A Quality Improvement Project to Improve Medication Adherence for Adults in a Psychiatric Clinic Setting

By

Keisha Baxter

Touro University, Nevada

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DNP Project Team: Dr Astrella and Dr. Santacroce

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Abstract

Problem

The problem under investigation is non-adherence to medication among adult patients in a psychiatric clinic.

Background

Lack of access to psychiatric providers and care is a significant factor contributing to poor medication adherence. Other factors that influence non-adherence to medication are demographic characteristics such as age, new treatment plans, forgetfulness, financial constraint and non-involvement in social activities, alcohol dependence, homelessness, lack of family support, and ethnicity (with African Americans being primarily affected) (Thakkar et al., 2016). Non-medication adherence causes relapse, exacerbation of symptoms, rehospitalization and increased risk of death among adults receiving psychiatric care (Semahegn et al., 2020). Trezona et al. (2017) note that compliance occurs when patients take 80% of their medications whereas partial adherence is when patients take 50% of their drugs. Non-adherence is when they fail to take medicines for one week or more. A positive therapeutic relationship between providers and patients is needed to increase medication adherence. A low therapeutic relationship has been

associated with a high rate of non-adherence to medications. Thus, providing access to health care will assist in removing barriers that contribute to non-adherence to drugs.

Methods and Interventions

The project was conducted at a psychiatric clinic and the staff was informed about their role in the quality improvement project (QIP). The QIP had three interventions. The first was focused on improving provider-patient relationship. Providers were educated on the medication adherence toolkit to ensure the successful implementation of the intervention. The Medication Administration Record System (MARS) questionnaire, administered by psychiatric clinic providers, was used to assess patients' medication adherence. Medication compliance data was gathered through a weekly chart review audit of 10 charts using Azzly to determine if patients picked up their refill from the pharmacy.

The second intervention was sending appointment reminders to the selected patients. The final intervention was offering same-day access for appointments and walk-in services. The front desk then sent out walk-in appointments on Wednesdays and Thursdays, with patients receiving ten appointments daily. Data was analyzed using descriptive statistical methods such as sum and percentages.

Results

A total of 40 charts were audited over the five weeks, revealing that 32 patients (80%) picked their medication refills. A total of 455 appointment reminders were sent out to the

patients. Four walk-in appointments were available for weeks 2, 3, 4, and 5. Out of the 16 appointments, there were seven patient walk-ins, representing 44%.

Conclusion

The results showed that the intervention led to an 80% increase in medication adherence among adult patients in a psychiatric clinic. The QIP, therefore, demonstrates the importance of improving the provider-patient relationship and offering same-day access for appointments and walk-in services to address non-medication adherence among patients. Psychiatric providers and clinics should consider offering same-day access for appointments and walk-in services to patients as an approach to improving the delivery of quality care.

Keywords: Medication adherence, medication non-adherence, walk-in appointment, appointment reminders, Medication Administration Record System, and Medication Adherence toolkit

Strengthening the therapeutic alliance is a critical step in increasing the rate of medications adherence (Chang et al., 2019). Patient engagement is a process that connects mental health patients with people who support patient recovery and wellness in both the family and community context (Chang et al., 2019). Adherence to psychiatric drugs is essential for the alleviation of psychotic symptoms. The effectiveness of first-line antipsychotic medications is approximately 70 to 80 percent for patients diagnosed with a psychiatric illness such as schizophrenia; however, non-adherence to the treatment regimen was found to lower the effectiveness by an estimated 50 percent (Thakkar et al., 2016). Strengthening the therapeutic relationship entails creating a successful engagement of patients by providing a safe environment that promotes a collaborative relationship. The process of creating collaborative relationships begins when nursing staff understands a recovery-oriented and trauma-informed approach to care. Additionally, nursing staff should be equipped with the necessary skills to educate and guide patients and families on the importance of adhering to the treatment regimen (World Health Organization, 2016).

Non-adherence to the treatment regimen ranges from a patient refusing to take medications due to their belief that they do not need it to patients who acknowledge the need for medication, but are non-adherent due to lack of access or forgetfulness (Pool et al., 2017). According to Trezona et al. (2017), patients are considered adherent if they take more than 80 percent of medications prescribed and patients who take 50 percent of prescribed medications are

described as having partial adherence. Medication professionals define non-adherence as being off of medications for one week or longer (Pool et al., 2017).

This project involves increasing provider availability by offering same-day access for appointments and walk-ins (National Council for Mental Wellbeing, 2018). Providing access to health care will assist in removing barriers that contribute to non-adherence to medications among the mentally ill population (National Council for Mental Wellbeing, 2018). The project aims to strengthen medication adherence through a shared decision-making process between the provider and medication staff. The project will also provide feedback through evaluation and monitoring improved medication adherence and patients' health care outcome (Trezona et al., 2017).

Background

The objective of this project is to have a practical approach that addresses the problem of non-adherence with medications among adults in a psychiatric clinic. The main intervention is increasing provider availability by offering same-day access for appointments and walk-in services to improve adherence to medications (National Council for Mental Wellbeing, 2018). The major problem affecting psychiatric patients is lack of access to psychiatric providers and care leading to poor medication adherence. Non-adherence to medication is associated with increased suicide attempts, persistent symptoms, and relapse of psychosis (Thakkar et al., 2016). The decision of taking antipsychotic medications is a complex phenomenon that involves the

provider, environment, patient, and other medication-related factors (Thakkar et al., 2016). Patient-related factors include demographic characteristics such as age, new treatment plans, financial constraint and non-involvement in social activities. Additional patient factors include; alcohol dependence, and homelessness. African Americans and Hispanic patients represent the largest ethnic groups with consistently poor medication adherence. Additionally, adults who lack family support contributed to medication non-adherence (Thakkar et al., 2016).

Perceptions about medications and illness are significant factors influencing psychiatric medication adherence (Trezona et al., 2017). For instance, patients who have insight, awareness and a positive attitude regarding the importance of medication in alleviating symptoms have a higher adherence rate (El-Mallakh & Findlay, 2015). Several studies support the need for a positive therapeutic relationship in improving medication adherence (Conn & Rupper 2017; Trezona et al., 2017). According to Conn & Ruppar (2017), a therapeutic alliance can increase medication adherence significantly. Trezona et al. (2017) posit that a low-level therapeutic relationship increased the rate of non-adherence to medications.

Problem Statement

According to the World Health Organization (2016), half of the psychiatric medications prescribed are misused. In addition, non-adherence to medications is not only costly on individuals and the health care system, but has led to increased hospitalization, chronic illnesses, disruption of lifestyle, and premature death (World Health Organization, 2016). According to

Conn and Ruppar (2017), non-adherence to medications seven days after discharge from inpatient hospitalization was associated with readmission within 30 days of discharge. Additionally, non-adherence to medications was associated with a lengthy hospital stay (Conn & Ruppar, 2017). In terms of cost, non-adherent inpatients incurred three times higher overall costs compared to adherent inpatients stay (Conn & Ruppar, 2017). Psychiatric disorders are a major public health care challenge and are increasing globally (Semahegn et al., 2020). The problem is exacerbated by non-adherence to medications, which the World Health Organization estimates affect nearly half of the medications prescribed. Improving medication adherence is critical in addressing the issue of psychiatric disorders, particularly among the adult population. Pool et al. (2017) points out that non-adherence to the treatment regimen ranges from patients refusing to take medications due to their belief that they do not need it to patients who acknowledge the need for medication but are non-adherent due to lack of access or forgetfulness. The issue of non-adherence to medications can be addressed using multiple strategies including, but not limited to, increasing provider time by offering same-day access for appointments and walk-in services. This strategy aims to create a therapeutic relationship that is a critical tool available to health care staff, especially in psychiatric clinics. The therapeutic relationship is a helping relationship, full of trust, and it connects the health care staff with the patient and the patient's family.

Project Question

For adults in a psychiatric clinic, does increasing provider availability by offering same-day access for appointments and walk-in services improve medication adherence in a 4-week period by implementing a protocol utilizing national guidelines?

Review of Literature

Search Methods

The literature review presents a foundation for improving medication adherence, that is, guided by the question. “For adults in a psychiatric clinic, does increasing provider time by offering same-day access for appointments and walk-in services improve adherence to medications in a clinical setting?” A literature search found eight articles using the terms: “non-adherence”, “medication knowledge”, “medication adherence”, Allied Health Literature (CINAHL) Plus, ERIC (Educational Library), PubMed, Cochrane library, and MEDLINE search engines were utilized. Inclusion criteria were: meta-analyses and randomized clinical trials involving adult patients with psychotic disorder that aimed to improve medication adherence. Exclusion criteria were publications more than six years old or those that involved children or adolescents below 18 years old. The final number of articles selected for this literature review was sixteen.

Review of Study Methods

The study methods include a review of twelve articles on psychiatric medication adherence, a systematic review of literature, a prospective study of psychotic medication adherence, controlled trials, meta-analyses statement, the Cochrane Collaboration reporting items for systematic reviews, and a quantitative study that improves medication adherence. The choice of study was based on reliability and validity to the current improvement project.

Review Synthesis

The article by Ameel et al. (2019) was selected because it involved nursing care in an adult outpatient psychiatric care facility. Bazargan et al. (2017) was selected because it reported non-adherence to medication regimens among adults. Phan (2016) and Caqueo-Urízar et al. (2021) involved studies on schizophrenia. Caqueo-Urízar et al. (2021) reported the effects of adherence to medication on the recovery of patients with schizophrenia. The article by Conn and Ruppar (2017) was selected because it reviewed interventions to improve medication adherence. Chang et al. (2019) and Moreno-Poyato et al. (2018) studies were selected because they involved adherence and therapeutic alliance in inpatient psychiatric care. The Semahegn et al. (2020) study was selected because it involved psychotropic medication non-adherence in major psychiatric disorders. Thakkar et al.'s (2016) study was selected because it involved using technology (mobile telephones) to improve medication adherence. The Trezona et al. (2017) study was selected because it involved the development of an organizational literacy responsiveness framework to improve the quality of health care.

According to Kini & Ho (2018), adults with chronic illnesses account for 30-50% of prescribed medications misuse. In addition, Kini and Ho (2018) posit that medication non-adherence in the United States causes 10% of hospitalizations along with 125,000 deaths, and $100 billion dollars in health care services annually. According to Semahegn et al. (2020), psychiatric disorders are a significant public health concern globally that contributes 14% of the disease burden. In addition, medication non-adherence to psychiatric medication is considered a significant challenge in managing psychiatric disorders (Semahegn et al., 2020). Adherence to psychiatric drugs is essential for the alleviation of psychotic symptoms in patients (Semahegn et al., 2020).

Factors that Impact Medication Adherence

Patient Awareness and Perceptions. El-Mallakh and Findlay (2015) have shown that patients who have insight and awareness of the importance of medications in alleviating symptoms have a higher adherence rate. El-Mallakh and Findlay (2015) posit that patients with a positive attitude toward medications and understand that medications effectively alleviate symptoms can contribute to adherence.

Side Effect Management. The primary cause of poor adherence was cited as intolerable side effects (El-Mallakh & Findlay, 2015). The primary cause of poor adherence was cited as intolerable side effects (El-Mallakh & Findlay, 2015). Neumeier et al. (2021) posits that side effects of antipsychotic drugs play a significant role in non-adherence of treatment. Some

antipsychotics have problematic side effects, such as elevated prolactin levels, sedation, and extrapyramidal symptoms. According to Stroup & Gray (2018), adverse effects of antipsychotic drugs that are not life threatening can be managed by lowering the dose or adjusting the dose. Ameel et al. (2019) has highlighted the need for patient support to recognize the benefits of medications in reducing psychotic symptoms and the need to regain their mental health wellness.

Therapeutic Relationship with Prescribers. Trezona et al. (2017) posit that a low level of the therapeutic relationship increases the rate of non-adherence to medications. Results of studies by Pool (2017) and Moreno- Poyato et al. (2018) show support from prescribers regarding medications, understanding the patient perspective, providing information about side effects of medications, and addressing patient concerns about medications that can increase the adherence rate. Moreno-Poyato et al. (2018) also noted the significance of using evidence-based practices to improve the therapeutic alliance among nurses in the clinical psychiatric setting. The study showed that improving the therapeutic alliance reflects a greater sense of usefulness in patient care (Moreno-Poyato et al., 2018).

Conn and Ruppar (2017) suggest that a therapeutic alliance can significantly increase medication adherence. Therapeutic alliance creates patient engagement in connecting mental health patients with people who support patient recovery and wellness. Patient engagement is a critical step in increasing the rate of medication adherence. Adherence to psychiatric medication is essential for alleviating psychotic symptoms in patients. Ameel et al. (2019) pointed out the critical role related to medication adherence defined by nurses, including medication planning,

providing medication education, providing individualized adherence interventions, tracking patient adherence, and assessing medication effectiveness.

Social Determinants of Health Pool et al. (2017) found that a negative wealth shock in adults resulted in high levels of stress that increased the rate of medication non-adherence. Pool et al. (2017) suggested infusion of personal and policy factors that may buffer the mental health risks of negative wealth shock, such as social support and social welfare policy. Bazargan et al. (2017) studied elderly African Americans and showed that thirty-five percent of participants reported missing taking at least one of their medications within the last three days of study. Bazarga et al. (2017) reported issues that affected adherence to drugs, including medication duplication, high rate of polypharmacy, and potentially inappropriate medication use. Factors associated with medication adherence include memory deficits and medication-related knowledge.

Strategies for Improving Medication Adherence

Improving medication adherence among patients with psychiatric disorders requires complex policy formulation and implementation strategies. Kini and Ho (2018) identified six intervention categories and their corresponding practical applicability. They include patient education (recurrent personalized counseling), clinical pharmacist consultation (education and disease monitoring), cognitive-behavioral therapies (motivational interviewing), medication-taking reminders (electronic drug monitoring) (Kini & Ho, 2018). Patient engagement is a

process that connects mental health patients with people who support patient recovery and wellness with family and community context (Kini & Ho, 2018). The interventions mentioned above have a close relationship with the Organizational on Medication Adherence Toolkit (National Council for Mental Wellbeing, 2018). The toolkit's areas include strengthening the therapeutic relationship, assessing factors relating to medication non-adherence, assessing the population at higher risk for non-adherence, measuring and monitoring individual-level medication adherence, and interventions to support medication adherence. The initiative involves increasing provider time by offering same-day access and showing that walk-in services can significantly improve medication adherence among psychiatric patients.

Patient and Family Engagement. Family plays a critical role in improving medication adherence among patients with a psychiatric disorder. Strengthening the therapeutic relationship and engaging patients is a critical step in improving medication adherence. It forms a healing connection with people that support patients' recovery process with family and community context (National Council for Mental Wellbeing, 2018). Therapeutic relationship is strengthened by creating a safe environment that supports successful patient engagement. Bombard et al. (2018) observes that patients and their families can be engaged in various levels to create a positive working environment. Additionally, patient engagement empowers patient through education and information which helps to enhance service delivery and governance. Menear et al. (2020) posit that collaborative mental healthcare is an effective approach to managing common mental health disorders. Patient and family engagement creates an active

partnership that results in improved health care. According to Svendsen et al. (2021), most mental health treatment guidelines encourage systematic family involvement to enhance recovery-oriented psychiatric care. Support for the patient caregiver relationship and caregiver information, and caregiver involvement in decision making associated with high patient improvement (Svendsen et al., 2021).

Health Literacy and Patient Education. Health literacy is vital in creating a strong therapeutic relationship. According to Trezona et al. (2017), health literacy can create an informed population that can strengthen medication adherence through a shared decision-making process between the provider and medication staff. Patients with insight and awareness of the importance of medication in alleviating symptoms have a higher adherence rate (Caqueo-Urízar et al., 2021). Trezona et al. (2017) have shown that perceptions about medications and illness are significant factors influencing adherence. Besides, patients with a positive attitude toward medications and anticipate that medications effectively alleviate symptoms can contribute to adherence. Moreno-Poyato et al. (2018) noted the significance of using evidence-based practices to improve the therapeutic alliance among nurses in the clinical psychiatric setting.

Patient education by health care providers is significant in addressing the issue of medication non-adherence. Thakkar et al. (2016) described the decision of taking antipsychotic medications as a complex phenomenon that involves provider, environment, patient, and medication-related factors. A patient-centered approach will assist the patient in improving perceptions and medications. Perceptions about medications and illness are significant factors

influencing adherence (Trezona et al., 2017). For instance, patients who have insight and awareness of the importance of medication in alleviating symptoms have a higher adherence rate (Semahegn et al., 2020). Patient education creates a positive attitude toward medications and anticipates that medications effectively alleviate symptoms and can contribute to adherence.

Maximizing the Use of Technology.

Medication adherence can be improved by utilizing available technology. The technological tools that can be utilized to help patients improve medication adherence include compatible devices, mobile telephone applications, reminder alarms, and pill implants. Thakkar et al. (2016) sought to estimate the effect of text messaging on improving adherence to medication in adults with chronic disease. Findings from the study showed that text message-based interventions could improve medication adherence. In addition, personalized text messages that included participants' names were more effective than a generalized text message. Improving medication adherence requires a combination of strategies; however, implementing multiple strategies is unrealistic in clinical practice because of complexity and resource requirements. Thus, text message-based interventions are a straightforward approach to improving medication adherence.

Educating Healthcare Provider on Managing Side Effects

Health care providers should possess adequate skills and knowledge necessary to provide education to patients and family members. Providing education to the patients and families is a

major factor in improving medication adherence. Semahegn et al. (2020) posit that the major cause of poor adherence is intolerable side effects. Patients and families should be aware that some antipsychotics have problematic side effects, such as elevated prolactin levels, sedation, and extrapyramidal symptoms (Semahegn et al., 2020). According to the World Health Organization (2016), providing adequate education to the health care providers can improve medication adherence, improve the quality of health care service, and reduce disease burden on the health care system. Education can strengthen medication adherence through a shared decision-making process between providers and medication staff. Education allows the caregiver and the patient to share information while making health care decisions.

Impact of the Problem

Non-adherence to medication is a critical issue that can exacerbate symptoms, relapse, rehospitalization, and increase risks of death. Psychoeducational approaches must be integrated with behavioral interventions to make them effective (Phan, 2016). In addition, the patient's support system should be combined with other interventions to improve adherence to medications.

Addressing the Problem

Trezona et al. (2017) have shown that a low therapeutic relationship increases the rate of non-adherence to medications. According to Ameel et al. (2019), nurses have a critical role in addressing the problem of medication non-adherence. Ameel et al. (2019) emphasize the

nurse's roles that include medication planning, providing medication education, providing individualized adherence interventions, tracking patient adherence, and assessing medication effectiveness in improving medication adherence. According to Ameel et al. (2019), support from prescribers regarding medication, understanding the patient perspective, providing information about side effects of medication, and addressing patient concerns about medications that can increase the adherence rate (Ameel et al., 2019).

Project Aim

The aim of this project is to improve medication adherence in the adult population at a psychiatric clinic setting in Virginia Beach.

Project Objectives

The project objectives will be achieved within the timeframe of this DNP project:

1. To implement using an Organizational Toolkit on Medication Adherence to increase medication compliance among patients.
2. Educate RN, MA, Psychiatrist, NP about the guidelines for medication adherence utilizing a PowerPoint presentation.
3. Increase provider availability by offering walk in services on Wednesdays and Thursdays from 2 pm- 4pm.

4. Show a 7% decrease in patient no shows to appointments by sending out appointment reminders using several different methods such as text messaging, email, phone call. Reminders will be sent no more than three times about their appointments.
5. Show improved medication adherence within four weeks of implementation. Evaluate medication adherence by using self-reporting questionnaires and reviewing pick up/refills through the Rocopia medication system that verifies when medications were last filled.

Conceptual Model

Historical Development

In this project, the Medication Adherence Model by Johnson (2017) was used (Appendix A) because it helped infer, guide, and design a quality improvement project on medication adherence (Alomi & Al-Shubbar, 2019). The Medication Adherence model was created by Johnson after he found out that existing models did not focus on factors related to adherence. Because this quality improvement project aims to improve medication adherence, the Medication Adherence Model was an appropriate choice. This model provides in detail the various processes that patients pass through during the adherence period and helps practitioners address problems associated with patient non-adherence (Amir et al., 2018). The model addresses two key ideas when it comes to non-adherence. The first is the intentional decision when a patient forgets to take the dose or decides to miss the medication (Amir et al., 2018). The second idea is,

unintentional interruptions when patients miss drugs due to limited or no access to drugs (Alomi & Al-Shubbar, 2019).

Application to DNP Project

The medication Adherence Model produced three concepts that helped in intervention design: feedback, patterned behavior, and purpose action (Alomi & Al-Shubbar, 2019). These concepts aid in describing medication adherence and help providers of healthcare assess taking of medication among patients. Since the structure of the model addresses two ideas, adherence, and non-adherence, it fits into this project since sustaining and initiating adherence in medication depends on decisions made by patients (Namiki, 2021). These decisions depend on the need perceived and safety effectiveness which forms part of purposeful action. Patients then establish patterns of taking medication through remembering routines and access (patterned behavior) (Namiki, 2021). Patients use information, events or prompts (feedback) for the process of appraisal to evaluate treatments which in return dictates levels of patterned behavior and purposeful action (Namiki, 2021).

Purposeful Action

According to Johnson (2017), the concept refers to decision processes that patients pass through to intentionally or cognitively take drugs or medication based on need perceived, safety, and effectiveness. It implies that the quality improvement project needs to reinforce medication education to enable patients to understand the safety and effectiveness of drugs to stimulate purposeful action.

Patterned Behaviors

The concept focuses on habit, ritual, and pattern adopted with patients on medications (Johnson, 2017). Aiding tools such as the appointment reminders provided to non-adherent individuals helped in developing patterning behaviors to increase medication compliance.

Feedback

In this concept, change in adherence depends on the degree to which facts, information, events, or prompts dictate a patient's decision to quit or stay on medication (Johnson, 2017). According to Johnson (2017), this concept refers to a patient's outcome response to the need, safety, and effectiveness of the medication. Therefore, improvements in quality improvement projects would create increased chances for patients to access feedback for long-term adherence. This project adopted this theoretical framework because purposeful action leads to pattern behavior which triggers and determines adherence degree. Efforts adopted by patients while adhering to medication create negative or positive reinforcements with feedback pattern behaviors and purposeful action, driving the patient to progressive adherence.

Setting

The setting is an outpatient psychiatric clinic located in Virginia Beach VA. This clinic provides medication management, psychosocial and rehabilitative programs, and individual and family counseling to patients aged 18-75 years. The clinic serves

approximately 20,000 patients and sees more than 200 patients daily; the population served is approximately 5% Hispanics, 80% Caucasians, 10% African Americans, and 5% Asians. The clinic currently uses Azzly EHR. The EHR system will be used to verify the last time medications were picked up from the pharmacy.

Population of Interest

This quality improvement project is centered on psychiatric health providers and support staff who will implement the medication adherence guideline toolkit and serve as the direct population. There are currently 12 prescribing behavioral/mental health providers at this facility, who will be educated on utilizing the medication adherence guideline. There are also two front desk clerks, two medication assistants, a biller and a lab technician who help the mental health providers complete their duties. These workers schedule appointments and send out follow up appointment reminders.

Psychiatrists, physician assistants, nurse practitioners, front desk clerks, medication assistants, biller and lab technicians working at the behavioral outpatient clinic participating in the Quality Improvement Project (QIP) during the time of the project implementation are included. Non-prescribing employees of the clinic, including therapists and qualified Mental Health Professional-Community Services (QMHP-CS), intake staff, patient services, and administrators, and billing staff of the clinic are excluded. The indirect population for this project is adult patients of the clinic from ages 18-75 years that seek clinic services during the time of project implementation.

Stakeholders

The stakeholders for this project consist of the Chief Executive Officer (CEO), management of the behavioral clinic, Chief Operating Officer (COO), psychosocial rehabilitation specialists, office manager, and adult patients of the clinic from ages 18-75 years. All stakeholders will be notified about the project and asked to share their feedback and suggestions throughout the project implementation.

The project lead has received the approval of the project from the CEO of the behavioral clinic, and the COO. For communication during the project planning and implementation phase, stakeholders and patients will receive an official email, and a text message will be sent via the GroupMe provider's app. Information about the project will be provided and will allow stakeholders to ask questions and state their concerns. There is no affiliation agreement needed for this site.

Intervention

The timeline for this quality improvement project will be five weeks. The medication providers will be notified about the project via the GroupMe app, and given that this is a quality improvement project, the education session will be provided to all staff (NPs, Psychologist, and Psychiatrist, Physician Assistant, RN) within the organization. An evidenced-based protocol for providers prescribing medication to enhance medication adherence was developed.

Week 1: The project lead will meet with staff, to provide education on the guidelines and utilization of an organizational toolkit on medication adherence to increase medication compliance among patients. This will be done in person by a PowerPoint presentation. Project implementation begins after education is complete.

Week 2-4: Weekly chart reviews and implementation of the evidenced-based toolkit that outlines the process for providers (Nurse Practitioners, Psychiatrist, and Psychologist, Physician Assistant) to follow in managing medication adherence in adult patients at the practice site will begin. Phone call, text message and email reminders through the automated system of provider availability for walk in services on Wednesdays and Thursdays from 2 pm- 4pm.

The project lead will meet with the providers as needed every week to assess adherence to the protocol, check on the progress, and outcomes of the implementation and evaluation.

Week 5: Assess medication adherence by reviewing pick up/refills of the patients that were seen in Weeks 2-4.

Tools

The tools that will be used for this project will include the Medication Adherence toolkit (Appendix B), (Appendix C) Medication Administration Record System (MARS) Questionnaire tool (Appendix D), Chart audit tool.

Methods

Study of Interventions/Data Collection

The participants in the project will be adults who visit a psychiatric clinic. All participants who walk into the psychiatric clinic will be considered potential participants as long as they are over the age of 18 years and can decide whether to participate in the project. The project will target a minimum of fifty participants. The staff will be informed of the goal of the quality improvement project (QIP) and their potential role during the process. The staff will also be allowed to raise questions about the project and their role. Measures will be implemented to protect the identity of the participants and the confidentiality of the information that they provide. Various sources will be used for data in this project.

Medication Adherence

The Medication Administration Record System (MARS) questionnaire will be used by staff during their clinical visit to assess for medication adherence. The MARS questionnaires will be printed, and multiple copies will be placed in the patient feedback tray in 5 provider's offices. The completed MARs questionnaires will be used as a compliance tool to assess medication adherence. Once the MARs questionnaires are completed after the session with the providers, they will be stored in a folder at the front desk to be reviewed weekly. In the setting for this project, medication compliance data will be gathered through a chart review audit of 10 charts which will be conducted on a weekly basis using Azzly to determine if they picked up their refill from the pharmacy.

Staff Education

Second, the staff will receive education from the medication adherence toolkit for the first week to be able to efficiently implement the intervention. The number of staff receiving the education and training will be counted through direct head count during each education session. A total of 18 staff will undergo the education exercise, including 12 providers, two front desk clerks, two medication assistants, a biller, and a lab technician. The participants will be extensively educated on every crucial aspect relating to improving active engagement and medications adherence among patients. Attendance is expected to be 100%, i.e., all 18 participants are expected to attend all the lessons incorporated in the staff education program.

Appointments

The number of walk-in appointments that will be offered on Wednesdays and Thursdays to the targeted patients will be a total of 10 appointments for both days. The figure will then be compared to the exact number of patients who actually show up during the walk-in schedules. The front desk is expected to send out appointment reminders to the respective patients. The number of appointment reminders that are sent out daily is 150. Letters were sent out to each patient at the practice to notify them of walk-in appointments on Wednesdays and Thursdays between the hours of 2pm-4pm.

Ethics/Human Subjects Protection

Informed consent and Institutional Review Board approval will not be necessary for the project at this site. Measures will be implemented to protect the privacy and confidentiality of the

participants and to ensure that this is carried out ethically. First, participation in the project will be voluntary. All participants will be informed of the nature of the project and their rights as participants before participating.

Secondly, the project will not involve the use of identifiable patient information such as names, social security numbers, or addresses. Confidentiality will be ensured by assigning providers and patient number identifiers. There are several potential benefits associated with the project, including improvement in adherence to medication, which could lead to better patient outcomes. The benefits of the project outweigh the potential risks or harm. The staff will be recruited through a mandatory staff meeting, and the staff will be compensated with paid education time.

Measures/Plan for Analysis

The first week's measures will be collected before the implementation of the intervention and during the educational session, while the remaining measures will be collected weekly for four weeks during the implementation of the intervention. There will be no need for a statistician in this quality improvement project (QIP).

Medication Adherence

The first step in the data analysis will involve retrieving data from the staff and reviewing medication adherence for each patient by assessing medication refills and MARS questionnaires for five weeks. The number of MARS questionnaires completed during the

quality improvement project (QIP) implementation will be tracked to determine the level of adherence to the health improvement initiative. Data from five of the twelve participating providers will be specifically used to capture and compare the frequencies of adherence before and during the quality improvement project (QIP). The next step will involve summarizing information of the patients and the adherence scores using frequencies and percentages (Mishra et al., 2019; Vetter, 2017). The changes in the rate at which the targeted patients go for medication refills will also be utilized as a tool for measuring the adjustments in medication adherence and therefore the effectiveness of the quality improvement project (QIP). The number of patients that fail to go for their refills during the quality improvement project (QIP) implementation will be counted and the figures compared to those recorded before the project began. The percentage disparities will reveal the level of the quality improvement project (QIP) success.

Staff Education

The results of the number of staff educated will be analyzed using the frequencies of lesson attendance as well as the percentages of the staff who complete the entire education program. This analysis will thus reveal the staff's capacity to enhance medications adherence and health outcomes among patients in the selected setting.

Appointments

The outcome of walk-in appointments and appointment reminders will be analyzed by determining the differences in the frequencies and percentages of patients who actually go to

their providers during walk-in sessions. Specifically, the number of appointments issued on Wednesdays and Thursdays from 2pm-4pm will be compared to the number of patients who attend on those specific days of the week. The number of patients who see their providers after receiving appointment reminders will also be compared to the frequency of attendance prior to the implementation of the quality improvement project (QIP).

Results

Twelve staff members (67%) were educated the first week of project implementation. Following the education, data for appointment reminders, walk-in appointments, MARS questionnaires, and medication refills was collected during weeks 2–5. Results are described below.

Patient Appointments

Table 1

Appointment Reminders

Week	Number Of Appointment Reminders
2	100
3	130

4	100
5	125
Total	455

The total number of appointment reminders sent out was 455. In week 2, 100 reminders were sent out, compared to 130 reminders in week 3. Then in week 4, 100 reminders were sent out. Week 5 had 125 reminders send out.

Table 2

Number of walk-in patients and appointments

Week	Number Of Walk-in Patients	Number of Walk-in appointments available
2	*2*	*4*
3	*0*	*4*
4	*5*	*4*
5	*0*	*4*
Total	*7 (44%)*	*16*

Week 1 did not have appoint or walk-in patients. In week 2, there were 4 appointments with only two walk-in patients. Week three had four appoints with no walk-in patients. Then in week 4, there were four appointments but with 5 walk-in patients. During this week, there were 3 walk-in patients on Wednesday and 2 walk in patients on Thursday, resulting in 5 patients. The additional walk-in patient was able to schedule with their provider for the next day due to having a cancellation on their schedule. Finally in week 5, there were no walk-in patients.

Medication Adherence and Provider Compliance

Table 3

*MARS Questionnaire Compliance and Medication Adherence 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	10	10	8 (80%)
3	10	10	10 (100%)
4	10	10	10 (100%)
5	10	10	4 (40%)
Total	40	40 (100%)	32 (80%)

The total number of charts audited over the 5 weeks were 40. The number of patients that received the MARS questionnaire and providers in compliance was 100%. The number of patients that were adherent with medication refills after the MARS questionnaire was 80%.

Summary and Interpretation of Results

The findings of this quality improvement project show that the application of the medication adherence tool kit improves medication adherence among patients visiting a psychiatric clinic. Following the application of the intervention, medication adherence increased to 80% in week 2. Continued use of the intervention increased medication adherence to 100% in weeks 3 and week 4. Unfortunately, in week 5, the medication adherence dropped to 40%. Sending out few reminders could have led to the reduction in medication adherence. Besides, the reduction could be attributed to individual factors limiting patients from taking the medications. These findings are supported by Çetin & Aylaz (2018) who established that medication adherence tool kits such as MARS helped improve adherence to medication among psychiatric patients. Similarly, Stentzel et al. (2018) found that application of MARS tool kit led to identification of factors contributing poor medication adherence among patients with psychiatric disorders. Addressing these factors improves medication adherence leading to positive outcomes.

The project had three limitations. First, in week 4 there were 2 walk-in appointments on Monday and 1 on Tuesday which were not offered which resulted in 3 patients not able to pick

up/refills. Bosworth (2010) found a positive correlation between missing appointment and poor medication adherence. Another limitation is lack of pre-comparison data for week 1. Therefore, changes in medication adherence were noted only in weeks 2,3,4 and 5. Besides, there was no comparison data for the number of appointment reminders sent out each week., which made it difficult to establish if the reminders reduced the number of missed appointments.

One strength of the project was educating a total of 67% of the providers on the use of the medication adherence toolkit. Another strength was a high number of reminders sent out to patients, leading to high medication adherence. There were no differences in the observed and anticipated outcomes. The expected outcome was that the application of the intervention would improve patient outcomes. The findings met this expectation as most of the patients had improved medication adherence indicated through the number of pick up/refills except for week five. The project had several costs and strategic tradeoffs. Implementing the project could have been costly, especially training the medical team and conducting interviews. However, this cost was mitigated by the DNP student providing the training and data collection. The main strategic tradeoff or opportunity cost incurred when implementing the intervention was foregoing the adoption of digital technologies such as electronic healthcare records or patient monitoring technologies that have a high efficacy in predicting medication adherence (Franklin et al., 2012). Although these technologies are effective in monitoring patients and ensure they follow all the required guidelines for taking medicines, they were not considered. Instead, a new intervention was tested in this project to establish if it was a better alternative than the technologies.

Finally, nonadherence to medication has a high burden on healthcare system. For instance, hospitals spend money to purchase drugs, which go to waste due to nonadherence. This money would have been used to improve other healthcare services (Cutler et al., 2018). Risk of readmission is high for nonadherent patients, leading to increased medication costs for both patients and healthcare providers.

Limitations

Potential Bias and Design

The potential source of bias in this quality improvement project was participant selection. The project lead targeted any walk-in adult patient visiting the psychiatric clinic. This approach would have given an added advantage to some participants, while denying others a chance to participate. Limitations to this quality improvement project design resulted from time constraints. The time was not adequate to collect data from a large sample size, leading to selection of only 50 participants. The data collected in this project therefore cannot be generalized to a large population.

Data Collection and Analysis

Covid -19 restrictions were a major limitation in this project. The restrictions made it difficult to have a direct physical interaction with the providers. Due to the COVID-19 restrictions that banned public meetings and maintaining of social distance, face-to-face

interaction with providers was not possible on most of the occasions. The interaction was often through phone calls, short messages, and online platforms. Failure of the data collection process could have increased the risk of researcher bias. The project lead used sum and percentage of the number of patients that picked up their medication refills, and number of appointment reminders sent as the primary method of data analysis. Although the statistical methods showed the effectiveness of the interventions, it was difficult to tell their clinical significance in the absence of in-depth analysis such as correlation and regression.

Minimizing and Adjustments for Limitations

Several measures were taken to minimize or adjust for these limitations. For instance, staff training was limited to only one week to create more time for making participant observations, collecting, and analyzing data. Second, engaging some of the participants through online platforms such as Zoom improved their motivation to participate in the project.

Conclusion

Summary

This quality improvement project sought to establish if increasing provider availability by offering same-day access for appointments and walk-in services improves medication adherence among patients. The project also aimed to establish utilization of the organizational tool kit and MARS questionnaire to improve the therapeutic relationship between provider and patient, hence

increasing adherence to medication. Non-adherence to medication is an issue that negatively affects patients, leading to relapse, exacerbation of symptoms, rehospitalization and increased risk of death among adults receiving psychiatric care. The tools used were the Medication Adherence toolkit (Appendix B), (Appendix C) Medication Administration Record System (MARS) Questionnaire tool (Appendix D), and the Chart audit tool. Medication adherence increased after the successful implementation of the interventions.

Usefulness of the Work and Sustainability

This work is relevant to addressing the issue of non-adherence to medication among patients, especially those receiving care in outpatient psychiatric clinics. Failure to honor appointments and pick up medication refills contributes to non-adherence to medication. Therefore, sending appointment reminders and offering walk-in appointments are effective interventions for ensuring the patients walk into the facilities and collect their medicines.

The site can easily sustain the intervention long term. Low costs were needed to train providers and other clinical staff to ensure they send appointment reminders and offer same-day access for appointments and walk-in services. Also, the benefits of this project surpass the costs incurred in hiring and training providers or using advanced technology for patient follow-up. There are no barriers for providing the walk-in appointments to the patients since reminders can be sent directly to their phones.

Implications for Practice in the Field

Nursing Practice

The QIP applies to the practice since it offers measures providers can use to improve medication adherence. Providers should use the organizational tool kit and MARS questionnaire to improve their therapeutic relationship with patients. Sending appointment reminders to patients is the best strategy providers can use to ensure patients pick up refills and have follow up appointments. The issue of non-adherence to medication affects the delivery of quality care not only in psychiatric clinics but also in other healthcare settings. Therefore, the outcome of this QIP is necessary to help improve the provide-patient therapeutic relationship and address non-medical adherence to all healthcare settings and ensure providers deliver quality care to all patients.

Policy

The findings in this QIP can guide the development of effective policies to promote medication adherence in psychiatry clinics. Policies should ensure that providers establish solid therapeutic relationships with patients by providing same-day access for appointments and walk-in services. Sending appointment reminders should be mandatory to ensure that patients remember to pick up their refills and get all the required attention when they visit the clinics.

Suggested Next Steps

The findings of this quality improvement project should be adopted to the current and new psychiatric clinics. A pilot study should be conducted to establish if the interventions will have similar effects to the findings in this project. The project should then be fully implemented if there is a consistency in the results. For future, a large sample size of more than 100 participants should be used. Non-biased participant selection and use of advanced data analysis such as correlation and regression analysis should be used.

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Appendix A

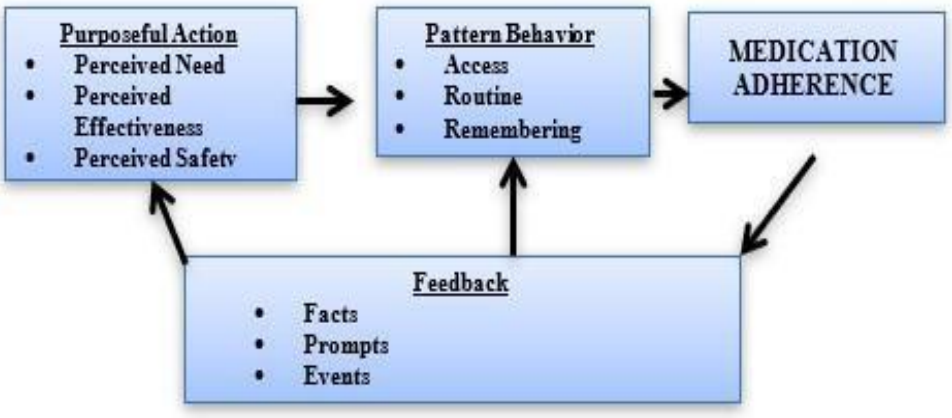

Figure 1: Johnson's Medication Adherence Model, © 2002

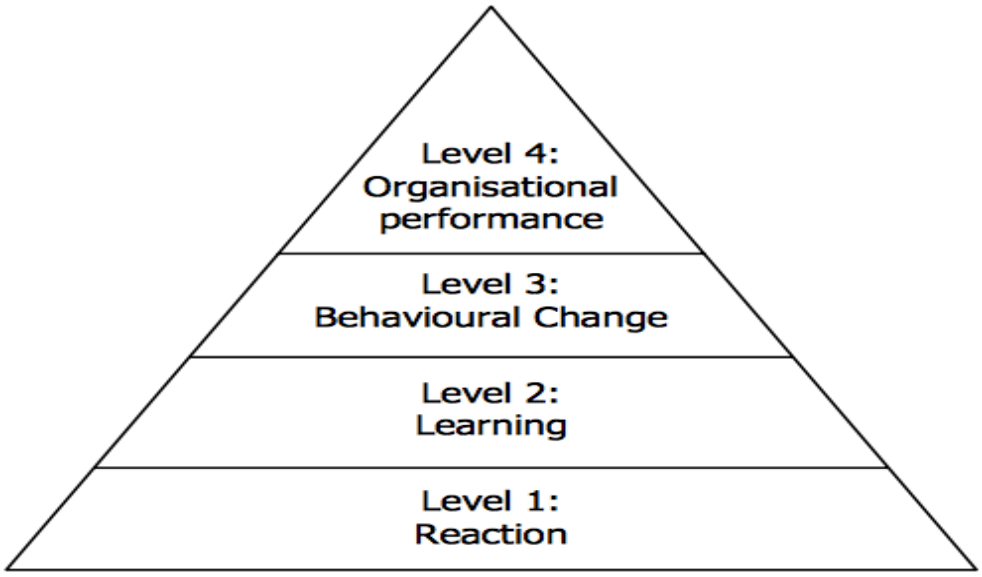

Figure 2: Johnson's Medication Adherence Model, © 2002

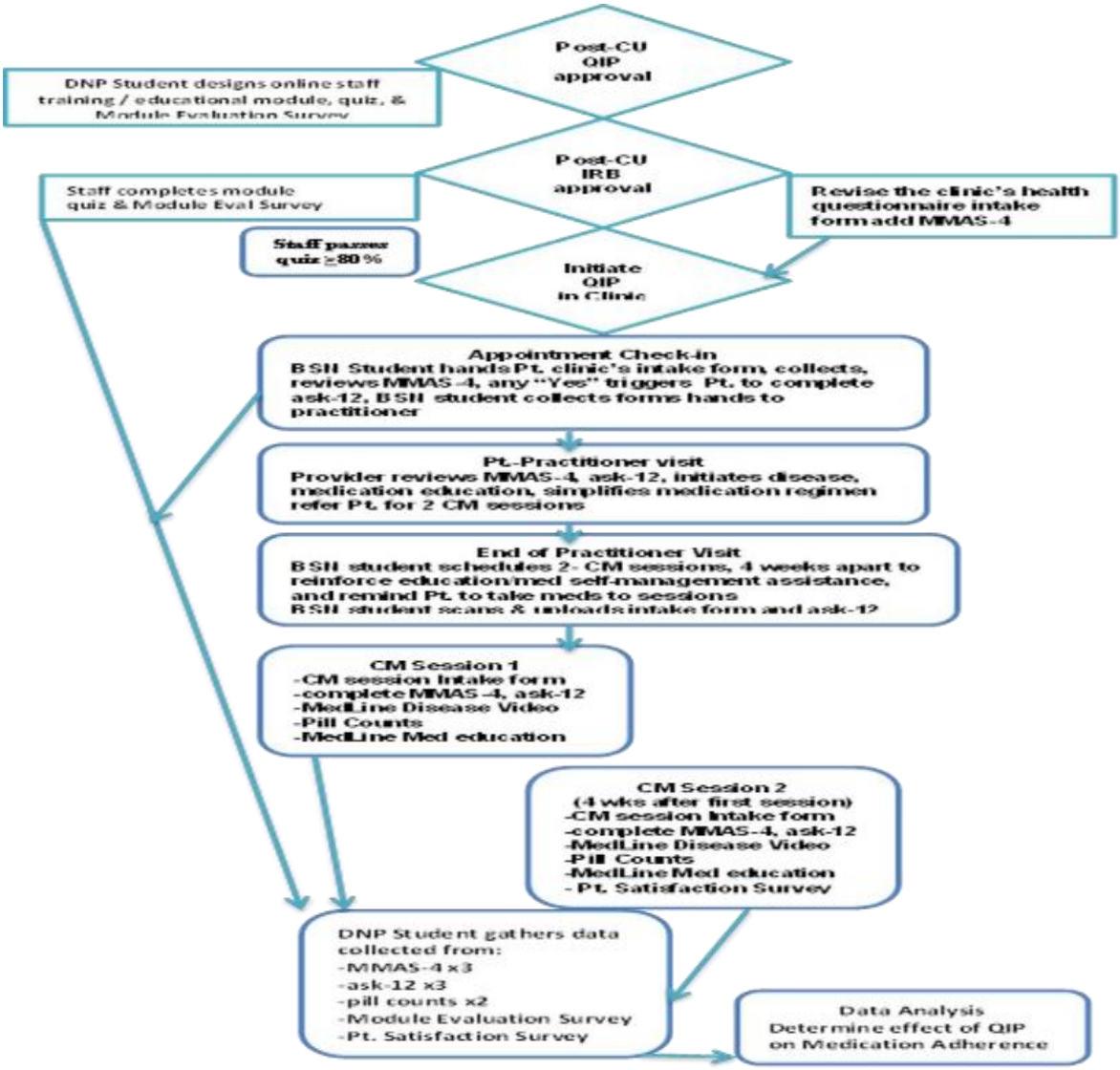

Figure 2: medication adherence intervention flow chart.

Appendix B

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Appendix C

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 D

Chart Audit Tool

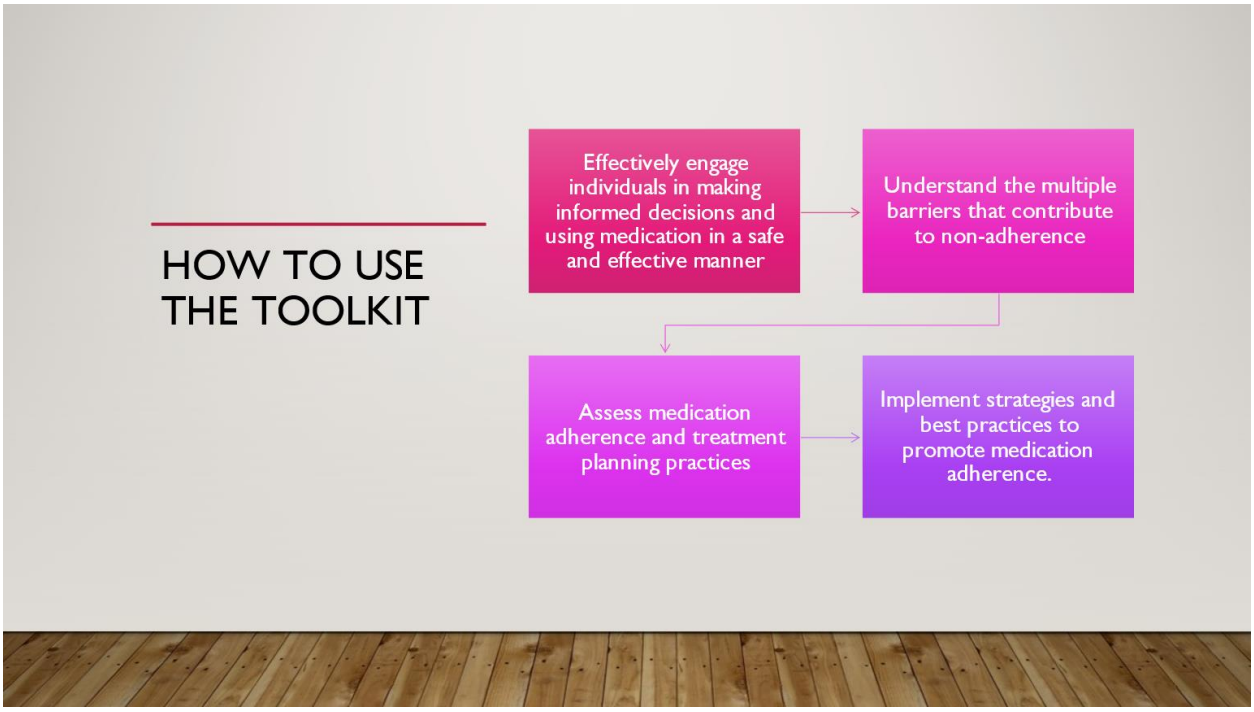
Medication Adherence Data (Data Collection Sheet)										
Provider ID	**Provider Adherence to protocol**		**Patient Id**	**Adherence to Medication Worksheet**		**Follow up appointment Method of contact (Email, Phone, Office/Tele visit, or walk-in)**				
	YES	**NO**		**YES**	**NO**	**Email**	**Phone**	**Office Visit**	**Tele-health visit**	**Walk-in**

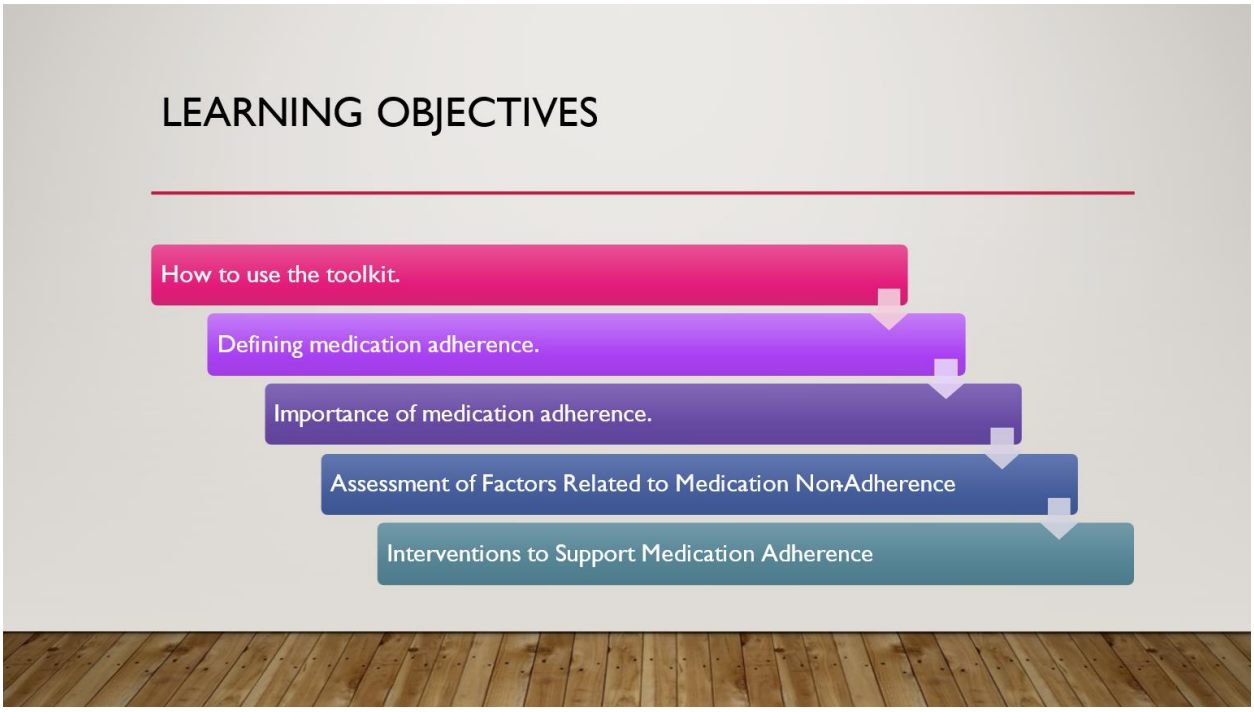
Appendix E

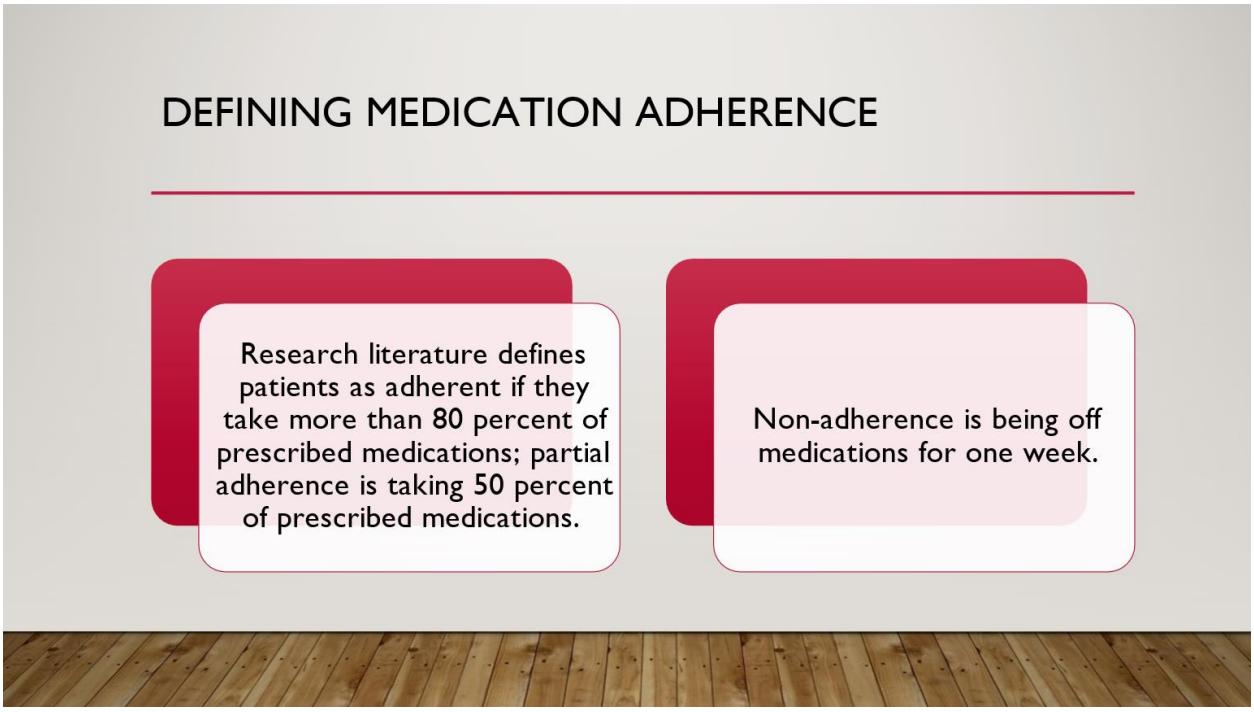
Education

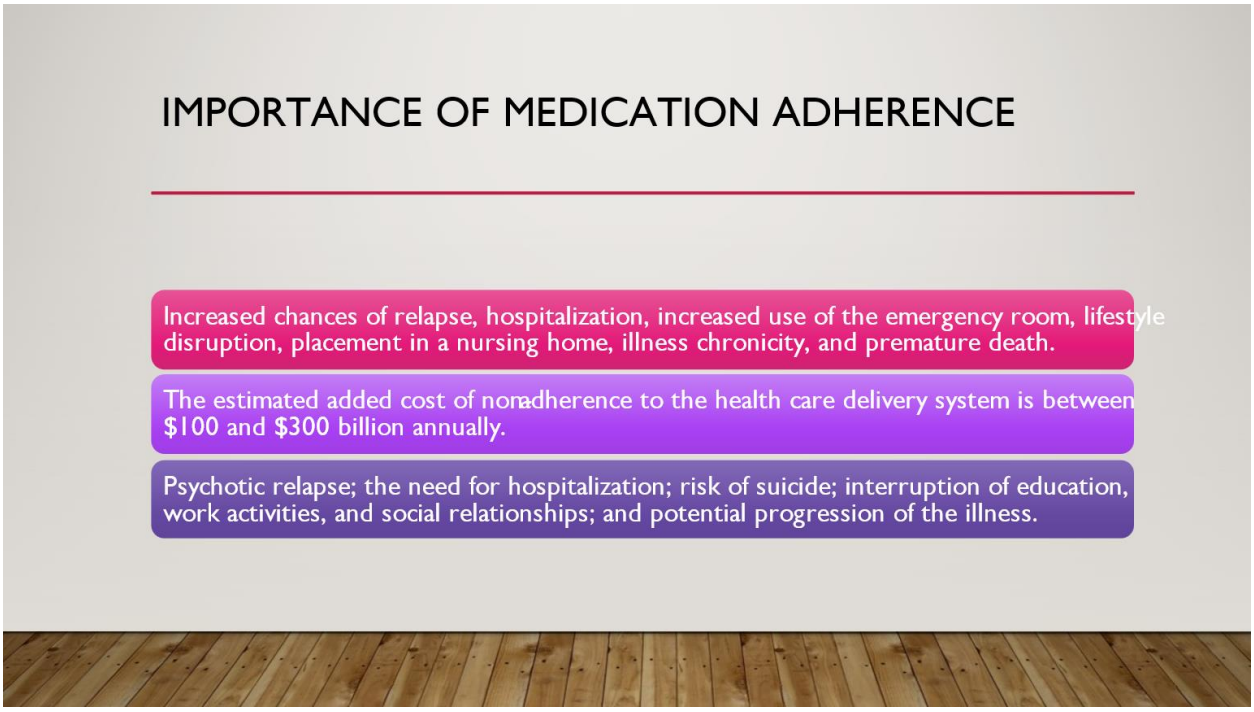
PURPOSE OF TOOLKIT

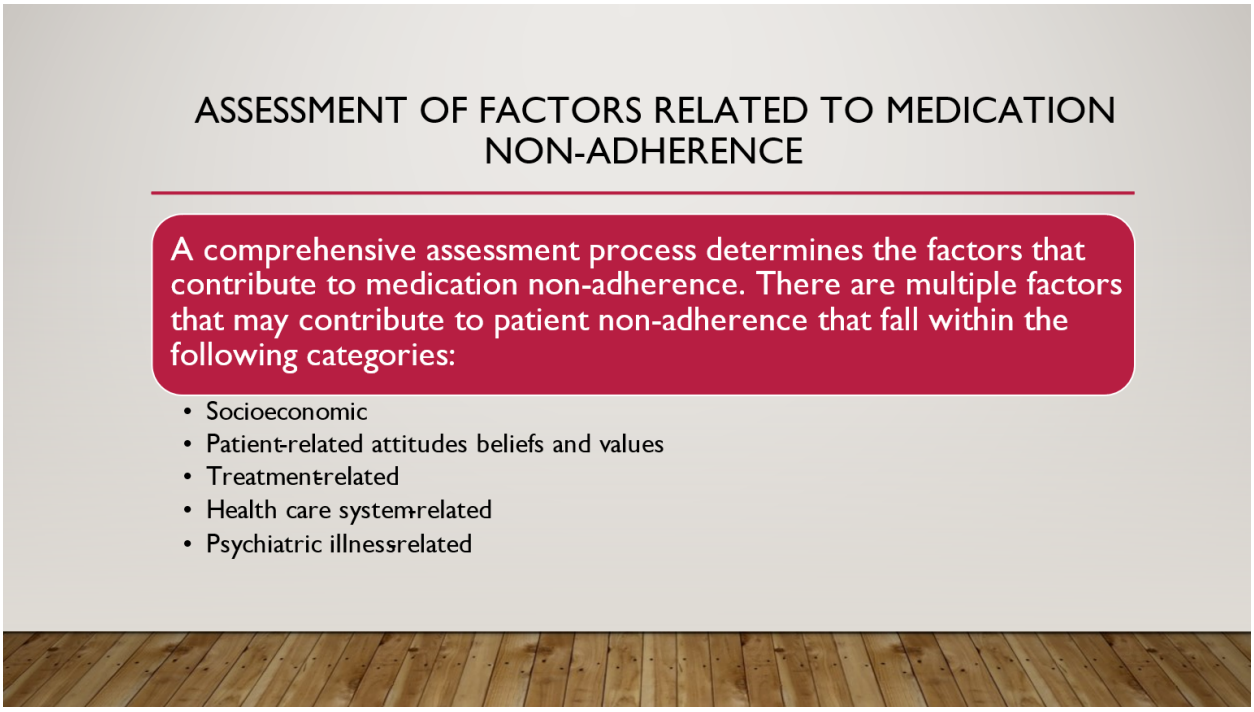
- This toolkit supports individual practitioners including case managers, therapists and peer specialists, as well as organizations seeking to strengthen their capacity and skills in improving patients' adherence with their medication regimens.

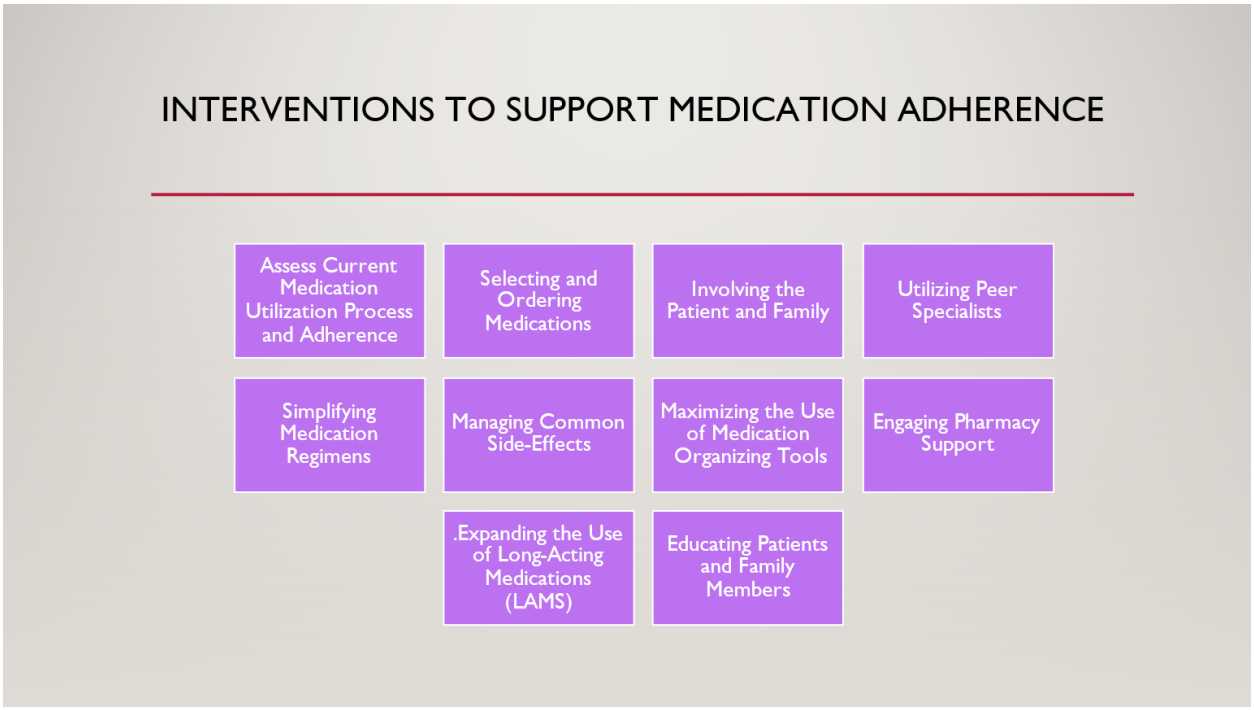

HOW TO USE THE TOOLKIT
Effectively engage individuals in making informed decisions and using medication in a safe and effective manner
Understand the multiple barriers that contribute to non-adherence
Assess medication adherence and treatment planning practices
Implement strategies and best practices to promote medication adherence.

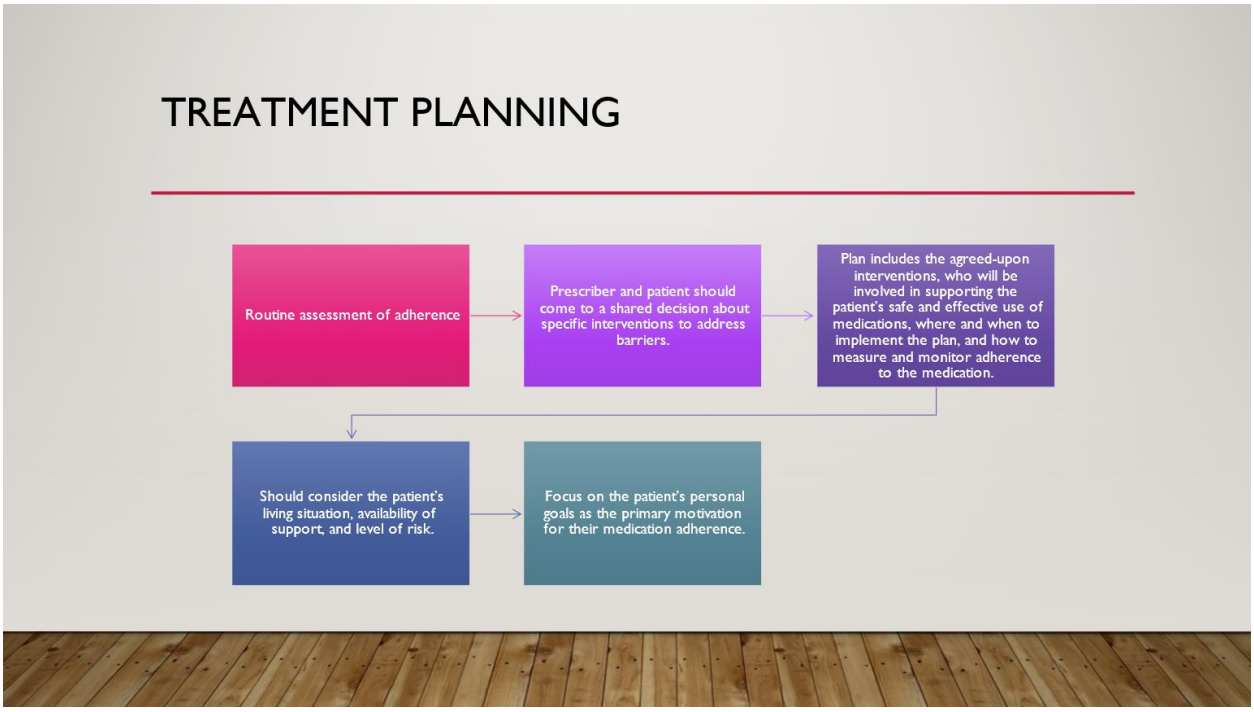

LEARNING OBJECTIVES
How to use the toolkit.
Defining medication adherence.
Importance of medication adherence.
Assessment of Factors Related to Medication Non-Adherence
Interventions to Support Medication Adherence

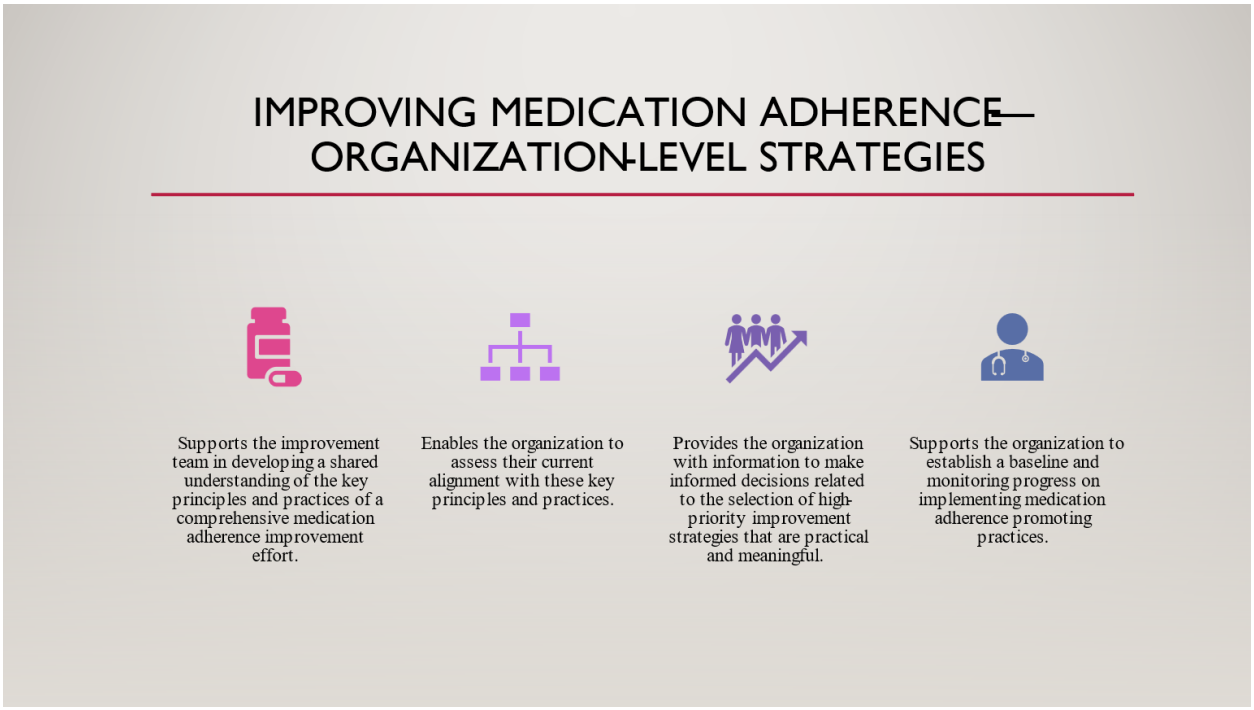

DEFINING MEDICATION ADHERENCE
Research literature defines patients as adherent if they take more than 80 percent of prescribed medications; partial adherence is taking 50 percent of prescribed medications.
Non-adherence is being off medications for one week.


IMPORTANCE OF MEDICATION ADHERENCE
Increased chances of relapse, hospitalization, increased use of the emergency room, lifestyle disruption, placement in a nursing home, illness chronicity, and premature death.
The estimated added cost of nonadherence to the health care delivery system is between $100 and $300 billion annually.
Psychotic relapse; the need for hospitalization; risk of suicide; interruption of education, work activities, and social relationships; and potential progression of the illness.


ASSESSMENT OF FACTORS RELATED TO MEDICATION NON-ADHERENCE
A comprehensive assessment process determines the factors that contribute to medication non-adherence. There are multiple factors that may contribute to patient non-adherence that fall within the following categories:
• Socioeconomic
• Patient-related attitudes beliefs and values
• Treatment-related
• Health care system-related
• Psychiatric illness-related


INTERVENTIONS TO SUPPORT MEDICATION ADHERENCE
Assess Current Medication Utilization Process and Adherence
Selecting and Ordering Medications
Involving the Patient and Family
Utilizing Peer Specialists
Simplifying Medication Regimens
Managing Common Side-Effects
Maximizing the Use of Medication Organizing Tools
Engaging Pharmacy Support
.Expanding the Use of Long-Acting Medications (LAMS)
Educating Patients and Family Members


TREATMENT PLANNING
Routine assessment of adherence
Prescriber and patient should come to a shared decision about specific interventions to address barriers.
Plan includes the agreed-upon interventions, who will be involved in supporting the patient's safe and effective use of medications, where and when to implement the plan, and how to measure and monitor adherence to the medication.
Should consider the patient's living situation, availability of support, and level of risk.
Focus on the patient's personal goals as the primary motivation for their medication adherence.


IMPROVING MEDICATION ADHERENCE—ORGANIZATION-LEVEL STRATEGIES
Supports the improvement team in developing a shared understanding of the key principles and practices of a comprehensive medication adherence improvement effort.
Enables the organization to assess their current alignment with these key principles and practices.
Provides the organization with information to make informed decisions related to the selection of high-priority improvement strategies that are practical and meaningful.
Supports the organization to establish a baseline and monitoring progress on implementing medication adherence promoting practices.

QUALITY IMPROVEMENT AND DATA‐DRIVEN CARE

- The organization should have a system in place to ensure that executive leadership reviews medication adherence data on a regular basis and explores strategies to improve adherence through changes in organizational policies and practices.

EDUCATE AND TRAIN THE STAFF

- Organizations should ensure that practitioners and other staff have the skills needed to effectively explore.
- Providing the support person with health literacy information (verbally, brochures and posters) about the mental health condition and importance and purpose of using medication, side-effects to watch for, and how they can help in a way that is acceptable to the patient.

Q&A

REFERENCE

- https://thenationalcouncil.org/wp-content/uploads/2020/03/Medication-Adherence-Toolkit-Final.pdf?daf=375ateTbd56