the typical dosing of the older first-generation LAI antipsychotics, and does not include their practical considerations.

APPs working in the hospital setting are fortunate to work with staff, such as registered nurses, who can administer LAI antipsychotics. In the community setting, however, administering LAI antipsychotics can be difficult due to the lack of needed staff to ensure injections are given. The APPs in this DNP project perceived that the difficulty associated with continuing LAI antipsychotics after a patient is discharged from the hospital was a barrier to prescribing LAI antipsychotics. While several states have not permitted pharmacists to administer LAI antipsychotics, Kentuckians are fortunate that pharmacists are allowed to administer LAI antipsychotic injections. (Smart Retailing Rx, 2018). As the number of pharmacists allowed to administer non-vaccine injections increases across the country, patients will have improved access to LAI antipsychotics in the community setting. In addition to increased access to LAI antipsychotic injections in the community, many patients report higher satisfaction with receiving LAI antipsychotics from community pharmacists compared to alternative settings (Mooney et al., 2018).

The findings of this DNP project support that APPs knowledge regarding LAIs can improve after participating in an educational session, however if the project were to be conducted again it would be valuable to differentiate the scores of psychiatric mental health nurse practitioners and physician assistants. This would provide insight into which group of APPs benefit from educational sessions. It would also be beneficial to ask the participants what

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they thought of the educational session so that future educational sessions could be tailored to APPs preferences.

Implications

This DNP project demonstrates that implementing educational sessions can improve knowledge among advance practice providers. Utilizing existing resources, like “Long-Acting Injectable Antipsychotics: A Summary for Prescribers” by the Psychopharmacology Institute (Guzman, 2018), is only one example of how to provide current resources to improve the knowledge of advanced practice providers. A possible implication related to this DNP project would be the development of educational sessions specifically designed for advanced practice providers that are currently practicing. Many advanced practice providers hold an important role in the treatment of those with schizophrenia and education regarding LAI antipsychotics would likely improve the outcomes of those with schizophrenia.

Limitations

A limitation of this DNP project included the small number of participants who met the inclusion criteria and agreed to participate. Only four out of the seven available advanced practice providers at ESH agreed to participate. Another limitation was the incomplete response by one of the participants when completing their pre-education assessment. This participant did not answer what they perceived as the largest barriers to prescribing LAI antipsychotics.

Conclusion

Schizophrenia can be a difficult disorder to treat with as many as 74% of patients with schizophrenia becoming nonadherent with medications (Higashi et al., 2013). LAI antipsychotics are an effective alternative to traditional oral and older depot medications that have been shown to improve medication adherence and reduce relapse of patients’ psychotic symptoms (Green et

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al., 2018). The importance of educating providers about LAI antipsychotics was supported by the results of this DNP project, but future studies should include later follow up to determine if improved knowledge can be sustained. Future studies should also evaluate if improved provider knowledge regarding LAI antipsychotics results in changes in provider prescribing behavior and improved patient outcomes.

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Appendix A

Pre-Education

Long Acting Injectable (LAI) Antipsychotic Questionnaire

1. LAI's provide a better relationship between dose and blood levels because:
 - a. LAI's avoid first pass metabolism
 - b. LAI's provide higher and more frequent peak plasma levels
 - c. LAIs require bridge therapy
 - d. All LAI's are administered q 2 weeks
2. Plasma concentrations are:
 - a. More stable with LAI's compared to orally administered antipsychotics
 - b. More stable with orally administered antipsychotics compared to LAI's
 - c. Equal regardless of antipsychotic administration route
3. Side effects are:
 - a. Less common with orally administered antipsychotics
 - b. Less common with LAIs
 - c. Equally common among LAI's and orally administered antipsychotics
4. Risk of re hospitalization is:
 - a. Less common with LAI's
 - b. Less common with orally administered antipsychotics
 - c. Equally common among LAI's and orally administered antipsychotics
5. Which LAI requires a 2-week bridge therapy?
 - a. Risperdal Consta requires 2-week bridge with oral Risperidone
 - b. Invega Sustenna requires 2-week bridge with oral Paliperidone
 - c. Abilify Mantenna requires 2-week bridge therapy with oral Aripiprazole
 - d. Invega Trinza requires 2-week bridge therapy with oral Paliperidone
6. After the patient has a therapeutic level of the LAI, what would you recommend for the PO agent?
 - a. Stop the oral medication
 - b. Taper the oral medication
 - c. Continue the oral medication along with the LAI
7. Who should receive LAI's?
 - a. Only those who have not responded to 2 or more orally administered antipsychotics
 - b. Those with recent onset psychosis
 - c. Those with risk factors for medication noncompliance
 - d. B & C
8. What are potential advantages of LAI's? (choose all that apply)
 - a. LAI's reduce the risks of accidental or deliberate overdose
 - b. LAIs require slow dose titration
 - c. LAI's provide a mechanism for monitoring medication compliance
 - d. A&C

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9. What do you perceive as the largest barriers to prescribing LAI's?

	1. Strongly Disagree	2. Disagree	3. Neither Agree or Disagree	4. Agree	5. Strongly Agree
10. Are you currently comfortable prescribing LAIs?					

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Appendix B

Post-Education

Long Acting Injectable (LAI) Antipsychotic Questionnaire

10. LAI's provide a better relationship between dose and blood levels because:
 - a. LAI's avoid first pass metabolism
 - b. LAI's provide higher and more frequent peak plasma levels
 - c. LAIs require bridge therapy
 - d. All LAI's are administered q 2 weeks
11. Plasma concentrations are:
 - a. More stable with LAI's compared to orally administered antipsychotics
 - b. More stable with orally administered antipsychotics compared to LAI's
 - c. Equal regardless of antipsychotic administration route
12. Side effects are:
 - a. Less common with orally administered antipsychotics
 - b. Less common with LAIs
 - c. Equally common among LAI's and orally administered antipsychotics
13. Risk of re hospitalization is:
 - a. Less common with LAI's
 - b. Less common with orally administered antipsychotics
 - c. Equally common among LAI's and orally administered antipsychotics
14. Which LAI requires a 2-week bridge therapy?
 - a. Risperdal Consta requires 2-week bridge with oral Risperidone
 - b. Invega Sustenna requires 2-week bridge with oral Paliperidone
 - c. Abilify Mantenna requires 2-week bridge therapy with oral Aripiprazole
 - d. Invega Trinza requires 2-week bridge therapy with oral Paliperidone
15. After the patient has a therapeutic level of the LAI, what would you recommend for the PO agent?
 - a. Stop the oral medication
 - b. Taper the oral medication
 - c. Continue the oral medication along with the LAI
16. Who should receive LAI's?
 - a. Only those who have not responded to 2 or more orally administered antipsychotics
 - b. Those with recent onset psychosis
 - c. Those with risk factors for medication noncompliance
 - d. B & C
17. What are potential advantages of LAI's? (choose all that apply)
 - a. LAI's reduce the risks of accidental or deliberate overdose
 - b. LAIs require slow dose titration
 - c. LAI's provide a mechanism for monitoring medication compliance
 - d. A&C

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18. What have you learned from the LAI education that might change your practice?

	1. Strongly Disagree	2. Disagree	3. Neither Agree or Disagree	4. Agree	5. Strongly Agree
10. After the education you received about LAIs are you more comfortable prescribing LAIs?					
11. After the education you received do you think you will prescribe LAIs more often?					

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Table 1. Pre and Post Assessment Results

	Pre-education % correct	Post-education %correct
<p>1. LAI's provide a better relationship between dose and blood levels because:</p> <ul style="list-style-type: none"> a. LAI's avoid first pass metabolism b. LAI's provide higher and more frequent peak plasma levels c. LAIs require bridge therapy d. All LAI's are administered q 2 weeks 	75%	100%
<p>2. Plasma concentrations are:</p> <ul style="list-style-type: none"> a. More stable with LAI's compared to orally administered antipsychotics b. More stable with orally administered antipsychotics compared to LAI's c. Equal regardless of antipsychotic administration route 	75%	100%
<p>3. Side effects are:</p> <ul style="list-style-type: none"> a. Less common with orally administered antipsychotics b. Less common with LAIs c. Equally common among LAI's and 	75%	100%

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orally administered antipsychotics		
4. Risk of re hospitalization is: <ul style="list-style-type: none"> a. Less common with LAI's b. Less common with orally administered antipsychotics c. Equally common among LAI's and orally administered antipsychotics 	100%	100%
5. Which LAI requires a 2-week bridge therapy? <ul style="list-style-type: none"> a. Risperdal Consta requires 2-week bridge with oral Risperidone b. Invega Sustenna requires 2-week bridge with oral Paliperidone c. Abilify Mantenna requires 2-week bridge therapy with oral Aripiprazole d. Invega Trinza requires 2-week bridge therapy with oral Paliperidone 	100%	75%
6. After the patient has a therapeutic level of the LAI, what would you recommend for the PO agent? <ul style="list-style-type: none"> a. Stop the oral medication 	25%	75%

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<ul style="list-style-type: none"> b. Taper the oral medication c. Continue the oral medication along with the LAI 		
<p>7. Who should receive LAI's?</p> <ul style="list-style-type: none"> a. Only those who have not responded to 2 or more orally administered antipsychotics b. Those with recent onset psychosis c. Those with risk factors for medication noncompliance d. B & C 	75%	100%
<p>8. What are potential advantages of LAI's?</p> <ul style="list-style-type: none"> a. LAI's reduce the risks of accidental or deliberate overdose b. LAIs require slow dose titration c. LAI's provide a mechanism for monitoring medication compliance d. A&C 	100%	100%

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