Utilizing Evidenced-Based Clinical Practice Guidelines to Increase Medication Compliance Among Adult Male Patients Diagnosed with Schizophrenia; A Quality Improvement Project

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Abstract

The problem under investigation is how to use evidenced-based clinical practice guidelines to increase medication compliance among adult male patients with Schizophrenia.

Factors influence poor drug adherence is limited access to mental health specialists and care ,age, new treatment plans, forgetfulness, financial restriction and non-involvement in social activities, alcohol dependence, homelessness, lack of family support, and ethnicity (Prerna, & Ivan, 2020).

Providers at the project site received education on the medication adherence toolkit. Medication adherence was evaluated in patients at the project site by means of the Medication Administration Record System (MARS) questionnaire, given out by mental health clinic clinicians. Weekly chart review audits were done to collect medication compliance data, including whether or not patients picked up their prescription refill from the pharmacy.

Over the course of the five weeks, 54 records were audited, and the results showed that 34.2 patients (80%) selected their prescription refills. 361 people received notifications about their upcoming appointments. Nine patient walk-ins, or 90% of the 10 available appointments, were seen**.**

According to the findings, adult patients at the project site increased their drug adherence by 80% because of the intervention. In order to reduce psychotic symptoms, patients must take their mental medications as prescribed. Creating a safe setting that fosters a collaborative relationship with patients is essential to strengthening the therapeutic relationship. By providing same-day access for appointments and walk-ins, this project aims to increase physician

availability (Gillam, 2018). By involving the medication staff and the provider in the decision-making process, the project seeks to improve drug adherence.

Keywords: Medication administration record system, medication non-adherence, walk-in appointments, appointment reminders, and medication adherence toolbox.

Medication nonadherence is a complicated behavior with various causes, as evidenced by the large range of factors that contribute to it (Jawad, Watson, Haddad, et al., 2018). It is necessary for both an effective healthcare system and responsible individual behavior for medication to be used to improve health outcomes. As a result, both systemic and personal factors can contribute to nonadherence (Wilhelmsen & Eriksson, 2019).

Significance

System factors that contribute to nonadherence are the inability pay for the initial prescription or refills, inadequate instructions for taking the medication, inadequate labeling on the medication container to encourage proper adherence, and insufficient information about the benefits and drawbacks of and alternatives to the medication (Fornari & Dancyger, 2019). Another factor is assuming a patient has access to a doctor who prescribes the right medication at the right dose for the right amount of time (Fornari & Dancyger, 2019). By failing to involve patients in their own care, the acute care paradigm practiced by many health care institutions provides a barrier to improving patient adherence to chronic illness (schizophrenia) treatments that demand such involvement (Welch, 2022). Therefore, when delivering long-term therapy for schizophrenia, it is imperative to understand how to eliminate these barriers at the system levels (Moseri ,2019). There are many different unique causes of nonadherence. For instance, people, especially those who have schizophrenia, might not be able

to understand the rationale for the medication or how to use it (Moseri ,2019). Others can be unmotivated to take the medication or lack the skills and resources needed to promote adherence (Olukotun, 2020) .Other factors such as Drug addiction, despair, a lack of health insurance, competing demands on their time, and an erratic daily routine have all been shown to be reasons why people don't take their medications as directed (Olukotun, 2020). Additionally, each person's personal influences on adherence are unique (Olukotun, 2020). When taking medicine, patients with schizophrenia face different cognitive issues than those with other mental health conditions (Fincham, 2020). Patients might be non-adherent in a variety of ways as well; For instance, some people could forget to take their medication, while others would take excessive doses (Fincham, 2020). People may also administer the medication in the wrong quantity—either too little or too much—or at the wrong time of day (Fincham, 2020). By simply not taking their medication as prescribed, people can potentially fail to adhere; Additionally, people may take drug holidays during which they stop taking their prescriptions either temporarily or permanently (Noordraven, 2018).

Background

Lack of understanding, of the mental health disease process, the use of substance, treatment-related problems, shame, split of patient care, cultural considerations, and socioeconomic status are some of the explanations wherefore some of the schizophrenia patients have problems taken their medications as ordered by the provider (Hardy, Jackson, & Byrne, 2018). Other factors that favorably affect adherence include better pharmacotherapeutic scheduled, patient involvement in the treatment, the growth of a therapeutic relationship, the introduction or the use of medication reminder devices, and the managing of drug use disorder (Rezansoff, 2017).

Project question

For providers caring for newly diagnosed male patients with Schizophrenia, does utilizing evidenced-based practice protocols for medication compliance, compared to current prescribing practice, increase medication compliance as evidenced by monitoring blood levels for therapeutic ranges, in a 4–5-week timeframe?

Search Method

In answer to the review inquiry, the Medical Topic Headlines (MeSH) and main words were created. In addition to supplementary bases including reports, theses, and dissertations from Google Scholar, the major electronic records PubMed (Medline), EMBASE, CINAHL, Web of Science, and PsycINFO were searched. The search phrases were created by fusing MeSH words such "psychotropic non-adherence," "non-compliance," "compliance," "adherence," "determinants," "barriers," "associated factors," "risks," "correlations," and "influencing factors," as well as "major psychiatric disorders." To comply with the suitable database interface, the search strings were modified. Numerous studies were abandoned.

Review of Study Methods

Finding relevant data required filtering populations of adult patients with schizophrenia, illnesses with psychotic symptoms, psychosis, and schizophrenia spectrum disorders (Panozzo, 2018). The study designs include randomized controlled trials, observational studies such as prospective and retrospective studies, cross-sectional questionnaire-based studies, economic and epidemiologic studies, meta-analyses, and qualitative reviews, with a focus on studies that have recently (after 2017) been published.

Review Synthesis

A clinical investigation was carried out to evaluate antipsychotic nonadherence in stable chronic schizophrenia utilizing electronic adherence monitoring (Misdrahi, et al.,2018). The study included 111 patients in total, and the findings showed a substantial association (> 0.05) between adherence rates and standard or symptom seriousness (Takeuchi, et al., 2021). Even after correcting for clinic-demographic characteristics, patients with continuing schizophrenia whom clinical condition and adherence pattern had stabilized in the same trial were found to have no relationship between electronic adherence monitoring and standard or symptom seriousness (Kim, & Lee, 2019). This demonstrates that the patient might be able to maintain clinical stability while taking maintenance antipsychotic medication, despite changes in adherence (Takeuchi et al., 2021). Another article that was studied shows the entire nonadherence of atypical antipsychotics and utilizing plasma samples from 13,217 patients with schizophrenia reported that 5% of outpatients had undetectable blood levels of psychotic disease (Smith, et al., 2021). The article assessed in relation to other atypical antipsychotics, olanzapine treatment resulted in a much higher percentage of nonadherence (Smith, et al., 2021). An article assessing antipsychotic drug adherence for patients having schizophrenia in rural China was carried out using a chance sample of 278 villagers from Liuyang, Hunan province. The findings show that the projected proportion of adherent patient according to all factors (41–88%) greatly beat the unscheduled pill count (35%) (Roman, Gong, Gloyd, Caine, Simoni, Hughes, &Shuiyuan, 2018). According to Marrero, Fumero, De Miguel, and Peate (2020), more than half of schizophrenia patients experience poor adherence to pharmacological treatment at some point, which raises the risk of clinical deterioration, unfavorable outcomes, suicide, and increased resource use, including hospitalization, at a higher cost. Although there has been significant movement in the last ten years toward greater consistency and the use of more unbiassed

measures of adherence, definitions continue to vary and objective measurements are still overused (Magual, 2023). The less-than-ideal methods employed to assess adherence cast doubt on the article findings that aimed to explain the associations between compliance and other variables and to pinpoint the causes of poor adherence (Vellinga, Maples, Pokorny, & Wright, 2019). In an article, researchers looked for randomized controlled trials that contrasted a psychosocial intervention for people with schizophrenia to another intervention or to standard treatment in the literature from 2000 to 2019. This article showed that successful treatments raise adherence rates. According to research (Larson, Tang, & Lester Kirchner, 2018). People with schizophrenia who do not take their antipsychotic medications as prescribed have a much worse prognosis (Sajatovic, et al.,2021). Nonadherence is still a challenging problem in schizophrenia (Freudenreich, 2019). Adherence promotion techniques need to be uniquely tailored because there are so many various factors that might cause nonadherence (Paudel & Subedi, 2019).

Numerous interventions have been employed to help persons with schizophrenia better adhere to their drug regimens (Loots, Goossens, Vanwesemael, et al., 2021). These include cognitive and behavioral approaches, motivational interviewing, patient and family education, and various fusions of tactics (Loots, Goossens, Vanwesemael, et al., 2021). In patients with schizophrenia, noncompliance with antipsychotic therapy is more common, which may increase the possibility of relapse, rehospitalization, self-harm, and mortality (Hiwot, Henock, 2018). The non-adherence to treatment modifies the course of the illness, resulting in issues, disruptions in the body and social functioning of people with schizophrenia, and a decline in quality of life (Yalçin, Ak, Gürel, and Elicker 2019).

Literature Theme Development

Without corresponding behavioral components and accompanying services,

psychoeducational therapies are not likely to be extremely beneficial in increasing medication adherence in schizophrenia (Morrison, Pyle, Maughan, et al., 2020). Giving patients clear instructions and problem-solving techniques, such as signals, self-monitoring tools, reminders, and reinforcements, improves medication compliance (Saber, Kader, Mohammed, 2018). Interventions based on the concepts of aggressive community therapy and motivational interviewing are examples of promising community care approaches. Booster sessions are required to continue and firmly establish improvement because adherence issues frequently reappear (Sajatovic, Mbwambo, Lema, et al., 2021).

Relevant Background

Medication compliance is enhanced by giving patients clear instructions and problem-solving strategies, such as cues, self-monitoring tools, reminders, and reinforcements (Saber, Kader, Mohammed, 2018). Psychoeducational therapies are not anticipated to be highly effective in boosting medication adherence in schizophrenia without related behavioral components and supportive services (Morrison, Pyle, Maughan, et al., 2020).

What is Currently Understood

Promising community care models include interventions based on the ideas of motivational interviewing and aggressive community therapy.
Because adherence problems commonly recur, booster sessions are necessary to maintain and solidify improvement (Sajatovic, Mbwambo, Lema, et al., 2021).

National Guidelines

According to the American Psychiatric Association (APA, 2020), patients with schizophrenia should be treated with cognitive-behavioral therapy for psychosis and receive services such as psychoeducation, supported employment assistance, social skills instruction, and

cognitive remediation(Hatch, Hoffman, Ross, & Docherty, 2018).To identify and address cognitive and motivational barriers to adherence, therapeutic support services offer counseling (Hatch, Hoffman, Ross, & Docherty, 2018). Inaccurate ideas and unfavorable impressions regarding pharmaceuticals and the need for treatment are addressed by cognitive behavioral therapy (CBT) (Cahaya, Kristina, Widayanti, & Green,2021).

Suboptimal Care That Negatively Impacts Quality at the Project Site

The facility's exit survey from patients who have already left the facility reveals a decline in patient satisfaction, which can lead to poor medication compliance and outcomes (Addo, Wang, Dankyi, Abban, & Bentum-Micah, 2020).Some drugs are known to induce cardiovascular events, but the patient was not sufficiently informed about potential adverse effects to expect and report to the nurse or physician (Wu, & Moser, 2018). Extrapyramidal symptoms, metabolic syndrome, drowsiness, and raised prolactin levels are some side effects of several medications that are particularly troubling for the patient and have been linked to decreased drug compliance (Kameg, & Champion, 2021). Low levels of therapeutic relationship at this hospital enhance nonadherence to medication (Drivenes, 2018). The experience of the patient during admission and stay at the facility is a significant factor that affects willingness to take medications; nonadherence to psychiatric medications is associated with the perception of coercion, lack of a voice in treatment decisions, and negative pressure to enter the treatment (Yldz, 2021). Poor patient psychiatric complication management has been linked to a poor outcome, a significantly higher rate of psychiatric hospitalization, use of emergency psychiatric services, arrest, violence, victimization, and substance use, as well as worsened mental functioning, lower levels of life satisfaction, and an increase in alcohol-related issues (Surmann et al., 2021).

Aim

The aim of this quality improvement project is to utilize evidenced-based clinical practice guidelines, to formulate protocol to help provider increase medication compliance among adult male patients diagnosed with Schizophrenia.

Objectives

This project will be achieved within the timeframe of this DNP project.

1. To improve medication adherence among male patients diagnosed with schizophrenia by implementing evidence-based protocol.
2. To educate the nursing staff, social workers, and case manager about the most recent guidelines on medication adherence with PowerPoint presentation to help increase medication compliance.
3. Increase provider availability by not only offering a walk-in service but also providing contact information where the provider could be reached at any time of the day.

4 The patient will show improved medication adherence within five weeks of implementation by detection of the drug or drug metabolites been within therapeutic ranges.

Implementation Framework

The original Shewhart Cycle was somewhat altered by Dr. Deming in 1950 to become a four-step procedure (the PDCA cycle,2021). The Plan-Do-Check-Act (PDCA) cycle was later popularized by an unknown group of Japanese business executives and academics (Application of PDCA cycle in Japanese teaching management, 2020). Dr. Deming further altered the cycle in the 1980s by changing "Check" to "Study," designating the new cycle as PDSA. Dr. Deming continued to alter the cycle in the 1980s by switching the word "Check" to "Study," referring to the new cycle as PDSA (Braithwaite, 2022).

The Plan-Do-Study-Act (PDSA) Methodology will be utilized in this project. The PDSA cycle is a 4-step, iterative process that continuously improves the quality of care (Application effect of PDCA model in nurse quality management in operating room, 2022). It entails the following: (1) Plan (in this section, which discusses the factors that contribute to antipsychotic medication nonadherence); (2) Do (which will implement the action plan or intervention); (3) Study (this is where evaluation of the action plan or intervention's impact and any unintended side effects will be reviewed); and (4) Act (any change in practice will be made based on the plan and the intended outcome evaluation) (Christoff, 2018).

The PDSA cycle will help achieve and improve the quality of care at the project site. Poor insight, cognitive impairment, side effects, attitudes towards medication, cost, lifestyle, provider relationship, and patient lifestyle are factors that will be addressed utilizing this quality improvement project.

Plan

The measurement or goal that I am aiming for at this point (increasing medication compliance) is specified. The step to carry out the plan is included in the planning stage. In this section, I'll outline the steps I'll take in this cycle, including the participants—in this case, male patients with schizophrenia, recruitment of staff—as well as the social workers, physicians, and psychiatric nurse practitioners who will be involved. The project will also have a 5-week time limit.

DO

The cycle's implementation or action phase. In this phase, education will be provided to staff and stakeholders on ways to improve medication compliance. This phase includes monitoring data collection and providing support for staff. All data collected throughout this

implementation phase will be recorded. This includes the effects of psychiatric medication, any potential side effects, and everything the staff has observed as well as labs drawn, and levels recorded.

Study

I will evaluate the outcomes, following implementation, to determine the extent to which improved medication compliance was achieved and whether the measurement aim was met. In this phase, we will determine what was effective. This phase allows the team to look at what was effective to identify strengths and decide if this protocol will be adopted or will need to undergo changes and another PDSA cycle will need to be deployed.

Act

This is the last step when assessment of the entire project is completed. Was it achieved with 100% compliance or not. What level of medication compliance was attained? If the level of improvement in compliance was insufficient, the process will be restarted. At this point, I will draw a conclusion on my findings (Sabeen, Aziz, & Amirali, 2021).

Population of interest

Direct population of interest: Psychiatric mental health professionals, such as nurses, case managers, social workers, psychiatrists, and psychiatric nurse practitioners, who will be following the medication adherence guideline protocol are the project's target audience. The team will get an explanation of the training that will occur on the project's promotion for the medication adherence for each team member. The project site employees who are full-time, part-time, or per-diem board-certified providers carry out the full risk screening at the project site to meet the inclusion criteria for this quality improvement project.

Indirect population of interest: The exclusion criteria include any nurse practitioner students, billing staff, dietary staff, laundry staff, maintenance staff, physician assistant students, medical students, office manager, clerk, or any non-contracted board-certified providers who would not take part in the implementation of the quality improvement project at the project site are excluded from the program.

Stakeholders

The project's stakeholders include the unit manager; The unit Manager oversees the daily patient care, managing nurse staff, and reporting to the administrator to ensure the facility provides high-quality patient care. She is available to work Monday through Friday from 8 am to 5 pm. She helps coordinate the activity of the nurses that are involved in the project.

The administrator provides office support to either an individual or team and is essential for the efficient operation of the facility. Her duties include fielding phone calls, welcoming and directing guests, word processing, creating spreadsheets and presentations, and filing. She closely collaborates with the chief executive officer (CEO) in the running of the facility;

including signing on and off my project; giving feedback and recommendation regarding the project. She is available for work Monday through Friday from 9 am to 5 pm.

The CEO oversees the daily operations, making important corporate decisions, and determining the company's strategic direction. They are frequently the public face of the firm ,he works for from Monday through Friday from 9 am to 6 pm and are answerable to the board of directors of the company.

The providers include five Primary care physicians, three psychiatrists, and the nurse practitioner are the providers here at the facility. They are delivering pertinent information about illnesses and treatments, as well as educating patients about their own health. providing relevant recommendations when necessary and counseling patients about their health. Depending on the presenting symptoms and pertinent criteria, identifying, and treating mental and physical diseases. The facility has the nurse practitioner on site from Monday through Friday from 9 am to 5 p.m. DNP psychiatric nurse practitioner who works at the facility is present there every Thursday from 9 am to 6 pm. She is my project mentor; She combines her experience and abilities to help DNP students with their projects. Particularly in those fields where guidance is needed for design, implementation, and evaluation. These providers are part of the project team.

Each stakeholder received information about the project and was informed of their part in it. Emails, phone calls, and text messages are constantly used to update all stakeholders on the protocol, and their comment is welcomed. The president of the cooperative gave his blessing to the initiative. The affiliation agreement was written by the care facility's administrator. 29 stakeholders will participate in this quality improvement initiative, and the project lead will email personnel and provide educational training. The method of quality improvement is used to foster better teamwork and keep open lines of communication with the stakeholders. The content

expert gave the project site authorization to carry out this evidence-based quality improvement initiative. There was no requirement for the institution and project site to have an affiliation agreement.

Project Setting

This quality improvement project is being conducted in a private residential and clinic facility that serves medium-income families in the city of Long Beach, Los Angeles County, California. The facility is home to five visiting primary care physicians, three psychiatrists that comes to the facility on as needed basis; but are available to the client need through the telephone .There is one psychiatric mental health nurse practitioner at the facility Monday through Friday 9 am to 5 pm and sometimes on call when needed .There are two licensed vocational nurses; The LVN nurses worked 8 hours per shift .The LVN 1 worked from 8 am to 4 pm ,Monday through Friday ;The LVN 2 worked from 4 pm through 11 pm Monday through Friday and the parttime LVN 3 worked from 10 am to 10 pm Saturdays and Sundays .There are ten nurses' assistants who worked 8 hours per shift for four days then have 2 days off from 7 am to 3 pm ,from 3 pm to 11 pm and from 11 pm to 7 am .The two receptionists worked Monday through Wednesday 8 am through 6 pm and the other receptionist worked Thursday through Sunday from 8am to 6 pm .The administrator worked Monday through Friday from 9 am to 5 pm and she is on call when needed for the weekend . The facility provides care for people with low and middle incomes who come from a variety of cultural, racial, and economic backgrounds.

Each month, the institution sees roughly 170 outpatients in addition to housing about 200 inpatients. For patients who are 18 years of age and older, both male and female, this facility offers medication management, psychosocial and rehabilitative programs, individual and family therapy, and residential care. The facility's owner is present from Monday through Friday. The

project site includes a lobby, a reception area, an administrator's office, an owner's office (CEO), offices for the providers, a place for entertainment, and theaters for both patients' and residents' bedrooms. Two patients share a room at the residential facility. The facility uses both paper and computer documentation (charting) methods. To maintain continuity of service, physical charts are scanned into the patient's medical records.

A psychiatrist or nurse practitioner will see patients on the days of their regular appointments or during a walk-in appointment. The Medi-Cal program (The California Medical Assistance Program), Medicare, and private insurance (either a health maintenance organization or a preferred provider organization) are all available to people seeking treatment at the project site.

Interventions

The duration of this initiative was to improve medication compliance quality in five weeks. All staff members involved (physicians, psychiatric nurses, nurse practitioners, licensed vocational nurses, and nursing assistants) within the company received education about the evidence -based protocol for medication compliance. The project's details were communicated to the providers by phone calls, emails, and text messages. A provider-specific evidence-based method was developed to increase drug adherence**.**

The providers and staff members involved will be included in the education for this new practice protocol. Prior to week one, flyers and emails will be sent to staff to remind them about the education session, with daily reminders 3 days, 2 days and the day prior to the session so that the staff are aware of training. The training will be done in the lunchroom during breaktime 12pm-1pm.

To effectively administer the intervention, the staff will spend the first week receiving training from the medication adherence toolkit. During each education session, a direct head count will be used to determine how many staff members are getting the required education and training. A total of 22 employees, comprising 7 providers, 2 front desk clerks, 3 licensed vocational nurses, and 10 nurse's assistants, will participate in the education sessions. The participants will receive in-depth instruction on every critical factor pertaining to enhancing medication adherence. All 22 participants are required to attend all of the classes included in the staff education program, which are held during working hours (break time 12–1 pm). Attendance is anticipated to be 100%.

The front desk will be responsible for reminding each patient of their appointment. Every day, reminders for appointments are emailed out. Every patient at the practice will receive a flyer (Appendix D) informing them of walk-in appointments on Thursdays from 12pm to 2 p.m. The project lead will meet with the providers as needed to assess protocol adherence, monitor implementation and assessment progress, and go through the findings.

Week 1: The project lead will engage with employees to educate them on the policies and use of an organizational toolkit on medication adherence to increase medication compliance among patients with schizophrenia. This will be demonstrated in person as well, using the PowerPoint presentation (Appendix A). After education is complete, the project is put into action. 2-week lab results data collection sheet will be reviewed to show data prior to implementation (Appendix B).

Week 2: Weekly chart reviews and the implementation of the evidence-based toolkit, which outlines the process for providers (nurses, psychiatrists, and doctors) to follow in managing medication adherence in adult patients diagnosed with schizophrenia, will be the first steps taken at the practice site. Week one lab results of therapeutic ranges will be reviewed (Appendix B).

Week 3: The project manager will reiterate the same procedures, such as chart reviews and the use of the evidence-based toolkit, which spells out the steps medical professionals at the practice site should take to manage medication adherence in adult patients. Week 2 lab results reviewed and recorded (Appendix B). The project lead will have weekly meetings with the providers to monitor compliance with the protocol, review implementation and assessment results, and assess progress.

Week 4: The project manager will reiterate the same procedures, such as chart reviews and the use of the evidence-based toolkit, which spells out the steps medical professionals at the practice site should take to manage medication adherence in adult patients. Week 3 lab results reviewed and recorded (Appendix B)

Week 5: To assess medication adherence, go over the pick-up and refill records for the patients who were seen in Weeks 2-4. Week 4 lab results reviewed and recorded.

Tools

The Medication Adherence Toolkit

The medication adherence toolkit contains information and resources to encourage the safe and effective use of medications and lessen the dangers connected to non-adherence (Appendix C). The National Council for Mental Wellbeing created the toolkit to enable organizations dealing with mental health and substance use disorders (MH/SUD) to assert their

authority as the subject matter experts on acceptable standards of care. and to aid organizations who are looking to improve their capacity and expertise in enhancing patients' adherence with their drug regimens. The toolkit was validated for use at the clinical project site by the stakeholders and the project lead. This toolkit is free to use, and no permission is needed to implement it at the project site.

Education Power Point Presentation

The data used for the PowerPoint was adapted from (Ascher-Svanum, Faries, Zhu, Ernst, Swartz, & Swanson, 2006) The data and information were validated for use at the clinical project site by the stakeholders and the project lead. This information is free to use and no permission is needed to implement it at the project site for educational purpose (Appendix A).

Walk-In Flyer for Patients

The flyer was developed by planned administrator inc. The data and information were validated for use at the clinical project site by the stakeholders and the project lead. This information is free to use, and no permission is needed to implement it at the project site for educational purposes (Appendix D).

Blood Therapeutic Levels Data Sheet

Collect blood levels 2 weeks prior to implementation and collect data 4 weeks after implementation. This sheet will collect data of therapeutic ranges of patients prior and after implementation of project (Appendix B).

The Medication Administration Record System and Questionnaire (MARS)

Currently done on paper, utilization of this will be electronic giving more accurate accounts of medication adherence. The staff members will evaluate medication adherence during

their clinical appointment using the drug administration record and questionnaire. Two provider offices will print the MARS surveys and place several copies in the patient feedback tray. The MARs surveys that have been completed will be utilized as a compliance tool to evaluate medication adherence. The completed MARs surveys will be placed in a folder at the front desk and will be evaluated on a weekly basis after the session with the providers. The software was designed to improve medication administration accuracy and to generate online patient medication records. The application was created by the Eastern Kansas Health Care System and the Colmery-O'Neil VA Medical Center and was modified to meet the general requirements of all U.S. Veterans Health Administration (VHA) medical centers. The medication administration record system was validated for use at the clinical project site by the stakeholders and the project lead. It is free to use, and no permission is needed to implement it at the project site (Appendix E).

Electronic Medication Administration Records (eMARs)

The electronic medication records keep track of when medications are administered to the patients throughout hospital stays as a part of the patient's electronic health record. The application backs the five rights of medication administration, which include making sure the correct medication is administered to the correct patient at the correct time, in the correct amount, and via the appropriate route. It includes a patient's whole medical history, including real-time records of their diagnoses, treatments, prescriptions, allergies, radiology pictures, and laboratory test results. Larry Weed introduced the idea of using electronic methods of recording patient information. in 1972, the first electronic medical record system was developed by the Regenstrief Institute. The electronic medication record system tool was validated for use at the

clinical project site by the stakeholders and the project lead. It is free to use and no permission is needed to implement it at the project site (Appendix F).

Chart Audit Tool

The electronic medication management software Azzly will be used and was developed by Azzly to conduct a chart review audit of records for male schizophrenic patients on a weekly basis to check whether the patient picked up their refill from the pharmacy. Azzly was validated for use at the clinical project site by the stakeholders and the project lead .It is free to use and no permission is needed to implement it at the project site (Appendix G).

Data collection plan

Data will be retrieved from the staff and reviewed for each patient's medication adherence by looking at medication refills, MARS questionnaires over a five-week period, and data collected for serum blood levels two weeks prior to implementation and four weeks after implementation. To gauge the degree of compliance with the health improvement effort, the quantity of MARS questionnaires completed during the quality improvement project (QIP) implementation will be monitored. To carefully track and compare the frequency of adherence before and during the quality improvement initiative (QIP), data from the nine participating providers will be used. The following stage entails using frequencies and percentages to summarize patient data and adherence scores. The frequency with which the targeted patients return for prescription refills will also be tracked to gauge improvements in medication adherence and, consequently, the success of the quality improvement project (QIP). During the implementation of the quality improvement project (QIP), the number of patients who neglect to return for their refills will be counted, and the results will be compared to the data recorded before the project's start.

. By comparing the frequencies and percentages of patients who visit their doctors during walk-in sessions, the results of walk-in appointments and appointment reminders will be studied. The number of Thursday appointments from 12 to 2 o'clock will be compared to the number of patients who show up on those days of the week. Additionally, the frequency of attendance prior to the start of the quality improvement project (QIP) will be contrasted with the number of patients who visit their doctors after getting appointment reminders.

Ethics/Human Subjects Protection

For the project at this location, informed consent, and Institutional Review Board (IRB)approval are not required because this is a quality improvement project. The participants' confidentiality and privacy will be protected. Before taking part, each participant will be made aware of the project's parameters and their participation rights. No personally identifying patient data, such as names, social security numbers, or addresses, will be used in this project. Assigning providers and patient chart number identities will maintain confidentiality. The data will be stored on a password protected computer that only the DNP student has access to. The project has several potential advantages, including an increase in drug adherence, which might enhance patient outcomes. The project's advantages surpass any potential dangers or negative effects.

Data Analysis Plan

The population statistics of the education sessions will involve a total of 22 staff members, including 7 physicians, 2 front desk clerks ,3 certified vocational nurses, and 10 nurses' assistants. Participants will be examined using descriptive statistics (SD, mean, range, and frequency). There will be pre- and post -education test results. The benchmark developed to indicate the acquisition of a considerable amount of knowledge following an educational intervention is a mean of 80 % or higher.

Matched example in an Excel spreadsheet, a paired sample t-test will be performed to compare the blood levels of drugs, or their metabolites collected two weeks before deployment with those collected four weeks following implementation. The patient data ranges that were gathered both before and after the project was implemented will be listed on the blood therapeutic levels data sheet. Coupled sample; When collecting data from a single set of individuals (in this case, patients with schizophrenia) across two separate time and under two distinct circumstances, such as a pretest and posttest, the T test is utilized(pallant,2020). It is assumed that if the value is greater than .05, there is no significant difference in ratings (pallant,2020).

For analysis, the data gathered from the chart audit review were manually input into a Microsoft Excel file on the author's password protected laptop two weeks before and four weeks after implementation. A statistician won't be required for this quality improvement project.

Results

During the first week of the project's execution, twenty-two employees, or 100% of the workforce, received education. Data for walk-in appointments, appointment reminders, MARS questionnaires, lab work, test results, and prescription refills were gathered during weeks two through five after the instruction. The outcomes are explained below**.**

The paired t test result to assess the knowledge score of the staff on the pre and post educational session of the 22 staff in palm crest grand is shown below.

Table 1

The knowledge scores pre and post education session

		Mean	N	SD	Std. Error Mean
Pair 1	Post	99	22	0.04	x
	Pre	83	22	0.0	x

The educational training session on medication adherence was attended by twenty-two staff members (N = 22). Among the twenty-two workers who attended the training sessions were seven providers, two front desk clerks, three licensed vocational nurses, and ten nurse's aides. Every important aspect of improving medication adherence was thoroughly explained to the participants. To assess their understanding of medication adherence regimen, each participant filled out an eight-item pre- and post-test. Each point is awarded for completing the pre- and post-test questionnaires. The average score on the knowledge test improved from 83% with 95% confidence ranges of 0.629 to 0.927 prior to attending the educational session to 99% (SD 0.04) with 95% confidence intervals of 0.976 to 0.995 following the educational session.

A statistically significant improvement in knowledge of 16% ($p<0.05$) was observed. These findings showed that the educational session raised participant awareness of ways to enhance medication compliance, which was in line with project objective 2's goal of raising provider awareness of medication adherence.

Table 2

Patient appointments

Appointment Reminders Week	Number Of Appointment Reminders
2	93
3	89
4	89
5	90
Total	361

A total of 361 appointment reminders were sent out. Week 2 saw 93 reminders sent out, while Week 3 saw 89 reminders sent out. Next during week 4, 89 reminders were sent out. Ninety reminders were sent out in Week 5.

Table 3

Patient walk-in appointments

Week	Number Of Walk-in Patients	Number of Walk-in appointments available	Comment
2	3	2	
3	2	3	
4	3	2	
5	1	3	
Total	9	10	

In the first week, there were no walk-in patients or appointments. There were just three walk-in patients during the two sessions in week two. In week three, there were two walk-in patients and three appointments. Then, there were two appointments with three walk-in patients in week four. There was one walk-in patient with three appointments in week five.

Table 4

The Blood Therapeutic Levels data sheet before implementation

Week	Aripiprazole and Metabolite, Serum, (average)	Therapeutic Range (Aripiprazole)	Toxic range (Aripiprazole) Greater than or equal to 1000 ng/mL
10/19/23	83 ng/ml	150 – 500 ng/ml	> 1000 ng/ml
10/26/23	77 ng/ml	150 – 500 ng/ml	>1000 ng/ml
Total	160 ng/ml	150 – 500 ng/ml	>1000 ng/ml
mean	80 ng/ml	150 – 500 ng/ml	>1000 ng/ml

Comment	None	150 – 500 ng/ml	>1000 ng/ml

The blood levels of the patient aripiprazole levels prior to the implementation were average 83 ng/ml (10/19/23) and 77 ng/ml (10/26/23). with an average of 80 ng/ml.

Table 5
The Blood Therapeutic Levels data sheet during and after implementation

Week	Aripiprazole and Metabolite, Serum, (average)	Therapeutic Range (Aripiprazole)	Toxic range (Aripiprazole) Greater than or equal to 1000 ng/mL
1	90 ng/ml	150 – 500 ng/ml	
2	120 ng/ml	150 – 500 ng/ml	
3	150 ng/ml	150 – 500 ng/ml	
4	210 ng/ml	150 – 500 ng/ml	
5	300 ng/ml	150 – 500 ng/ml	

Total = 870 ng/ml

Average = 174 ng/ml

The patient's serum blood levels for Aripiprazole and Metabolite were an average of 90 ng/ml in the first week, 120 ng/ml in the second, 150 ng/ml in the third, 210 ng/ml in the fourth, and 300 ng/ml in the fifth. The total is 870 ng/ml with the mean average of 174 ng/ml.

Table 6

Medication Adherence and Provider Compliance post-implementation of the organizational toolkit.

Positive Medication Adherence among Patients

Week	Number of charts audited	Number of patients that received the MARS questionnaire	Number of patients that picked up refills
2	15	15	12 (80%)
3	17	17	17 (100%)
4	11	11	11(100%)
5	11	11	11 (100%)

Total	54	54 (100%)	54 (94 %)

Over the course of five weeks, a total of 54 charts were audited. 100% of patients received the MARS questionnaire, and all doctors complied with it. 94% of patients continued to take their medications as prescribed after completing the MARS questionnaire.

Summary of the Results

According to the results of this quality improvement initiative, patients receiving psychiatric care at Palm Crest Grand have better medication adherence when the medication adherence tool kit is used. Week two saw an increase in medication adherence to 80% once the intervention was implemented. In weeks three, four, and five, medication adherence increased to 100% with continued use of the intervention. The patient's blood aripiprazole levels were average 83 ng/ml (10/19/23) and 77 ng/ml (10/26/23) two weeks before the implementation, with a average of 80 ng/ml. Aripiprazole levels in the patient's serum blood increased with the intervention from 90 ng/ml in week 1 to 120 ng/ml in week 2, and 150 ng/ml in week 3.It was 210 ng/ml in week four and 300 ng/ml in week five. Medication adherence among male patients diagnosed with schizophrenia was improved by the use of medication adherence tool kits like MARS and the monitoring of the patient's serum blood levels for aripiprazole (Kim, Kim, Cheong, & Kim, 2020). Similar to this, Prerna and Ivan (2020) discovered that using the MARS toolkit helped identify the factors causing male patients with schizophrenia to not take their medications as prescribed. By addressing these factors, medication adherence was improved, which has positive effects.

The project's shortcoming. First off, there was only one walk-in appointment available in week five, out of a total of three. This means that some patients were unable to pick up or refill

their medicine. Poor medication adherence is positively correlated with missing appointments (Hsieh, Yeh, Liu, Li, Lee, & Chien, 2022).

Teaching a total of 22 providers how to use the medication adherence toolkit was the project's strongest point. the high rate of drug adherence resulting from the frequent reminders provided to patients. Utilizing the pre- and post-comparison and blood-level monitoring of aripiprazole, which provides a signal for adjusting drug dosage, was another strength.

Interpretation

The expected and observed results did not differ from one another. It was anticipated that using the intervention would lead to better patient outcomes. The results were expected since the majority of patients had better medication adherence, as seen by the quantity of refills and pick-ups, and because therapeutic aripiprazole and its blood levels of its metabolite serum were elevated. The project required making trade-offs between strategy and expense. The project's implementation might have been expensive, particularly in terms of interviewing and training the medical staff. The personnel who provided the instruction and data collecting, however, helped to offset this expense. Forgoing the adoption of digital technologies, such as electronic health records or patient monitoring tools that are highly effective in predicting medication adherence, was the primary strategic trade-off or opportunity cost associated with putting the intervention into practice (Hsieh, Yeh, Liu, Li, Lee, & Chien, 2022). These technologies were overlooked, even though they are good at keeping an eye on patients and making sure they take their medications according to the prescribed schedule. In this quality improvement project, a novel intervention was evaluated instead to see if it performed better than the technology. Finally, the healthcare system is heavily impacted by pharmaceutical nonadherence. For example, hospitals spend money on medications that are not used because patients don't take them as prescribed.

Other healthcare services may have been enhanced with the use of this money (Strickland, Stoops, Kincer, & Rush, 2019). Nonadherent patients have a significant risk of readmission, which raises the expense of medication for both patients and healthcare providers.

Limitations

Bias and project Design

In this quality improvement project, participant selection could have been a source of bias. Any walk-in adult patient at the psychiatric clinic was the objective of the project lead. While depriving others of the opportunity to join, this strategy would have provided some individuals with an additional advantage. Time restrictions of only 5 weeks led to design limitations for this quality improvement initiative. Only 29 people were chosen because there was insufficient time to gather information from a large sample size. For this reason, it is not possible to extrapolate the findings from this experiment to a sizable population.

Data Collection and Analysis

One significant obstacle to this effort was the Covid-19 limits. Direct physical interaction between the patients and the providers was hampered by the restrictions. The majority of our clients choose to engage via telehealth rather than in-person interactions with clinicians as a result of the COVID-19 most of the time. Frequently, communication took place over the phone, over text messages, and on emails. Researcher bias may have been more likely if the data gathering procedure had failed. As the main technique of data analysis, the project lead employed the total and percentage of patients who picked up their prescription refills as well as the quantity of appointment reminders sent. Without more thorough analysis like regression and

correlation, it was challenging to determine the clinical relevance of the therapies' effectiveness, even though the statistical methods demonstrated their efficacy.

Minimizing and Adjustments for Limitations

To reduce or account for these restrictions, a number of steps were taken. For example, a one-week staff training session was restricted to provide additional time for participant observations, data collection, and analysis. Second, using online tools like Zoom, telephone and WhatsApp to interact with some of the participants increased their desire to take part in the project.

Conclusion

Summary of The Project

Through same-day appointment scheduling and walk-in services, this quality improvement project aimed to determine whether improving physician availability increases patient medication adherence. Along with improving the therapeutic interaction between the patient and the provider, the initiative also sought to establish the use of the MARS questionnaire and organizational tool kit to increase medication adherence. A problem that has a detrimental impact on a patient's prognosis is medication non-adherence, which increases the chance of death for adult patients with schizophrenia as well as relapses, symptom exacerbations, and hospital readmission. Applications power point presentation (Appendix A), blood therapeutic levels data sheet(Appendix B), medication adherence toolkit(Appendix C), walk-in flyer for patients(Appendix D), medication administration record system(Appendix E), and toolkit for medication adherence. Data Collection Sheet (Appendix G) for the Chart Audit Tool; Electronic

Medication Administration Records (eMARs) (Appendix F). The successful execution of the interventions resulted in an increase in medication adherence.

Usefulness of the Work and Sustainability

This quality improvement project is pertinent to the discussion of medication non-adherence among patients, particularly those with schizophrenia diagnoses getting care in psychiatric clinics. One factor that leads to non-adherence to medication is missing appointments and forgetting to pick up medication refills. Therefore, effective treatments for making sure patients take their medications include providing walk-in visits, sending appointment reminders, and delivering medication to patients' homes. To guarantee that clinicians and other clinical personnel send reminders for appointments, provide same-day access for appointments, and accept walk-ins, low-cost training was required. The project's advantages outweigh the expenses of recruiting and educating healthcare professionals or utilizing cutting-edge technology to monitor patients. As patients may receive reminders via email and phone, there are no obstacles in the way of offering walk-in appointments.

Implications For the Practice in Nursing

Nursing Practice

The QI project has implications for nursing practice since it provides strategies that healthcare practitioners can implement to enhance medication adherence. To strengthen their therapeutic alliance with patients, providers ought to make use of the MARS questionnaire and organizational toolkit. The greatest tactic for clinicians to make sure patients remember their appointments and pick up prescriptions is to send them reminders via messages, and telephone call. The problem of non-adherence to medication has an impact on the provision of high-quality care in other healthcare settings as well as for patients with schizophrenia. To guarantee that

clinicians serve all patients with high-quality care, address non-medical adherence in all healthcare settings, and enhance therapeutic interaction between providers and patients, the project's conclusion is essential.

Policy

Development of successful policies to encourage medication adherence in psychiatric settings can be guided by the results of this quality improvement project. It is imperative that policies guarantee that healthcare providers build strong therapeutic alliances with patients by offering walk-in services, same-day appointment scheduling, and therapeutic blood level monitoring for the specific medicine the patient is taking. Encouraging the patients to remember to pick up their prescriptions and receive all necessary attention during their visits to the clinical setting should entail sending out appointment
reminders.

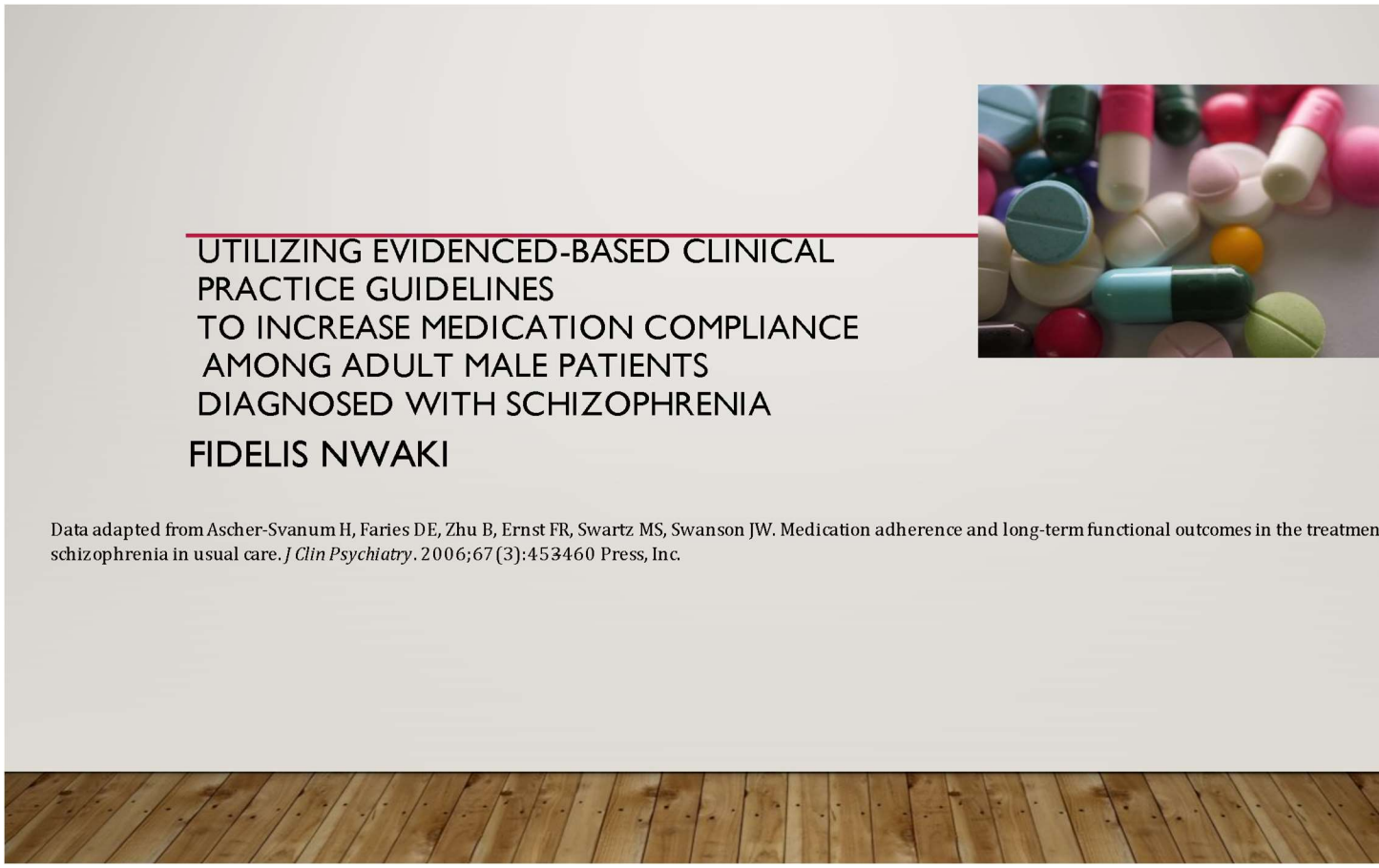
Suggested Next Steps

The results of this project aimed at improving quality ought to be incorporated into the new and existing recommendations for mental health treatment. To determine whether the interventions' results will resemble those of this project's findings, pilot research ought to be carried out. If the outcomes are consistent, the project ought to be carried out in its entirety. A sizable sample size of over 90 people ought to be employed in the future. It is important to employ non-biased participant selection techniques as well as sophisticated data analysis methods like regression and correlation analysis. Being able to share this knowledge with the nursing community and other professionals in the healthcare field via publications and conferences will be a privilege for me.

Appendix

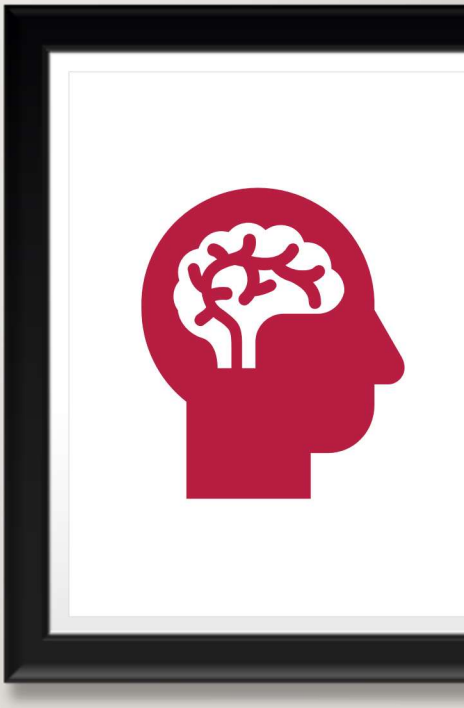
Appendix A

PowerPoint Presentation



WHAT IS SCHIZOPHRENIA

- Less than 1% of Americans are affected with schizophrenia, a chronic brain condition. Delusions, hallucinations, confused speech, difficulty thinking, and a lack of desire are all possible signs of schizophrenia. The majority ofschizophrenia symptoms will significantly improve with therapy, and the risk of a relapse can be reduced.



MEDICATION COMPLIANCE

Medication compliance is the level or extent of adherence to the provider's daily treatmen recommendations with regards to the schedule, dosage, and frequency of medication

The need for medication compliance

- It is essential to take your prescription exactly as prescribed for the treatment of acute disorders, the management of chronic problems, and the maintenance of general long-term mental health and well-being. A close relationship with your doctor is essential for medicatio compliance.

THE CAUSES OF MEDICATION NONADHERENCE AMONG SCHIZOPHRENIA

- These include the direct effects of symptoms (such as sadness, cognitive impairment, a positive and negative symptoms), attitudes and ideas about the nature of the illness, a lack of illness awareness (poor insight).
- Social isolation, stigma associated with substance abuse, and the growing dispersion o mental health treatment in many nations are all factors.

CONSEQUENCE OF NONADHERENCE TO ANTIPSYCHOTIC MEDICATION

Hospitalization for mental health issues is more common
Use of emergency psychiatric care, arrests, violence, and victimization all increased.
increased drug use
decreased mental acuity and life satisfaction
alcoholism-related issues
worse results
Relapse risk, suicide attempts, and self-harm attempts are all on the rise.
Aggression both toward oneself and others has grown. high cost of healthcare

COSTS OF NONADHERENCE DATA SOURCES

- Data adapted from Ascher-Svanum H, Faries DE, Zhu B, Ernst FR, Swartz MS, Swanson JW. Medication adherence and longterm functional outcomes in the treatment of schizophrenia in usual care*J Clin Psychiatry*. 2006;67(3):453–460 Press, Inc.

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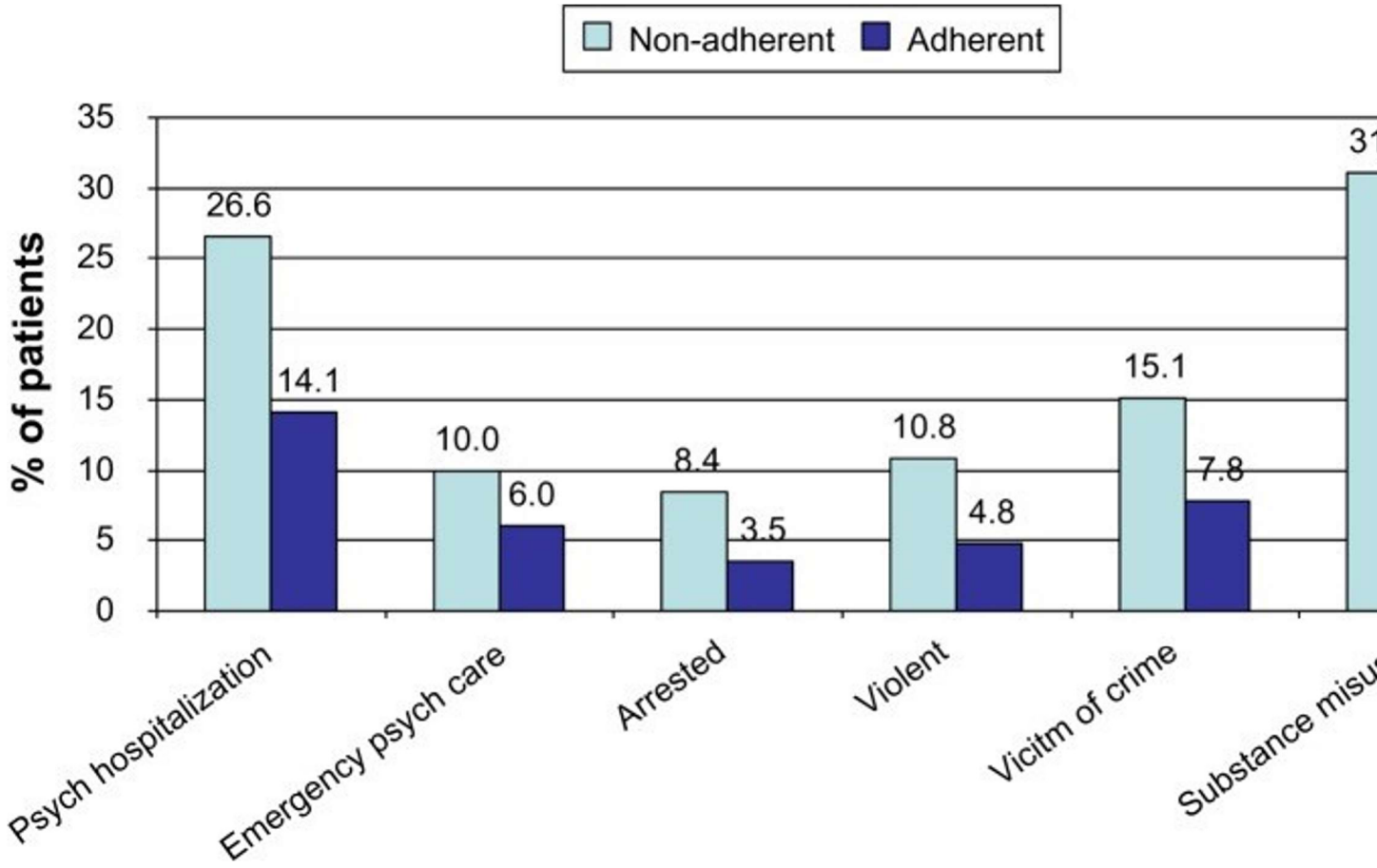
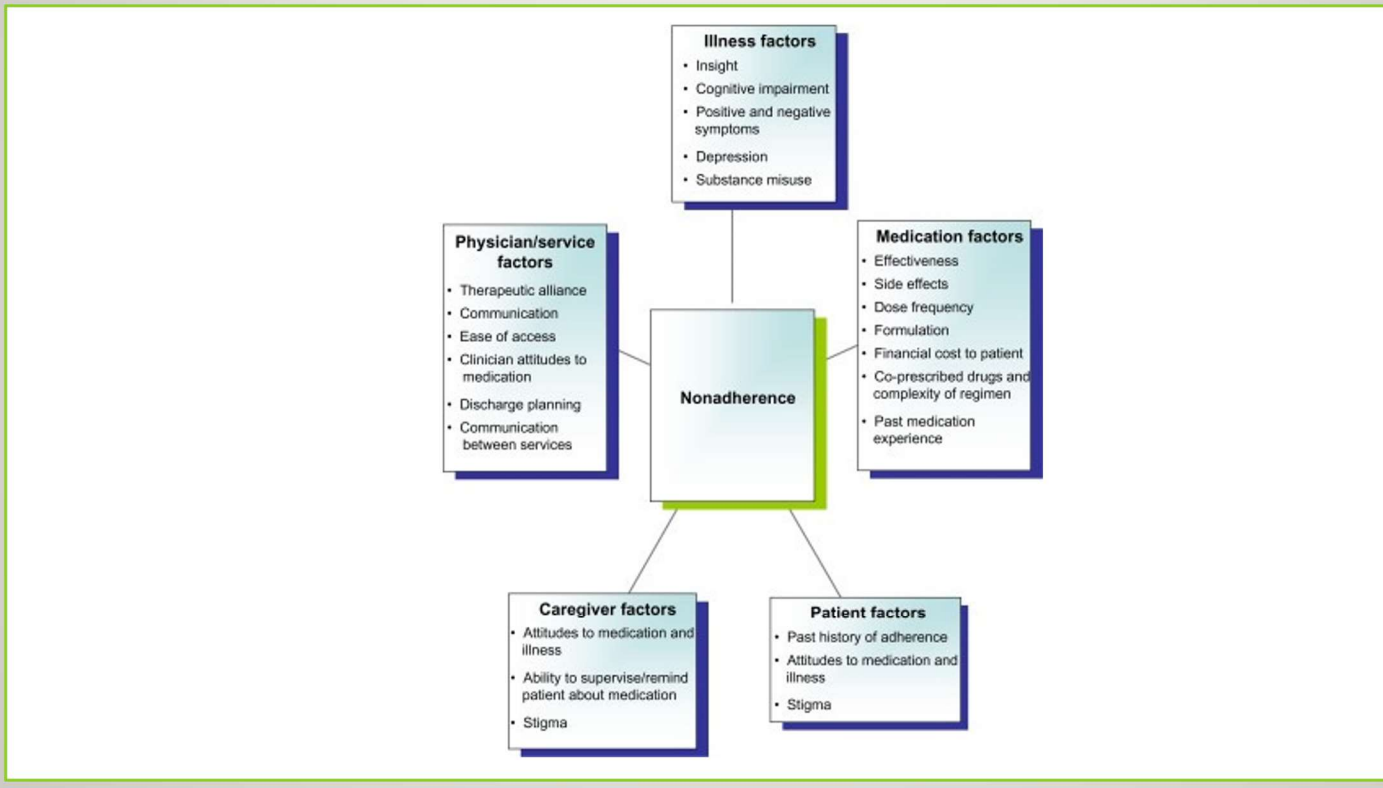

Non-adherent
Adherent
% of patients
35
30
25
20
15
10
5
0
26.6
14.1
10.0
6.0
8.4
3.5
10.8
4.8
15.1
7.8
Psych hospitalization
Emergency psych care
Arrested
Violent
Vicitm of crime


Illness factors
• Insight
• Cognitive impairment
• Positive and negative symptoms
• Depression
• Substance misuse
Physician/service factors
• Therapeutic alliance
• Communication
• Ease of access
• Clinician attitudes to medication
• Discharge planning
• Communication between services
Nonadherence
Medication factors
• Effectiveness
• Side effects
• Dose frequency
• Formulation
• Financial cost to patient
• Co-prescribed drugs and complexity of regimen
• Past medication experience
Caregiver factors
• Attitudes to medication and illness
• Ability to supervise/remind patient about medication
• Stigma
Patient factors
• Past history of adherence
• Attitudes to medication and illness
• Stigma

Methods of assessing medication adherence

- **Objective adherence assessment**
- drug container with electronic monitoring, such as pill counting
- biological indicators
- intake was noticed.
- Ratio of medication ownership
- plasma levels of medications
- **Subjective adherence assessment**
- The clinicians' perception of adherence (typically based on the effectiveness of the treatment and its side effects)
- patient report or other data
- Patient medication intake journal
- survey questions, for instance MARS

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Appendix B

The Blood Therapeutic Levels Data Sheet

Therapeutic Blood Levels Data Sheet			
Therapeutic Range (Aripiprazole) **150-500 ng/mL**		Toxic range (Aripiprazole)	Greater than or equal to 1000 ng/mL
2 weeks before implementation	Serum blood levels for Abilify (Aripiprazole) with 10 mg tablet		Possible reason for blood levels
Date---Patient #			

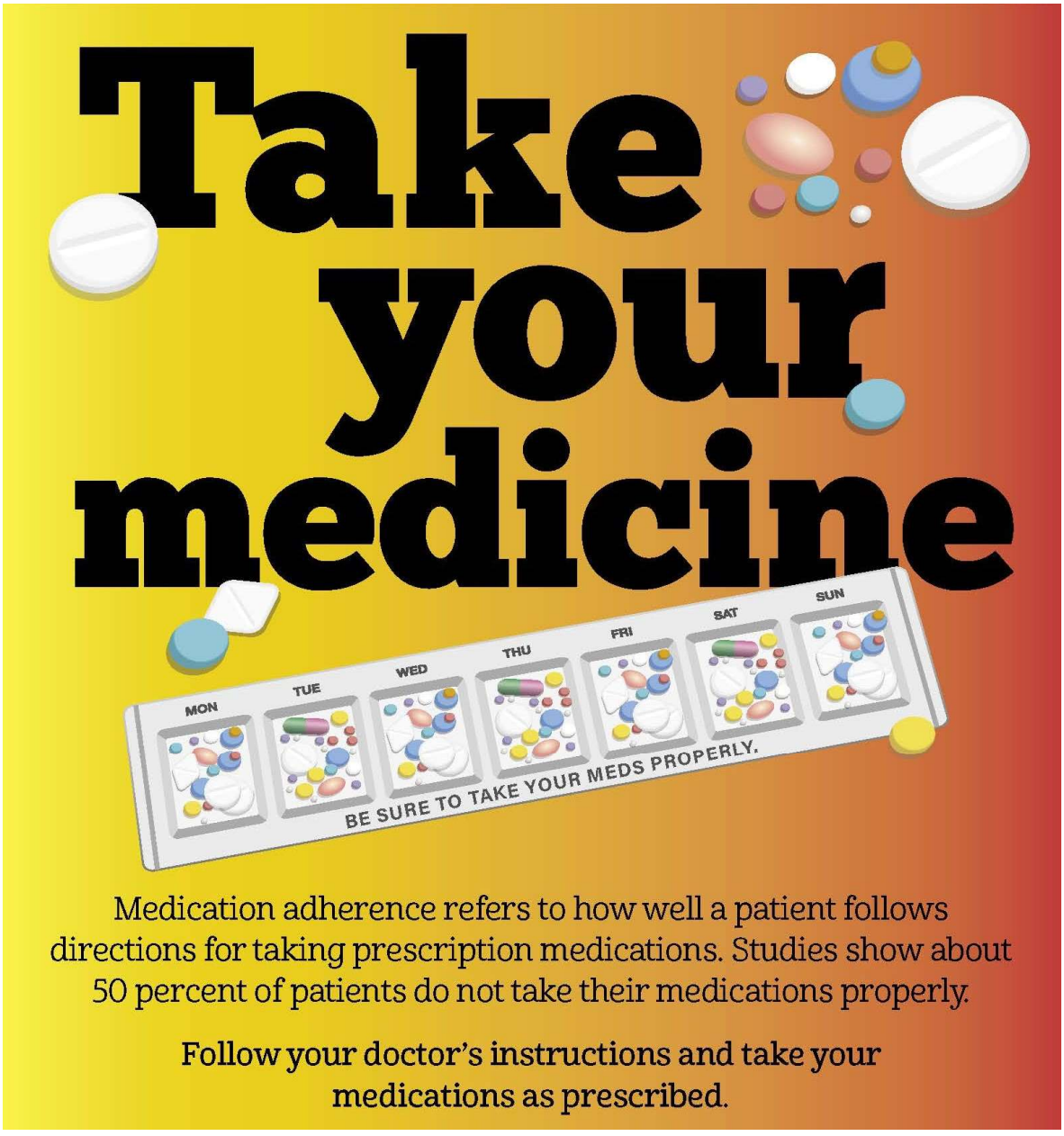
Therapeutic Blood Levels Data Sheet				
Therapeutic Range (Aripiprazole) **150-500 ng/mL**		Toxic range (Aripiprazole) Greater than or equal to 1000 ng/mL		
2 weeks post implementation	Serum blood levels for Abilify (Aripiprazole) with 10 mg tablet		Possible reason for blood levels	
Date---Patient #				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Appendix C

The Medication Adherence Toolkit

Appendix D

Walk-In Flyer for Patients



New Walk-In hours Thursdays 12 noon- 2PM
For any questions concerning your medications, please call the clinic at
213- 507- 0814

Appendix E

Medication Administration Record System

MARS questionnaire

	Question	Answer
1	Do you ever forget to take your medication?	Yes / No
2	Are you careless at times about taking your medication?	Yes / No
3	When you feel better, do you sometimes stop taking your medication?	Yes / No
4	Sometimes if you feel worse when you take the medication, do you stop taking it?	Yes / No
5	I take my medication only when I am sick	Yes / No
6	It is unnatural for my mind and body to be controlled by medication	Yes / No
7	My thoughts are clearer on medication	Yes / No
8	By staying on medication, I can prevent getting sick.	Yes / No
9	I feel weird, like a 'zombie' on medication	Yes / No
10	Medication makes me feel tired and sluggish	Yes / No

Appendix F

Electronic Medication Administration Records (eMARs)

Appendix G

Chart Audit Tool Data Collection Sheet

A	B	C	D	E
Chart Audit Collection Tool				
Provider ID	**Provider Adherence to protocol YES or No**	**Patient #**	**Adherence to Medication Worksheet YES or NO**	**Follow up appointment Method of contact (Email, Phone, Office/Tele visit, or walk-in)**

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