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Staff Education to Improve Antipsychotic Medication Adherence

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Executive Summary: Staff Education Project

Staff Education to Improve Antipsychotic Medication Adherence

by

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Summary

This staff educational project addressed a gap in practice involving minimal nursing intervention to support antipsychotic medication adherence. Antipsychotic medication nonadherence results in undermanaged schizophrenia, which is associated with relapse psychotic episodes, suicidality, and violence. Therefore, the project's purpose was to educate the providers on long-acting injectable (LAI) antipsychotic medication to facilitate the use of the medications to address antipsychotic medication nonadherence. Eight providers were involved in the educational intervention and were educated on the LAI antipsychotic treatment intervention through an interactive educational session. Knowledge surveys were administered before and after the educational intervention. The collected data were analyzed using the Statistical Package of Social Sciences, Version 28 program. The project outcomes revealed an improvement in participants' knowledge of LAI antipsychotic medication. The participants' average pre-intervention knowledge level was 77.71 (SD = 3.40), and their average post intervention score was 93.01 (SD = 3.96). The difference was statistically significant ($p < .001$). The outcomes supported a staff education intervention on LAI antipsychotics that was impactful in improving the knowledge needed by providers to implement the LAI antipsychotic medication intervention to address antipsychotic nonadherence. The above intervention is likely to promote positive social change by reducing the healthcare burden associated with antipsychotic medication nonadherence through improving medication adherence, promoting access to care, and enhancing outcomes for all patients with antipsychotic prescriptions, fostering diversity, equity, and inclusion in healthcare delivery.

Background

Antipsychotic meditation is crucial in the effective treatment of schizophrenia, but nonadherence has emerged as a pressing barrier to effective treatment (Lieslehto et al., 2022). At the clinical site for this staff educational project, health records showed that between February and May 2024, about 62 individuals receiving mental health care had schizophrenia and were under antipsychotic medication; however, only 28 were compliant with the medications. Furthermore, 12 adults experienced relapse psychotic episodes, and upon further review, it was noted that the individuals were nonadherent to antipsychotics in the past 3 months. Despite the challenge of antipsychotic medication nonadherence, the facility lacks an elaborate plan to address the nonadherence issues among adults with schizophrenia. An informal discussion with the providers at the facility also revealed that LAI antipsychotics were not used and that most providers were not knowledgeable about pre-scribing LAI antipsychotics. Therefore, the gap in practice was minimal nursing intervention to support antipsychotic medication adherence. The practice-focused question was: Will educating mental health care providers at an outpatient mental health clinic about long-acting antipsychotics increase their knowledge about long-acting antipsychotics to improve treatment adherence among adults with schizophrenia? The project's purpose was to educate the providers on LAI antipsychotic medication to address antipsychotic medication nonadherence.

Treatment adherence is central to schizophrenia management to facilitate improved patient outcomes, but only 40% to 60% of individuals with schizophrenia are adherent (Lieslehto et al., 2022; Vega et al., 2021). Recognizing the burden of antipsychotic medication nonadherence has led to the development of formulations, such as LAI antipsychotics. LAI antipsychotics release antipsychotic medication slowly over time, which allows longer intervals between administration of maintenance doses that can range from 2 weeks to months, thereby minimizing the potential of a sudden loss of antipsychotic effectiveness due to missed dosages (Zolezzi et al., 2021). Studies exploring the effectiveness of LAI antipsychotics have revealed improved adherence (Lin et al., 2021). Furthermore, individuals receiving LAI medication have better medication adherence and are less likely to discontinue the treatment than individuals receiving other antipsychotic medication therapies (Greene et al., 2018).

Addressing antipsychotic medication nonadherence is crucial because a 75% to 90% relapse rate of psychotic episodes has been reported in individuals who are non-adherent to antipsychotic prescriptions (Mohammed et al., 2024). Such outcomes contribute to increasing healthcare costs because schizophrenia exacerbations lead to over $62.3 billion in direct healthcare expenditure, while healthcare facilities face increased admissions and psychiatric rehospitalizations (Boyers et al., 2023; Kadakia et al., 2022). Outcomes, such as increased risk of psychosis, suicidality, substance abuse, aggression, and violence, are also common in undertreated schizophrenia, which puts the welfare of affected individuals, families, and the community at risk (Cho et al., 2019; Sher & Khan, 2019). Lost productivity, pre-mature mortality, and unemployment are additional outcomes that may stem from undermanaged schizophrenia (Kadakia et al., 2022). Therefore, the implementation of interventions that could facilitate antipsychotic medication compliance is crucial in promoting optimal health outcomes and equipping health care providers with effective interventions to facilitate the timely management of antipsychotic nonadherence.

I conducted a literature review to examine the evidence on the use of LAI antipsychotics and the impacts of meditation on antipsychotic adherence. The review was conducted in Sage Journals, PubMed, CINAHL, and EBSCO databases. The search terms used were *adults with schizophrenia* AND *long-acting injectable antipsychotics* AND *antipsychotic* OR *treatment adherence*. I appraised the retrieved studies relevant to the practice-focused question using the John Hopkins research appraisal tool (see Dang et al., 2022). One Level I study was reviewed in which the impacts of oral and LAI antipsychotics were compared (Kaur et al., 2023). The study highlighted that although both interventions had similar effectiveness on schizophrenia symptoms, LAI antipsychotics resulted in better medication adherence and quality of life. The study setting was within an outpatient clinic; therefore, the outcomes also support the potential of pre-scribing LAI antipsychotics to adults with schizophrenia receiving health care within outpatient healthcare clinics (Kaur et al., 2023).

Two Level II studies were also included in the review. Lin et al. (2021) and Wang et al. (2024) highlighted that LAI antipsychotics were effective in facilitating adherence. Improvements in reducing hospitalization rates were also noted after the use of LAI antipsychotics. However, Wang et al. also explored the efficacy and side effects associated with LAI antipsychotics, whereby a comparison between oral formulations and LAI antipsychotics did not yield any significant difference in terms of efficacy, but LAI formulations were found to have fewer side effects. The above studies guided the current project by highlighting that LAI antipsychotic medications are impactful in addressing nonadherence and that LAI antipsychotics could also be as impactful as oral antipsychotics.

Additionally, I reviewed six Level III studies for the literature review that provided more evidence on the impacts of LAI antipsychotics. Zhdanava et al. (2022) found that the most common predictors for the use of LAI antipsychotic medications were increased relapse rates, rehospitalizations, and nonadherence. There was a significant improvement in outcomes involving the proportion of days covered, rehospitalizations, and treatment discontinuations after adults with schizophrenia were pre-scribed LAI antipsychotics (Patel et al., 2024; Shah et al., 2018; Wei et al., 2022). Bunting et al. (2023) reported that an educational intervention on LAI antipsychotics could result in improved pre-scribing of the medication by healthcare providers working with adults taking antipsychotic medications. The cost-effectiveness of LAI antipsychotic medication has also been supported, whereby a reduction in health care costs due to the use of LAI antipsychotic medication compared to oral antipsychotics was noted (Cai et al., 2024). The above studies supported the impacts of LAI antipsychotics in addressing treatment adherence and the impacts of educating healthcare providers on LAI antipsychotics in improving the prescribing practices of the medications.

In the literature review, I explored one Level V study that echoed the above findings. The researchers noted that an in-service educational intervention improved healthcare providers' implementation of LAI antipsychotics, which also contributed to reduced readmissions and an increase in LAI antipsychotic prescribing (Vonderhaar & Snyder, 2020). Overall, the evidence in the reviewed studies supported the LAI antipsychotic intervention as a potential evidence-based intervention that could guide healthcare providers in addressing non antipsychotic adherence.

Staff Education Project Development

Seven participants were involved in the staff education project, including five primary care nurse practitioners, one physician, and one psychologist. I developed educational content for the project based on evidence-based research articles on using LAI antipsychotics to manage antipsychotic nonadherence. I incorporated the information into an educational PowerPoint presentation (see Appendix A). I also developed the project's pre- and post-education knowledge surveys (see Appendix B). I emailed the above materials to a panel of three content experts to review the content for validity and usability. The expert panel provided positive feedback supporting the use of the educational content and surveys. Therefore, I implemented the staff educational intervention using the educational PowerPoint presentation that focused on objectives, such as factors associated with antipsychotic nonadherence, the significance of antipsychotic medication adherence, LAI antipsychotic medication, and the strategies for using LAI antipsychotics to promote antipsychotic medication adherence. I collected pre-- and post-intervention knowledge surveys from the participants, which were administered before and after the educational intervention to determine the participants' knowledge outcomes related to addressing antipsychotic nonadherence using LAI antipsychotics.

Implementing the educational sessions necessitated special considerations for the availability of the facility staff; therefore, I scheduled three educational sessions to facilitate attendance and accommodate shift differences among the providers. All the educational sessions followed a similar protocol involving welcoming the participants for the session, administering the pre-intervention knowledge survey, delivering the educational presentation to the providers, and administering the postintervention knowledge survey after the educational session. I structured the educational session to be interactive by asking or taking questions to the participants, offering clarifications as needed, and providing examples to enhance the learning experience. The participants' pre- and post-intervention scores were used as quantitative outcomes of the intervention. I uploaded the project outcomes in a data file on the Statistical Package of Social Sciences, Version 29 program, and conducted a paired-sample t-test to analyze the knowledge outcomes.

Results

Analysis comparing the pre--and post-intervention knowledge levels revealed a significant improvement in the healthcare staff's knowledge of LAI antipsychotic use in promoting antipsychotic adherence. Notably, the participants' average pre-intervention knowledge level was 77.71 (*SD* = 3.40), and their average post-intervention score was 93.01 (*SD* = 3.96). The paired samples *t-test* comparing the two outcomes was *t* (6) = -17.67, *p* = < .001 (see Table 1). The participants were all White and female, comprising five primary care nurse practitioners, one physician, and one psychologist.

Table 1

Paired Samples t *Test for Staff Knowledge Levels (*N *=7)*

	Pre-test		Posttest			95% CI		
Outcome	*M*	*SD*	*M*	*SD*	*df*		*t*	*p*
Staff educational intervention	77.71	3.40	93.01	3.96	6	[-17.40, -13.17]	-17.67	< .001

The project findings support that the educational intervention on LAI antipsychotic medication was impactful in improving the providers' knowledge of the intervention. The improved knowledge of the providers concerning the intervention could result in evidence-based management of antipsychotic medication through pre-scribing LAI antipsychotics instead of oral formulations. Such intervention is likely to contribute to better patient outcomes, leading to a reduction in facility spending on costs related to emergencies and resource utilization in managing complications of antipsychotic nonadherence. Improved knowledge and awareness of the providers on the use and effectiveness of LAI antipsychotics will likely equip them with the necessary skills for promoting mental health care and result in incorporating the intervention into routine practice, thereby supporting the facility's culture of evidence-based, mental health care practice. Implementation of the intervention is likely to guide the providers in realizing the facility's mission of delivering exceptional psychiatric care that assists in overcoming mental health challenges, which may extend to addressing issues with treatment nonadherence among adults receiving antipsychotic treatment. Patients receiving mental health care at the facility are likely to become more engaged in antipsychotic treatments due to the convenience of LAI antipsychotic formulations, leading to improved confidence in the health care services provided by the facility.

I noted a few limitations during the staff educational project intervention. Despite the notable outcomes, the generalizability of the intervention may be limited because the project was implemented in a single clinical site with varying socio-demographic and economic outcomes compared to other regions. The project involved only eight health care providers, which is a small sample size that may affect the reliability of the outcomes due to limited sample adequacy. While the knowledge surveys were impactful in collecting crucial knowledge data from the participants, the outcomes may have reduced reliability because they were prone to reporting biases, such as exaggerations and subjectivity. I also noted a violation of the paired samples *t*-test analysis, whereby the assumption of randomization of the participants was not met because the sample was convenient. The limitations can be addressed through a multisite intervention involving several clinics and more health care providers to promote reliability and sample adequacy.

The implementation of the intervention is likely to have significant reproducibility because the intervention is evidence based and has significant impacts on improving the health care for adults taking antipsychotics. Despite the methodological shortfalls, I recommend that the project’s outcomes guide primary care providers to consider adopting the project into practice settings to optimize patient outcomes.

Conclusions

The project site was facing a problem involving minimal nursing intervention to support antipsychotic adherence among adults taking antipsychotics. There was also minimal knowledge of LAI antipsychotics among staff, leading to minimal implementation of the intervention among the providers at the facility. The implementation of the staff education intervention improved the providers’ knowledge of LAI antipsychotic medication, which could result in the implementation of the intervention within the facility, leading to a reduced burden of antipsychotic nonadherence. The intervention could improve provider competency in managing nonadherence among patients by pre-scribing LAI antipsychotics, thereby opening opportunities for patient-provider cooperation in realizing optimal patient outcomes. The facility may benefit from expanding the range of interventions for adults taking antipsychotic medication by offering a convenient and low-cost intervention involving LAI antipsychotics, which may be impactful in navigating challenges with oral antipsychotic nonadherence, such as loss of medication effectiveness due to missed dosages (see Zolezzi et al., 2021).

I recommend that the facility promotes sustainability of the quality improvement intervention to promote antipsychotic adherence. For example, the facility management may ensure the availability of the LAI antipsychotics. Regular monitoring of the intervention implementation may facilitate long-term implementation as shortfalls in the intervention implementation can be easily identified and addressed. Providers need to receive continuous education on the intervention biannually to highlight gains accrued from the implementation of the intervention and motivate the providers to continue supporting the intervention implementation. The use of LAI antipsychotic medication intervention has the potential to contribute to positive social change by improving treatment adherence among adults taking antipsychotics, thereby reducing the burden of undermanaged schizophrenia among caregivers, families, and communities at large. The intervention may also reduce health care spending among mental health care facilities and promote mental health outcomes across populations, thereby reducing economic losses due to lost productivity. The intervention is likely to contribute to diversity and inclusion by promoting health outcomes among all adults taking antipsychotics who face nonadherence issues. The intervention also has the potential to promote health care equity by improving health care access among adults pre-scribed with oral antipsychotics who may face challenges with mental health care access. The use of LAI antipsychotics would allow longer intervals between subsequent doses while maintaining optimal medication levels among the adults with antipsychotic prescriptions.

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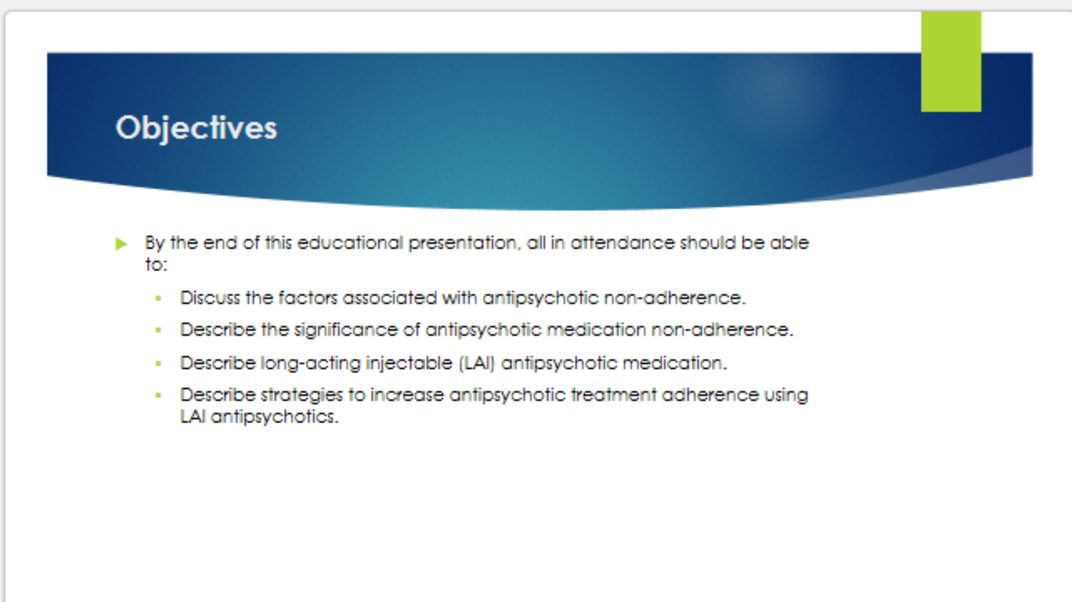
Appendix A: Educational Presentation



Antipsychotic Medication Non-adherence

- Adherence is the extent to which patients follow the prescribed medication time intervals and dosage requirements.
- Only 40% to 60% of individuals with schizophrenia are adherent to oral antipsychotics (Lieslehto et al., 2022; Vega et al., 2021).
- Non-adherence to antipsychotics is associated with:
  - Unemployment, low social support, self-stigma, substance abuse, misunderstanding of the diagnosis, and medication side effects (Mohammed et al., 2024).

3

Significance

- Recurring relapses contribute to $2 billion in annual healthcare spending due to schizophrenia exacerbations (Rivelli et al., 2024).

  Antipsychotic non-adherence is associated with:
  - 75% to 90% relapse rate of psychotic episodes.
  - Increased risk of remission.
  - Problematic behaviors such as violence, self-harm, and suicide.
  - Low efficacy of the antipsychotic treatment (Guo et al., 2023; Mohammed et al., 2024).

4

Local Problem

5

EBP Intervention: LAI Antipsychotics

LAI antipsychotics release the medication slowly, thereby allowing longer intervals between administration of maintenance doses ranging from two weeks to months (Zolezzi et al., 2021).

The main target is the dopamine system (D2 receptors antagonism).

One-month administration includes Paliperidone

Individuals under LAI antipsychotic medication have:

Better medication adherence (Lin et al., 2021).

Minimal likelihood of discontinuing the treatment than individuals receiving other antipsychotic medication (Greene et al., 2018).

6

EBP Intervention: LAI Antipsychotics

- LAI antipsychotics can significantly:
  - Improve the proportion of days covered,
  - Reduce rehospitalizations,
  - Reduce treatment discontinuation (Patel et al., 2024; Shah et al., 2018; Wei et al., 2022).
- Educating healthcare providers on LAI antipsychotics could improve their prescribing of the medication (Bunting et al., 2023).
- The efficacy of LAI antipsychotics is similar to that of oral antipsychotics, but LAI antipsychotics may have fewer side effects (Wang et al., 2024).

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Implementation Strategies

- Evaluation:
  - Use the electronic health records to review individuals with a schizophrenia diagnosis and medications prescribed.
  - Review refill records for proportion of days covered (PDC) and medication possession ratio (MPR) to determine level of adherence (Cho et al., 2022).
  - Adherent individuals have a PDC at or above 80% and an MPR at or above 40% (Cho et al., 2022; Shafrin et al., 2019).

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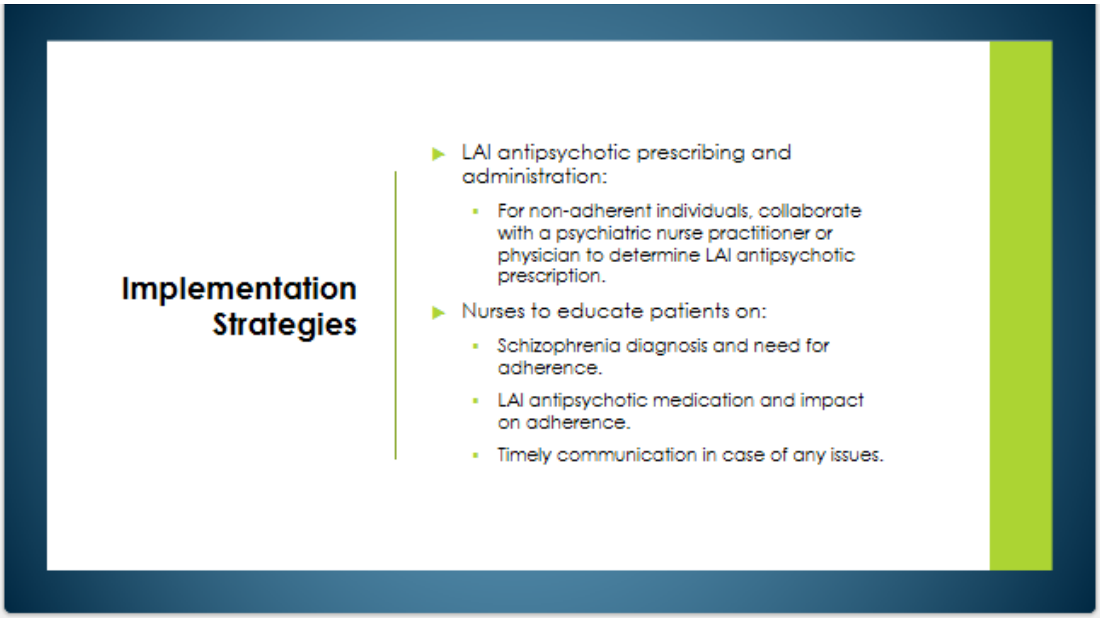
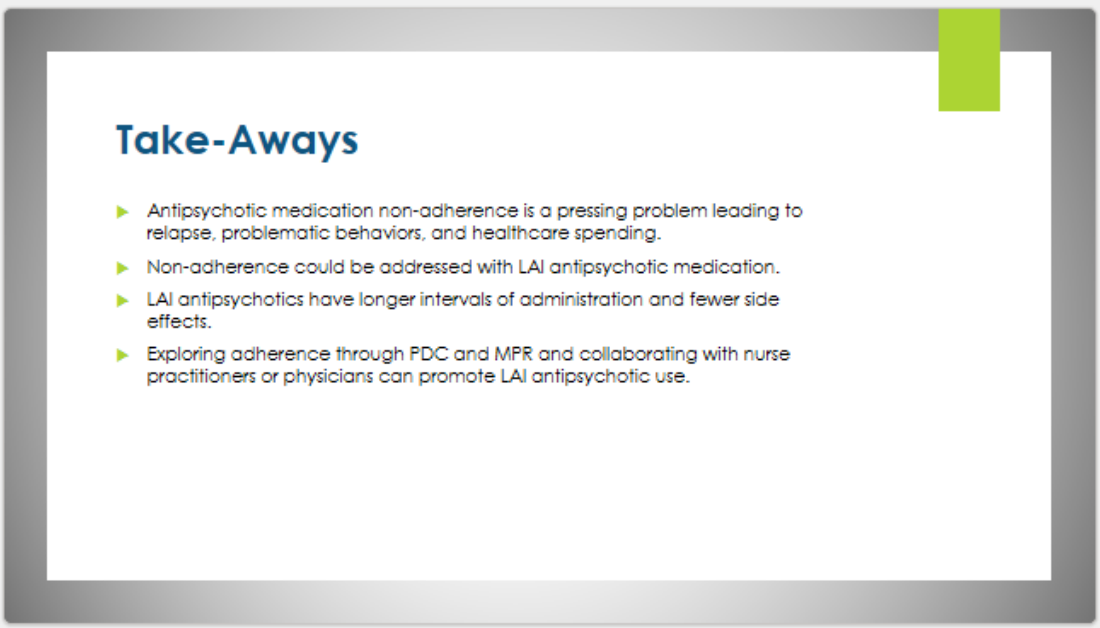
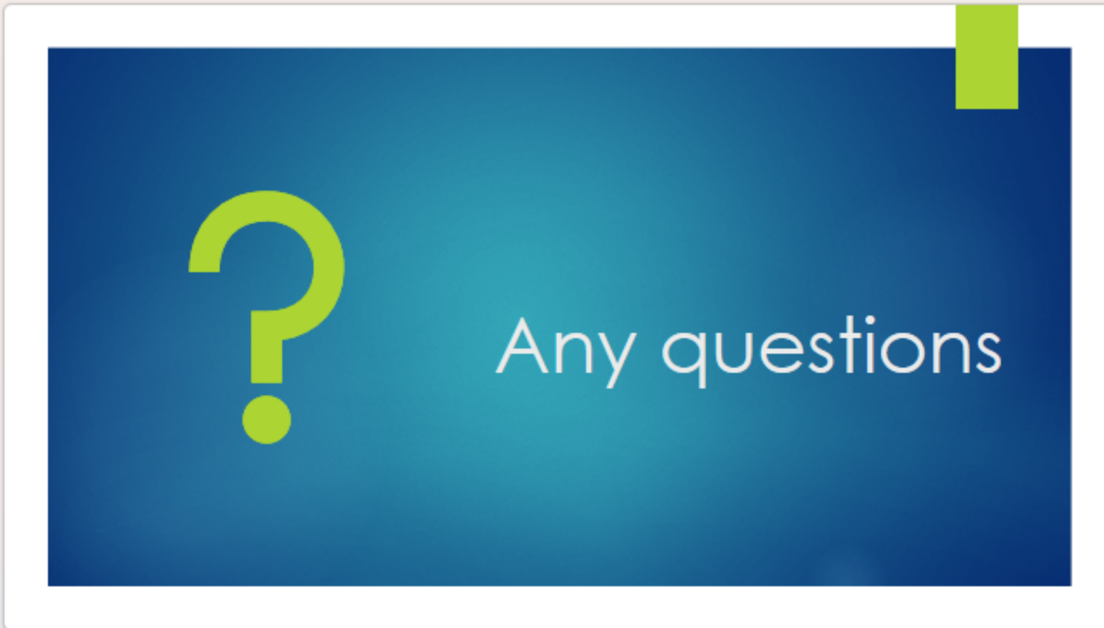

Implementation Strategies
LAI antipsychotic prescribing and administration:
For non-adherent individuals, collaborate with a psychiatric nurse practitioner or physician to determine LAI antipsychotic prescription.
Nurses to educate patients on:
Schizophrenia diagnosis and need for adherence.
LAI antipsychotic medication and impact on adherence.
Timely communication in case of any issues.

9


Take-Aways
Antipsychotic medication non-adherence is a pressing problem leading to relapse, problematic behaviors, and healthcare spending.
Non-adherence could be addressed with LAI antipsychotic medication.
LAI antipsychotics have longer intervals of administration and fewer side effects.
Exploring adherence through PDC and MPR and collaborating with nurse practitioners or physicians can promote LAI antipsychotic use.

10



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Appendix B: Knowledge Survey

Please respond to the following 10 multiple-choice questions by circling the correct response below.

1. Which one of the following is NOT true about antipsychotic non-adherence?
    A. Non-adherence occurs in 40 to 60% of individuals with schizophrenia
    B. All adults with schizophrenia experience non-adherence at some point
    C. Non-adherence stifles schizophrenia treatment
    D. Unemployment contributes to antipsychotic non-adherence
2. Which one of the following DOES NOT contribute to antipsychotic non-adherence?
    A. Racial background
    B. Medication side-effects
    C. Substance abuse
    D. Self-stigma
3. Which one of the following is NOT a significant reason for addressing antipsychotic medication non-adherence?
    A. Non-adherence to antipsychotics increases the risk of remission.
    B. Non-adherence increases the risk of diabetes and hypertension
    C. Non-adherence lowers the effectiveness of antipsychotic treatment
    D. Non-adherence is associated with increased healthcare costs
4. Which of the following is an outcome associated with antipsychotic nonadherence?
    A. Weight gain

B. Reduced symptom severity

C. Relapse

D. Improved quality of life

5. Which one of the following is the primary advantage of long-acting injectable antipsychotics over oral antipsychotics?

A. Greater efficacy in managing negative symptoms.

B. Faster onset of action.

C. Improved adherence due to less frequent dosing

D. Reduced risk of extrapyramidal symptoms

6. Which neurotransmitter system is primarily targeted by long-acting injectable (LAI) antipsychotics?

A. Serotonin

B. Dopamine

C. Norepinephrine

D. Glutamate

7. Which LAI antipsychotic is available as a once-monthly formulation?

A. Lurasidone

B. Olanzapine pamoate

C. Aripiprazole lauroxil

D. Pariperidone

8. Which of the following outcomes is associated with the use of long-acting injectable antipsychotics?

A. Increased bioavailability of the LAI medication

B. Minimal risk of discontinuation

C. Reduced proportion of days covered

D. No change in medication non-adherence

9. Which one of the following outcomes is associated with educating healthcare providers on long-acting injectable antipsychotics?

A. Minimal pre-scribing of LAI antipsychotics

B. No impact on pre-scribing LAI antipsychotics

C. Increased pre-scribing of LAI antipsychotics

D. Variable impact on pre-scribing LAI antipsychotics.

10. Which one of the following is wrong when pre-scribing LAI antipsychotic medications?

A. Review patient records for ongoing chronic conditions and medication pre-scriptions.

B. Review refill records for medication possession ratio to determine adherence.

C. Consider LAI antipsychotic pre-scription for the proportion of days covered falling below 80%

D. Failing to collaborate with the nurse practitioners or physicians.