

DEVELOPMENT OF A PRACTICE PROTOCOL FOR THE USE OF LONG ACTING
INJECTABLE ANTIPSYCHOTIC MEDICATIONS IN THE EMERGENCY DEPARTMENT

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ABSTRACT

Anusha Smith: Development of a Practice Protocol for the Use of Long Acting Injectable Antipsychotic Medications in the Emergency Department
(Under the direction of Cheryl Giscombe)

Background: Long acting injectable antipsychotic (LAI) medications were developed to improve adherence in patients with psychotic disorders. Studies have shown patient on these medications have reduced inpatient admissions and Emergency Department (ED) visits. **Aim:** To develop a practice protocol which identifies patients who could benefit from a long acting injectable while in the ED setting. The goal of the project was to educate the providers about how to use the long acting injectable antipsychotic medications in their treatment plans and provide tips on how to have a discussion with the patient. **Methods:** A quality improvement project which educates mental health providers in the ED about the practice protocol and how to implement it through a 1.5-hour education session. Data from 20 charts were collected from chart reviews of the electronic record. At the completion of the data collection, a group interview was conducted to gather feedback from the providers about the protocol. **Results:** Of the 20 patients who received the protocol, eight of those patients received the LAI while in the ED. During the interview, Providers were discussing the option of the LAI more consistently. While they felt their knowledge about LAIs did not increase, they did feel the protocol prompted them to have the discussion. **Conclusion:** The findings suggest the practice protocol can increase awareness, provide guidance regarding treatment and increase utilization of LAIs in the ED setting.

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LIST OF ABBREVIATIONS

AIU	Acute Inpatient Units
AHRQ	Agency for Healthcare Research and Quality
ACEP	American College of Emergency Physician
EMR	Electronic Medical Record
ED	Emergency Department
LAI	Long Acting Injectable Antipsychotic
NCCPPR	North Carolina Center for Public Policy Research
PSS	Personal and Social Performance Scale
PANSS	Positive and Negative Syndrome Scale
SAMHSA	Substance and Mental Health Services Administration
VA	Veterans Administration

CHAPTER 1: AVOID REINVENTING THE WHEEL

Introduction

The care of people with mental health illnesses has changed over the past 60 years. People who were unable to care for themselves were treated for years in mental health institutions. As the financial burden for caring for people mental health diagnoses increased, states focused on returning them to the communities through deinstitutionalization (Koyanagi, 2007). However, there was a lack of community resources to maintain this population appropriately in the communities. As these problems became apparent, states moved to funding community-based supports which included community psychiatric hospital beds (Koyanagi, 2007). However, many of these supports were not equipped to the effectively manage people with mental illness. Thus, community systems such as jails, prisons and Emergency Departments (EDs) have been providing care for them (Torrey Fuller, Geller, Jacobs & Ragosta, 2012).

North Carolina, as well as much of the nation, is suffering from a lack of inpatient psychiatric hospital beds. Per the North Carolina Center for Public Policy Research (NCCPPR), North Carolina lost 214 inpatient state psychiatric beds statewide from 2000 to 2010 (NCCPPR, 2012). State hospitals reduced the number of patients treated from 16,789 to 5,754 during 2000 to 2011 (NCCPPR, 2012). The lack of inpatient psychiatric beds has had a direct impact on wait times in EDs. North Carolina Department of Health and Human Services found patients waiting an average of 4.6 days in EDs for a bed in an inpatient psychiatric hospital (2015). Psychiatric patients are in the ED for extended periods of time, also known as boarding, while waiting for admission to a psychiatric service as there is a nationwide decrease in the number of inpatient

psychiatric beds (Torrey et al., 2012). Psychiatric boarding is defined as a waiting period of more than 4 hours in the ED for a psychiatric bed once the decision is made to admit a patient (American College of Emergency Physicians, 2014). One study estimates the total cost of psychiatric boarding which includes other patients who could have been treated during the time a psychiatric patient is boarding in an ED bed is about \$2,264 (Nicks & Manthey, 2012).

Psychiatric boarding has significantly increased and ED directors are citing gaps in inpatient hospital beds and outpatient psychiatric programs as contributing factors (The Joint Commission, 2015). The Joint commission lists consequences of boarding which include; increases psychological stress, delays in mental health care, increases ED crowding, delays treatment for other ED patients and decreases financial reimbursement for ED services (The Joint Commission, 2015). ED overcrowding and increased wait times for psychiatric patients are symptoms of larger systems issues which illustrate the lack of community resources.

The American College of Emergency Physicians (ACEP) recommends treatment protocols for psychiatric patients in the ED, but there has been little research around what protocols would be beneficial, particularly with chronic mental health disorders which have high rates of relapse and rehospitalization, like schizophrenia (2014). Given the long waiting periods for patients with mental health needs, their presence in ED provides a greater need to develop protocols to both provide treatment to patients in a timely fashion and investigate opportunities to improve their outcomes while in the ED setting.

Patients with schizophrenia or other psychotic disorders account for about 34.9% of ED visits for a psychiatric complaint (Downey & Zun 2015). Approximately 22% of patients with schizophrenia were readmitted to the hospital within a month after being discharged (Elixhauser & Steiner, 2010). The lack of psychiatric beds has increasingly compelled ED staff to shift from

evaluation to beginning immediate treatment in the ED rather than delaying pharmacologic management. Inpatient treatment options for patients with schizophrenia include administration and monitoring of antipsychotic medications to reduce symptoms of psychosis (Oliveres, Sermon, Hemels & Schriener, 2013). The use of antipsychotic medications have been shown to decrease the need for hospitalization and a reoccurrence of symptoms (Oliveres, Sermon, Hemels & Schriener, 2013).

Poor medication adherence is one of the most common precipitant of re-hospitalization in patients with schizophrenia (Caseiro, Perez-Iglesias, Mata, et al 2012). To address the issue of adherence and relapse, inpatient psychiatric hospitals have increased the use long acting injectable antipsychotic medications (LAIs) (MacEwan et al., 2016). In a study of readmission rates in patients with schizophrenia, patients placed on long acting injectable antipsychotic medications had a 5% lower rate of hospital readmissions at 60 days post hospitalization (MacEwan et al., 2016).

Initiating treatment in the ED for patient with psychosis serves to reduce agitation and improve the safety for staff and the patient. An observational study of patients who presented to the ED for a psychiatric complaint, found that patients with psychosis had significantly higher scores on the Agitation Severity Scale and the Overt Agitation Severity Scale (Stroud & Bauman, 2015). Another study of agitation in ED and Acute Inpatient Units (AIUs), found that about 50% of incidents of agitation were in patients with a diagnosis of schizophrenia (San, et al., 2016). Given this, it is reasonable to consider beginning or resuming scheduled antipsychotic medications in the ED setting to reduce agitation, provide treatment, and reduce the need for an inpatient psychiatric hospital if possible while awaiting a psychiatric bed.

Nursing Significance

This DNP project hopes to improve the care of psychiatric patients in the ED. Nursing is in a unique position to examine clinical issues from a systems perspective and utilize evidence-based practice to develop clinical protocols for specific settings such as the ED. The American Association of Colleges of Nursing outlines eight essential goals for advanced practice nurses which were used to guide the DNP project (2006). By applying evidence-based nursing practice in conjunction with a holistic view of the clinical problem, nursing can assume more of a leadership role in the clinical setting and meet Triple Aim Goals (Institute of Medicine, 2001).

Purpose

In summary, due to the decrease in available inpatient psychiatric beds, patients remain in the ED longer and initiating treatment earlier in their ED stay may reduce symptoms and decrease the need for inpatient hospitalization. Therefore, the purpose of this DNP project is to develop a protocol for patients presenting to the ED with psychotic disorders to guide treatment planning through the initiation of antipsychotic medications which may be transitioned to an LAI. This protocol will also assist mental health providers in identifying patient in the ED who would be best suited for the implementation of this protocol.

CHAPTER 2: REVIEW OF LITERATURE

The review of literature focused on effectiveness of long acting injectable antipsychotic medications and associated themes related to adherence in people with schizophrenia. The findings from this review was used to provide support for the development of protocols for the use of LAIs in the ED, the goal of DNP project. LAI medications can be effective for varying lengths of time, from 2 weeks up to 3 months. In people with schizophrenia, poor adherence leading to relapse is concern. LAIs were developed to help address this concern and recent studies have sought to evaluate the effectiveness of these medications.

Methodology and Results for Review of Literature

PubMed, PsycInfo and CINAHL were the search engines used to identify articles. Search limitations included English and human subjects. There were no limits placed on time or date. The search terms “antipsychotic medications AND emergency departments” yielded 83 results most of which did not apply to the research question. Therefore, search terms were changed to “schizophrenia AND readmission” which provided inpatient interventions to prevent readmissions in patient with schizophrenia. Search was adjusted to “long acting injectable antipsychotic medications AND readmission” this yielded about 21 articles. Search was adjusted to “Long acting injectable antipsychotics AND adherence AND schizophrenia” which yielded 184 articles. Forty articles were reviewed and 25 articles were included in the review of literature.

The following review highlights a few articles from each theme identified in the literature. Two articles discussed patient’s perception of LAIs and five articles were explored

regarding prescribers view of LAIs. Seven studies were included in the comparison between oral antipsychotic medications and LAIs. Four studies were reviewed readmission rates of patients on LAIs.

Theme 1: Adherence and Effectiveness

Schizophrenia is a complex psychiatric disorder which affects a person's ability to maintain safety, stability and independency in the community. There are a multitude of factors which contribute to a person's ability to function in the community. When providing treatment for a condition, often treatment focuses on medication effectiveness and its ability to reduce symptoms. However, this is one piece of the puzzle when working with people who have a psychiatric diagnosis. Poor adherence is often cited as a concern for this population and a hindrance to medication effectiveness. It often leads to a reoccurrence of symptoms and decompensation which requires an intervention such as hospitalization. The development of LAIs was undertaken to address this and to assure adherence.

The Agency for Healthcare Research and Quality (AHRQ) outlines several recommendations regarding the use of long acting antipsychotic medications through clinical guidelines developed through various international entities. For example, the Scottish Intercollegiate Guidelines Network recommends evaluating patient preference for injections as well as reviewing risks and benefits of LAI medication (AHRQ, 2013). The guideline suggests LAIs may improve adherence in patients who have repeated relapses on oral antipsychotics and should be considered at a high risk for a reoccurrence of symptoms and repeated hospitalizations (AHRQ, 2013). The following themes investigate factors which contribute to LAI effectiveness including patient and prescriber perceptions of LAIs, reduction of symptoms, reduced hospitalizations and effectiveness when compared to oral antipsychotic medications.

Theme 2: Patient Perceptions of LAIs

People who have a diagnosis of schizophrenia often face an uphill battle when managing their symptoms. The stigma of mental illness and the cognitive effects of the disease can influence how someone views treatment and medication effectiveness. Patient perceptions play an important role in adherence and by understanding these perceptions, clinicians can work to address patient concerns regarding LAIs.

In a study by Heres, Schmitz, Luecht and Pajonk, 300 patients diagnosed with schizophrenia and placed on a LAI were surveyed about attitudes towards drug treatment (2007). Of all the patients surveyed 54% of the patients found taking an LAI was more convenient than taking oral medications. About 43% of patients surveyed felt LAIs prevented relapse more effectively. Conversely, 18.9% felt the LAI was mandatory treatment and they did not have choice because of their frequent relapses (Heres, Schmitz, Luecht and Pajonk 2007).

Iyer and colleagues conducted a qualitative study with focus groups to evaluate patient experiences and perceptions about LAIs (2013). This sample included 34 patients with a diagnosis of schizophrenia spectrum psychosis (Iyer et al., 2013). In the study group, 67% of the group had either been on or were currently on an LAI. Among the rest of the group, 26.47% had not been offered an LAI (Iyer et al., 2013). Several other members of the group had been offered an LAI, but did not feel they understood the purpose or benefits of LAI (Iyer et al., 2013). Patients discussed the positives of being on an LAI which included increased perception of control, consistent dosage, better symptom management and less side effects. Disadvantages included longer time to see reduction of symptoms, breakthrough psychosis, increase number of appointments, cost and feeling tied to clinic to get injections (Iyer et al., 2013). Patients who had

no experience with LAIs viewed it as a ‘punishment’ for poor adherence and less control over dose as other disadvantages (Iyer et al., 2013).

These articles highlight the diverse perceptions patients have regarding their treatment. Despite the varied responses of the participants, the majority felt LAIs were beneficial in terms of both a clinical reduction of symptoms and personal quality of life. The Iyer and colleagues study identified a lack of knowledge regarding LAIs in a significant number of patients who could possibly benefit from being on an LAI. Negative perceptions can be addressed through education which equips patient with the knowledge to make choice for themselves and good communication with providers. Understanding these barriers is key to providing patient centered care and to improve adherence to medications.

Theme 3: Prescriber practices and views about LAIs

While patient preference is essential to adherence, the perceptions of prescribers also play a major role in providing the patient choices for treatment. Providers guide treatment and provider treatment options for patients so their perceptions influence how they develop their treatment plan for the patient. It is widely recognized that people with schizophrenia have relapses and poor adherence to their prescribed oral antipsychotic is one of the main causes of this. However, prescribers have cited several concerns about using LAIs which has led to a preference for oral antipsychotics despite the higher rate of relapse associated with oral medications. Prescribers report a lack of evidence for the superior effectiveness of LAIs as research shows LAIs provide similar effectiveness when compared to oral antipsychotic medications so prescribers are less inclined to use LAIs (Correll et al, 2016). However, many studies focus on effectiveness when a patient consistently takes their medications which is often not the case in patients with psychotic disorders (Correll et al., 2016). Prescribers cited a lack of

knowledge regarding use of LAIs, dosing and how to manage persistent symptoms after starting LAI (Correll et al, 2016). There is a belief LAIs have a greater side effect profile than their oral counter parts which is unfounded (Correll et al, 2016). In addition, prescribers were concerned about suggesting LAI, since LAI treatment may be viewed as coercive by patients (Correll et al, 2016). There are no clinical restrictions in the guidelines regarding the use of LAIs in populations who may be at risk for relapse but have not demonstrated poor adherence which may contribute to hesitation when prescribing LAIs (AHRQ). These perceptions influence treatments that are offered and takes the decision-making power from patients.

In a qualitative study by Iyer et al, prescriber practices were explored through focus groups with 24 psychiatrists. Prescribers indicated they prescribed oral antipsychotic medications most often (Iyer et al., 2013). Of the 24 psychiatrists, 8 prescribed LAIs often while 12 rarely prescribed LAIs (Iyer et al., 2013). The major theme identified in the focus groups was a “lack of knowledge” regarding the use of LAIs (Iyer et al., 2013). Prescribers also felt patients may perceive LAIs as coercive and felt patients will refuse treatment with LAIs and they did not offer it as an option for treatment (Iyer et al., 2013). Prescribers viewed LAIs as a medication of last resort with patients who have repeated relapses due to poor adherence (Iyer et al., 2013).

Prescribers perceive patients on LAI's as patients with chronic severe disease which may be difficult to treat. This perception is corroborated through several studies. In a study, which followed 6904 people who were new started on oral antipsychotic medications for 7 years and only 4.1% had an LAI initiated during the study period (Verdoux, Pambrun, Tournier, Bezin & Pariente, 2016). The average time from starting an oral antipsychotic to transitioning to an LAI was about 19.3 months (Verdoux et al, 2016). In another study, about 90% of psychiatrists

transitioned their patients primarily to LAIs to improve adherence as those patients were non-adherent to oral medications (Bayle, Tessier, Bouju & Misdrahi, 2015).

Prescribers are primarily responsible for developing a treatment plan in collaboration with patients. By identifying negative perceptions which influence prescribing practices, future research could work towards improving prescriber education regarding the use of LAIs. Prescribers can also provide education needed to reduce stigma related to LAI treatment.

Theme 4: LAIs and Oral Antipsychotics: A comparison

AHRQ guidelines recommend antipsychotic medications for all patients who have been diagnosed with schizophrenia (2013). This guideline also rates LAIs as effective as oral antipsychotic medications in controlled studies. Current researchers have been looking at the effectiveness of LAIs from different perspectives because people with schizophrenia are not in controlled research settings so poor adherence continues to be an issue. A study by Alphas et al. discussed the difference between explanatory trials which are focused on safety and effectiveness and pragmatic trials or “real world trials” which minimize exclusionary criteria so diverse patient populations can be studied (Alphas et al., 2014). Pragmatic studies are designed to evaluate outcomes that are identified by clinician and their patients and often include scales which assess patient reports of symptom reduction and side effect reports (Alphas et al., 2014).

A study compared effectiveness of oral antipsychotics and LAIs through three measures: Positive and Negative Syndrome Scale (PANSS), Personal and Social Performance Scale (PSP) and hospital readmission rates (Barrio et al., 2012). Both groups showed improvement in the PANSS and PSP scores, however the LAI group had significantly greater improvement of symptoms compared to oral antipsychotic medications (Barrio et al., 2012). While statistically no difference in rehospitalization rates, LAI group had a fewer number of readmission during the 2

year study period (Barrio et al., 2012). Throughout the literature search there were few studies which looked a reduction of symptoms as a measure of effectiveness which may contribute to prescriber views that oral medications are as effective as LAI medications.

A study, which compared relapse rates between LAI and oral antipsychotics, found there were no significant differences between the groups over the 30-month study period (Buckley, et al., 2015). There was a significant decrease in relapse rates in both groups (Buckley et al., 2015). Another study followed two groups of patients on LAI and oral antipsychotics for 3 years and found no statistical difference between the groups (Liu et al., 2012). Both studies are representative of the studies used to develop guidelines and recommendations about the use of LAIs.

Several studies have looks at re-hospitalization rates between LAI and oral antipsychotic groups through Medicaid claims data. This allows for a review of larger groups of patients, medications, and number of hospitalizations. In study of 8,620 patients, patients were followed for 30 days post hospitalization and monitored readmission rates (Marcus, Zummo, Pettit, Stoddard & Doshi, 2015). Results found a decrease of 33% readmission rates of patients taking an LAI (Marcus et al., 2015). Another study found a reduction in readmission at a rate of 5% in patients who have had an LAI within 60 days after discharge (MacEwan et al., 2016). A study used Premier Hospital Database to look at mental health hospitalization rates, all hospitalization rates and ED visits in patients with schizophrenia (Lafeuille et al., 2013). Results demonstrated a 12-19% decrease in both all hospital admissions and ED visits in patients on LAIs (Lafeuille et al., 2013). A systematic review of mirror image studies comparing LAIs with oral antipsychotic medication found LAIs were more effective in preventing hospitalization, decreasing the number

of hospitalizations and reducing length of stay for patients who were hospitalized (Kishimoto, Nitta, Borenstien, Kane & Correll, 2013).

Studies, which have been described as real-world studies or pragmatic studies, have consistently shown a decrease in the readmission rates in patients who take LAIs. Few adverse events were noted in these studies. Even in randomized control trials, LAIs were shown to be as effective as oral antipsychotic medication. Many of these studies were retrospective in nature and a causal relationship could not be determined, however, the decreases which were noted in the LAI group illustrate the need for further research regarding LAIs.

Theme 5: Readmission Rates in Patients Taking LAIs

The development of the LAI was aimed at targeting adherence as poor adherence was a strong predictor of relapse in people with schizophrenia. Studies have monitored people who are on a LAI over time to determine if LAIs reduced relapse through adherence and when compared to relapse rates prior to LAI initiation. Overall, these studies have found reductions in hospital admissions, increased time between relapses and increased adherence.

In a retrospective study of 3,094 Medicaid patients with schizophrenia who were started on an LAI, all hospitalization rates decreased by 24.2% (Kamat et al., 2015). These patients were monitored before and after LAI initiation (Kamat et al., 2015). There was also a significant decrease in hospital costs from between \$2,051-\$4,492 per year (Kamat et al., 2015). Another retrospective study found the longer a patient is on an LAI the greater the reduction in all hospital admissions, including mental health (Bera et al., 2014).

A three year follow up study found a significant difference in relapse rates between patients who were adherent to LAIs versus those who were non-adherent (Caseiro et al., 2012). Patients who were adherent had a relapse rate of 50% while non-adherent patients had a relapse

rate of 93.7% (Caseiro et al., 2012). The time between relapses was also significantly different, 933 days for adherent and 568 days for non-adherent patients (Caseiro et al., 2012).

A study done through the Veterans Administration (VA) system studied the use of health care services in veterans with schizophrenia who were placed on a LAI (Ren et al., 2010). The data were collected from administrative data and pharmacy data within the VA system (Ren et al., 2010). Patients were followed for 12 months prior to LAI initiation and for 12 months post initiation (Ren et al., 2010). The study found patients who had at least one or two psychiatric hospitalizations prior to LAI decreased from 68.9 % to 45.7% after LAI initiation (Ren et al., 2010).

As the LAI and oral comparison studies discussed previously, many of these studies were retrospective in nature. These studies appear to imply that the use of LAIs have improved adherence and therefore there is a reduction in relapse rates in patients using an LAI. The reduction on costs associated with caring for patients with schizophrenia have long been a concern and interestingly there were cost reductions related to the use of LAIs. These cost savings included not only treatment for psychiatric conditions, but medical conditions as well. While there appears to be a link between LAIs and a reduction in relapse rates as well, several factors may be influencing this reduction. Patients who are on LAIs must follow up more regularly and this may be a contributing factor to the perceived improvement in patient outcomes. There is a lack of knowledge regarding additional community supports the patient may have which improve adherence and stability. There continues to be a need to research effectiveness of LAIs and relapse rates.

Summary and Conclusions from Literature Review

There are multiple factors which contribute to relapse in patient with schizophrenia. However, the use of antipsychotic medication has been shown to reduce psychotic symptoms and decrease the need for inpatient hospitalization. Poor medication adherence is one of the leading factoring in relapse rates in this population. LAI medications have not been shown to be more effective in improving adherence as patient still have to get the injections to remain stable, but there have been several studies which have shown a decrease in both ED visits and need for inpatient psychiatric hospitalization for safety and stabilization. The AHRQ guidelines do not limit the use of LAIs in this population and defer to the provider and patient preference for initiating an LAI.

Studies have identified barriers to prescribing an LAI as well. Providers have been hesitant to prescribe LAIs because they perceive LAIs are for patients who have more severe disease or are non-adherent to oral medications. This perception often leads to providers avoiding discussing the LAI with the patient. Studies have shown some patients can also perceive LAIs this way, however other feel that LAIs make it easier for them to avoid relapse.

These studies illustrate a gap in the knowledge about utilizing LAIs for treatment of patients with psychotic disorders. With an increase in education of both patients and providers, there could be better patient outcomes which continue to engage the patient the management of their mental health condition. It would also serve to help reduce the stigma of mental health conditions and how they are treated.

CHAPTER 3: THEORETICAL FRAMEWORK AND METHODOLOGY

This DNP project started as concern about providing quality psychiatric care for patients in the ED setting as boarding for these patients started to increase due to a lack of psychiatric bed availability. While working with patients, it became apparent there many contributing factors for patients needing psychiatric evaluation. It was often a combination of needing medication management and psychosocial factors such as housing, insurance and access to mental health care. Patient with psychotic disorders are often more difficult to place due to chronic nature of their condition or history of aggression related to their psychosis and therefore have longer ED stays. When conceptualizing how to approach this clinical issue, a systems approach was utilized to ensure the practice changes being implemented would be sustainable. Treatment with LAIs requires more treatment planning as community providers needs to be able to continue administering LAIs on discharge.

Recovery Oriented Care

The Recovery- Oriented Systems of Care is somewhat unusual as there is not a single founder, however there are several people from a wide range of disciplines who helped shape the theory. The theory was built from defining the term “recovery” and how to relates to the experiences of people who are in recovery. The term “recovery” in health care is thought of as returning to the state health you were in prior to your illness or “cure” (Whitwell, 1999). There has been a shift in how professionals, particularly mental health professionals, view recovery. Recovery is viewed as being on a continuum rather than an endpoint. Anthony describes recovery as “deeply personal, changing ones’ attitudes, values and feelings” (1993). Deegan

describes recovery as a “process” and “a series of small beginnings and small steps” (1988). The Substance Abuse and Mental Health Services Administration (SAMHSA) initially focused on recovery as it related to substance abuse treatment, but it was not until 2012 when mental health was added to the recovery model and encouraged the use recovery-oriented treatment in mental health disorders (SAMHSA, 2012).

The recovery- oriented systems of care theory is descriptive theory which reframes the term recovery and put forth a set of ideals on how to care for people with substance abuse and mental health issues. Recovery oriented care moves away from the traditional medical model, which looks at pathology, symptoms and treatment, and highlights a person-centered focus (Roberts & Wolfson, 2004). The process of recovery focuses on personal growth and adaptation related to challenges of having a psychiatric illness (Roberts & Wolfson, 2004). Core principles emerge from the concept that recovery is “person driven” (SAMHSA, 2012). The person is the “expert by experience” and professionals provide guidance, but do not direct treatment (Roberts & Wolfson, 2004). The person defines what recovery looks like for them and identifies supports and needs moving towards their recovery (SAMSHA, 2012).

Recovery Oriented Care and LAIs

In a review the literature, studies assert the use of LAIs have improved medication adherence and therefore there is a reduction in relapse rates in patients using an LAI. The reduction on costs associated with caring for patients with schizophrenia have long been a concern and interestingly there were cost reductions related to the use of LAIs. Agency for Healthcare Research and Quality (AHRQ) guidelines recommend antipsychotic medications for all patients who have been diagnosed with schizophrenia (2013). This guideline rates LAIs as effective as oral antipsychotic medications when compared in controlled studies but not as a first

line treatment (AHRQ, 2013). This guideline leaves the decision to start an LAI with the provider as there is no evidence to show that an LAI would be more effective than its oral counterparts. AHRQ does not preclude a provider from utilizing an LAI as a first line treatment, alongside oral antipsychotics as a first line treatment.

This DNP project was conceptualized from a systems perspective to investigate barriers in using LAIs and if expanding their use to other clinical settings would increase their use and improve outcomes for this population. Mental health treatment is complex and needs to be wholistic in nature as many factors influence treatment. Research has sought to quantify outcomes for this population to evaluate treatment effectiveness by measuring hospital readmission rates and healthcare costs associated with managing people with schizophrenia. While these measures have supported the use of LAIs in patients with schizophrenia, there has been a disconnect between LAI use and perceptions regarding LAIs.

The disadvantage of focusing on quantitative measures is patient-centered care becomes less of a priority. This is evidenced by the way both patients and prescribers view the use of LAIs. Patients report LAI medications are only offered when they have “failed” oral medications. Prescribers are also hesitant to offer LAI medications to patients as they view these medications as reserved for patients who have repeated relapses. A lack of education seems to be the driver of these misconceptions and through increased awareness both patients and prescribers can work to change the perceptions of LAI medications.

Methodology for the Practice Protocol

This is practice change project which involves the developed and implementation of a practice protocol for the use of LAIs in the ED.

Aim 1: Develop a practice protocol

Develop a practice protocol from existing research and clinical evidence with algorithms to guide medication management for patients with schizophrenia and other psychotic disorders.

Aim 2: Educate advanced practice providers in ED

There are three advanced practice providers who provide mental health services in the Emergency department who received education about how to use LAIs in the emergency department setting. An algorithm of the practice protocol was used as an educational tool. An interview was conducted for feedback on provider comfort with LAIs and usefulness of protocol at the end of the implementation period.

Aim 3: Implement protocol

Twenty patients presented to the ED with a chief complaint of schizophrenia or psychosis and were placed in the protocol by the providers. Chart reviews were completed to determine if the use of the protocol was effective. The information was documented in an electronic medical record (EMR) template which providers attached to their daily notes on the patient. No patient identifier information was retained.

Aim 4: Evaluate providers' ability to follow protocol and experience

There are three criteria which were evaluated through documentation. The protocol identified patients who met criteria and received the LAI; patients who were identified as eligible but did not receive LAI; and provider feedback about their comfort level regarding use of LAI's and opinions about usefulness of the protocol.

Data collected:

1. Diagnosis

2. Age
3. History of having an LAI
4. Length of stay in ED
5. Patient response to LAI discussion
6. Administration of LAI while in the ED

There are 2 groups of patients who will be included in this protocol: patients who have never been on an LAI and those who have been on an LAI in the past but have missed doses. This protocol will also assist providers in identifying patient in the ED who would be best suited for the implementation of this protocol.

Setting of the Project

A Level 1 trauma center in the southeastern United States which serves both adults and children. The department has several specialty areas which include, pediatric emergency department, a clinical evaluation unit for medical observation and fast track for those with minor illnesses and injuries. There is also a locked psychiatric evaluation unit for mental health emergencies. The psychiatric unit is an eight-bed locked and monitored unit.

The ED has psychiatry services 24 hours a day 7 day a week. There is a team of providers who work with this patient population. The team is made up of advanced practice providers, licensed clinical social workers, psychiatry residents and psychiatrists. The team functions as a consult service and provides psychiatric evaluation for patients in the ED. The primary focus of team was to disposition patients either to inpatient psychiatric hospitals, inpatient substance abuse treatment or to discharge home with mental health services. However, this has transitioned to providing mental health treatment in addition to the other focuses, as the length of stay has increased.

Subjects

The subjects of the project are the three advanced practice providers who work in the ED psychiatry department. Advanced Practice Providers are made up of nurse practitioners and physician assistants. In the ED psychiatry department, they only work with mental health patients. These providers are responsible for managing treatment planning for patients who present to the ED for a psychiatric complaint. Other providers who work in the ED psychiatry department often rotate and they are not consistently in the ED and therefore were not included in the implementation. Providers were regular staff in the Emergency Department and who worked directly with the population the protocol was targeted for. Each of the providers had at least 4 years of practice in the mental health and had been working in the ED for at least 1 year.

Protocol Implementation and Evaluation

While developing the protocol, one of the first obstacles was how to gather the data needed to evaluate the protocol. After exploring different options of documentation, developing an EMR template would standardize the data being collected as well as making it easier for the providers to add it their daily notes. The EMR template included the data discussed above. Please appendix B for an example of the EMR template.

Advanced Practice Providers attended a 1.5-hour educational training about LAIs. The training included current guidelines for LAI use. There was a significant amount of time spent on LAI initiation and dosing. The providers were also given tips on how to discuss LAI's with patients to help patient better understand LAI treatment. Providers were also educated on how to use EMR template to document the discussions they had with the patient. Once 20 patients had received the protocol, then the providers were interviewed to discuss their thoughts on the protocol.

Advanced Practice Providers were interviewed after the completion of the project to discuss ease of the use of the protocol, helpfulness of protocol and comfort with LAI use. Descriptive data from chart review will also be gathered to determine if patient discussions about LAIs resulted in patient getting an LAI. It also serves to document Pt responses when they refuse an LAI and their rationale about this.

CHAPTER 4: RESULTS OF PROTOCOL IMPLEMENTATION

The protocol outcomes were based on provider responses during a post implementation group interview. The first topic discussed was comfort level in using LAIs in treatment planning for patients. Providers shared that the 1.5-hour training helped to refresh their knowledge of LAIs. However, they shared that their overall knowledge was not increased. The training also did not increase their comfort level regarding the use of the LAI, as they felt they already had the knowledge to make those clinician decisions. The providers gained insight from the training in that it helped them to recognize that their discussion of LAIs with patients was inconsistent. Providers expressed that the protocol was a helpful tool to guide standardization of care related to LAIs.

They felt the protocol algorithm was easy to use and was helpful in prompting them to ask patients about their views about LAIs. They increased their conversations with patients about LAIs with patients, and it encouraged them to gather more information about their patient's medical history and previous treatment with and adherence to LAIs. They did not feel pressured to make sure a patient received the LAI prior to discharge. However, providers initiated discussion of LAIs earlier compared to before receiving education on using the protocol.

The EMR template, which prompted the providers to ask questions about LAIs was most helpful as it organized the data they needed to collect and made it easier to document relevant discussions about LAI history and use. Providers shared that the template was easy to use and they were able to add it easily to their daily documentation. It was not time intensive to fill out and providers felt it was easy to incorporate into their daily work flow. Providers documented

their patients' response to LAI education. Providers shared this process enabled them to better understand the patient's perception of their treatment.

Providers felt the protocol was useful in the ED setting as it increased the discussions about the patient preference with regards to medications. Providers shared that discussing and documenting patients' perceptions about medications was helpful. This allowed them to include their patients in the process of developing their treatment plan. Some of the concerns cited by providers in the literature review included the perception of pressuring patients into getting an LAI. However, the providers in this protocol did not feel they were pressuring patients to take an LAI and felt like they were inclusively opening the door to a discussion about their care.

They cited a few barriers to implementation of the protocol. There was not a set time the protocol had to be documented. They felt setting a time to complete protocol documentation would be helpful so other providers know when to look for it in the documentation. Providers suggested optimal times to document the LAI protocol, including admission and 24 hours-post admission. Acuity was also perceived as a barrier as patients may not be able to participate in this discussion when they are in crisis. Some of the LAI information can be received from pharmacy and their outpatient providers, but there continues to be a need to work with the patient to determine if they are interested prior to being discharged from the ED.

The data collected from the patients was used to understand the patient population better and to determine if patients received the LAI as a result of the discussion with the provider. Patients served by the providers had a mean age of 39 years. The average length of stay for this group was 4.8 days. In this group, a total of 70% were non-adherent to their medications. Interestingly, 45% of patients were not adherent to their oral medications as opposed to 25% of patients on an LAI. About 30% of patients who presented to the ED for psychiatric evaluation

were adherent to their medications. The data collected showed 40% of patients who were included into the protocol received an LAI prior to leaving the ED. Of the patients who were prescribed an LAI by providers who participated in the protocol, 25% were first time recipients of LAIs. The average length of stay for those received an LAI was 6.75 days.

Limitations

The most significant limitation was the lack of data to help inform optimal strategies for improving processes and outcomes in the ED, including the unavailability of baseline data about how often patients were receiving LAIs in the ED. The ED psychiatry team has been working to get general data about the number of psychiatric patients seen in the ED, what diagnoses are most common and where do these patients end up on discharge. Without baseline data to determine the needs for this population, team used their previous experience and insight as clinicians to identify the patients they felt might optimally benefit from the implementation of a practice protocol based on their experience.

Prior to the implementation of the protocol, patients were able to receive the LAI, but there was no process to encourage ED providers to offer this as an option. This was confirmed during the post implementation interview when providers verbalized they were asking about LAIs more consistently. Due to a lack of these data, it is difficult to state if the protocol increased the number of patients receiving LAIs in the ED or if it improved overall outcomes for the patients.

Another limitation was the fact that the psychiatry team members targeted for this implementation project did not fully represent the diversity of healthcare professionals who provide care on the ED psychiatry team. This protocol was implemented with advanced practice providers (psychiatric mental health nurse practitioners and physicians assistants). While the

advanced practice providers are most constant members of the ED psychiatry team (most of the physicians are rotating residents or fellows), there are other clinicians and providers on the team who were not a part of the implementation (e.g., social workers). There were patients who may have been eligible for the implementation who were not seen by an advanced practice provider during their visit.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATION FOR PRACTICE

With increasing length of stays in the ED, it seemed appropriate to look to what inpatient psychiatric units having been doing and adapt these interventions to the ED setting. Anecdotally, the ED psychiatry team felt patients with psychotic disorders such as schizophrenia stayed in the ED longer and were more difficult to stabilize. The use of LAIs is more common on inpatient psychiatric units and when a patient is seen in an outpatient clinic, but there is an opportunity to offer it to patients in the ED who are remaining in the ED for several days and stabilizing prior to getting an inpatient psychiatry bed.

The conclusions which can be drawn from this DNP project are broad and have significant implications for future practice. The implementation of this protocol suggests a proactive approach to managing care for patients who present to the ED for a psychiatric condition. By initiating treatment sooner in their ED stay, patients who are waiting for inpatient hospitalization are getting treatment for the chief complaint they came to the ED for.

This DNP project has shown practice protocols aims at specific clinical settings, such the ED, can improve practice through treatment algorithms and provider training. Findings from this project highlight the importance of strategically collecting more data about the demographic and baseline status of patients to specifically measure and understand patient-related outcomes resulting from the LAI protocol implementation. Although the objective of this project did not include measurement of patient outcomes, future projects could include this as a focus. The protocol also provided the clinical guidelines and recommendations for management of patients

with psychotic disorders and allowed the provider to discuss the topic of the LAI with the patient and develop the treatment plan based on their clinical judgement.

Utilizing the EMR to implement practice protocols was effective. EMRs make it easier to individualize patient care and to incorporate clinic specific goals. The Emergency Psychiatry Department team has few set processes in place to provide care for mental health patients and because of this there was an opportunity to examine the care provided. The EMR template prompted the providers to supply data for the LAI protocol. Providers felt the template was easy to use and increased their use of the protocol as a result. EMRs are also a tool to collect data from patient populations for future use which can help in determining the effectiveness of practice protocols.

Future Practice

LAI is an underutilized treatment option for patients with psychotic disorders regardless of setting. The ED is an unconventional place to initiate and administer and LAI as well. However, when examining the larger picture, the use of LAIs in the ED is a reasonable option and may provide patients with improved outcomes as research suggests. For this project, a limited number of providers were educated on using the protocol, but as the feedback regarding to protocol has been positive, it would be beneficial to explore the option to educate the other providers on the ED psychiatry team in order to increase use of the protocol.

Research as shown both provider and patient perception of LAIs contributes to the use of LAIs. This project has illustrated including patients in the discussion and having an open dialogue about their treatment can be a positive experience for both the provider and the patient. The need for continued education on the use of LAIs and ways to discuss this treatment option with patients will instrumental in changing future practice.

For future practice, the protocol was limited to advanced practice providers so there will be a plan to discuss expanding the use of the protocol to the entire disciplinary team. The hospital leadership are aware of the DNP project and are interested in the results and how they can show improved quality of care for psychiatric patients in the ED.

Another area of future practice would involve the effectiveness of the protocol. The protocol was not designed to demonstrate effectiveness of the LAI in preventing relapse. There will be a need to look at outcomes of these patients after they leave the ED setting. This data would also contribute to the existing literature regarding LAIs and their effectiveness in preventing relapse in patients with psychotic disorders.

While this protocol was developed based on the patient population and providers in a specific setting, practice protocols are versatile and can be adapted to any clinical setting with varying resources. In the ED setting, protocols can be helpful in providing guidance to providers with limited experience in caring for mental health patients. This may be particularly useful in EDs which do not have psychiatry readily accessible.

Practice protocols are an effective way to translate research in clinical practice and will be essential in future practice. These protocols can be easy to implement and give guidance to providers who are working with specific populations. For providers working with mental health patients in the ED setting, these protocols and can make managing these patients easier.

Table 1

LAI Protocol Data

Age	Diagnosis	LOS	Hx LAI (type)	Current LAI Which one?	Adherent or not	Pt comments/responses	Administered in ED
22	TBI with behavioral disturbances	2	No, Oral risperidone	N/A	Not adherent to PO	Pt clinically unable to participate	No
37	Schizophrenia	3	No, oral Haldol	No	Not adherent to PO	Pt is agreeable	Yes
53	Schizoaffective disorder	2	Yes, Prolixin, Haldol	No	Non adherent to PO	Reports side effects of forgetfulness so stopped taking LAI	No
28	Schizoaffective disorder	22	Abilify	Abilify	Yes	Helps me	Yes
55	Schizophrenia	7	Yes	Haldol decanoate	No, missed last injection	PT feels on too much medications, but willing to take it	Yes
27	Schizoaffective	16	No	NA	NA	Not interested, also does not feel she needs medications	No
37	Schizoaffective disorder	3	No	NA	Not adherent to PO	Refused because she did not want to take any medications	No
71	Schizoaffective disorder	2	No	N/A	Adherent to PO	Pt would be open to it, but she has never been on one before and would like to think about it.	No
48	Schizophrenia	1	No	NA	PO adherent	States he has never been offered an LAI, but open to the idea. Not on a med which can be transitioned to LAI	No
29	Schizoaffective disorder	10	Yes, Haldol	Abilify	Not adherent	Initially refused due to psychosis, but	Yes

			and Abilify			agreed to take Abilify LAI	
38	Schizoaffective	1	Yes, Prolixin decanoate	Prolixin	Non adherent	Per ACTT refused, but Pt was agreeable to taking it before leaving ED	Yes
29	Schizoaffective disorder	2	No	NA	Non adherent to PO	Is interested in LAI will talk to provider about this	No
25	Schizoaffective	5	No	NA	Non-adherent to PO-Prolixin	Agreeable to taking medication. Will take Prolixin decanoate	Yes
53	Schizophrenia	4	Yes , Invega Sustenna, Prolixin decanoate	Yes, Invega Sustenna, Prolixin decanoate	Non-adherent, missed dose	Willing to restart	Yes
25	Schizoaffective disorder	1	Yes, Invega	Yes	Adherent	It helps with my anger	No
43	Schizoaffective disorder	1	Yes, Haldol, Risperdal	NA	Adherent to PO	Will consider this and discuss with outpatient provider	No
30	Schizophrenia	2	Yes, Invega Sustenna	NA	Adherent to PO,	Community provider requested Haldol decanoate, PT agreed to take it	Yes
31	Schizoaffective disorder	6	No	NA	Non adherent to PO	Refused insisting he would only take PO	No
63	Schizoaffective disorder	5	Yes	Haldol	PO adherent	States "I don't need shots anymore cause I take my pills"	No
36	Bipolar	1	Yes Abilify	Abilify	Adherent, not due	"Keeps my mind clear"	No

Table 2

Summary Table

N=20

Age	
Average Age	39 yrs old
Median Age	36.5 yrs old
Diagnosis	
Schizophrenia	25%
Schizoaffective disorder	65%
Other	10%
Length of stay (days)	
Average	4.8 days
Median	2.5 days
History of LAI	50%
Current LAI	40%
Antipsychotic Non-Adherence	
Oral	45%
LAI	25%
Total	70%
Received LAI in ED	N= 8
History of LAI	N= 6 (75%)
No history of LAI	N= 2 (25%)

Table 3

Provider Interview Responses

Question	Responses
How comfortable do you feel about developing treatment plan using LAIs	<p>I felt comfortable using LAIs prior to this, so there was no change in my comfort level</p> <p>I think we are using LAIs more</p>
Do you feel your ability to discuss LAIs with patient has improved?	<p>I think my ability has remained the same, but protocol prompted me to ask patients who I might not have asked</p> <p>I did not feel I had difficulty discussing it, but I wasn't doing it consistently</p>
Did you feel the protocol algorithm was easy to use?	<p>Yes, it was helpful in organizing the information about LAIs</p> <p>It helped remind me to ask about LAIs</p>
Was the dot phrase helpful in LAI treatment planning?	<p>It helped with assessing previous experienced with LAI</p> <p>The patient response was interesting and allowed to me help discuss and understand patient concerns about LAI's</p> <p>Easy to add into my daily notes.</p>
How useful was the protocol in the ED setting?	<p>Helpful in prompting the discussion about the medications</p> <p>There was no pressure to give the medications if the patient did not want it, made it easier to have the discussion</p>
What were the barriers you encountered with the protocol?	<p>Acuity can make it difficult to have discussion about this</p> <p>Unsure if anyone else has done the assessment</p> <p>In ED it is sometimes hard to determine if there is true psychosis or if substances are the cause, hesitant to have the discussion with those patients</p>
Suggestions for improvement	<p>Create set time to discuss LAIs like on admission or on first reassessment after patient has been there 24 hrs.</p>

Table 4

Patient responses to provider discussions

Patient responses	Received LAI in ED
Pt clinically unable to participate, guardian agreed to LAI	No
Pt is agreeable	Yes
Reports side effects of forgetfulness so stopped taking LAI	No
“Helps me”	Yes
Pt feels on too much medications, but willing to take it	Yes
Not interested, also does not feel she needs medications	No
Refused because she did not want to take any medications	No
Pt would be open to it, but she has never been on one before and would like to think about it.	No
States he has never been offered an LAI, but open to the idea. Not on a med which can be transitioned to LAI	No
Initially refused due to psychosis, but agreed to take Abilify LAI	Yes
Per ACTT refused, but Pt was agreeable to taking it before leaving ED	Yes
Is interested in LAI will talk to provider about this	No
Agreeable to taking medication. Will take Prolixin decanoate	Yes
Willing to restart	Yes
It helps with my anger	No
Will consider this and discuss with outpatient provider	No
Community provider requested Haldol decanoate and patient agreed to take it	Yes
Refused insisting he would only take PO	No
States “I don’t need shots anymore cause I take my pills”	No
“My Abilify keeps my mind clear”	No

Appendix A

Provider Educational Training

LONG ACTING INJECTABLE ANTIPSYCHOTIC (LAI) MEDICATIONS: A PRACTICE PROTOCOL FOR THE EMERGENCY DEPARTMENT

ANUSHA SMITH, PMHNP

OBJECTIVES

- DESCRIBE CLINICAL PROBLEM
- PROVIDE EDUCATION ON THE TYPES OF LAI'S AVAILABLE AND THEIR INDICATIONS
- DISCUSS TRANSITION AND ADMINISTRATION OF LAI'S IN THE ED SETTING
- EDUCATE PROVIDERS ON UTILIZING LAI PROTOCOL
- PROVIDE EDUCATION ON HOW TO DISCUSS BENEFITS OF LAI TREATMENT WITH PATIENTS
- GATHER FEEDBACK FROM PROVIDERS ABOUT THE USEFULNESS OF THE PROTOCOL

THE EVOLUTION OF ED PSYCHIATRY

- THE AMERICAN COLLEGE OF EMERGENCY PHYSICIANS (ACEP) CITES PSYCHIATRIC BOARDING AS A SERIOUS CONCERN FOR EMERGENCY DEPARTMENTS WITH MENTAL HEALTH RESOURCES DIMINISHING
- PSYCHIATRIC BOARDING IS DEFINED AS A PSYCHIATRIC PATIENT WHO WAITS FOR GREATER THAN 4 HRS FOR PLACEMENT IN A PSYCHIATRIC BED
- IN NORTH CAROLINA, THE AVERAGE WAIT FOR A PSYCHIATRIC BED IS 4.6 DAYS
- ACEP RECOMMENDS TREATMENT PROTOCOLS FOR PSYCHIATRIC PATIENTS HOWEVER, RESEARCH HAS FOCUSED ON TREATMENT OF AGITATION RATHER THAN TREATMENT FOCUSED ON THE PSYCHIATRIC COMPLAINT

WHY IS THIS IMPORTANT?

- GIVEN THERE IS AN AVERAGE WAIT TIME OF 4 DAYS, THERE IS AN OPPORTUNITY TO START PROVIDING CARE FOR PSYCHIATRIC PATIENTS IN THE ED
- INITIATING CARE CAN STABILIZE PATIENTS AND MAY ALLOW PATIENTS TO BE DISCHARGED WITHOUT NEEDING AN INPATIENT PSYCHIATRIC STAY
- PSYCHIATRIC MANAGEMENT CAN FACILITATE PSYCHIATRIC DISCHARGES AND IMPROVE ED PATIENT FLOW

PURPOSE OF THIS QI PROJECT

- PROVIDE APP'S EDUCATION AND INCREASE COMFORT REGARDING THE USE OF LAI'S
- PROVIDE PRACTICE PROTOCOL TO GUIDE THE USE OF LAI'S IN THE ED
- INCREASE DOCUMENTATION OF AN LAI AS A TREATMENT OPTION
- EVALUATE PROVIDER COMFORT WHEN USING PROTOCOL
- EVALUATE HELPFULNESS OF PROTOCOL IN PROVIDING TREATMENT OF PSYCHOTIC DISORDERS

TARGET POPULATION

- PATIENTS WITH SCHIZOPHRENIA AND OTHER PSYCHOTIC DISORDERS ACCOUNT FOR ABOUT 34.9% OF ED VISITS FOR A PSYCHIATRIC COMPLAINT
- ABOUT 22% OF PATIENTS WITH SCHIZOPHRENIA ARE READMITTED TO THE HOSPITAL WITHIN A MONTH AFTER BEING DISCHARGED
- THIS POPULATION WOULD MOST BENEFIT FROM INITIATING TREATMENT EARLIER IN THEIR ED VISIT.
- IN A STUDY OF AGGRESSIVE INCIDENTS IN AN ED SETTING, 50% WERE PATIENTS WITH SCHIZOPHRENIA

CURRENT TREATMENT RECOMMENDATIONS FOR PATIENTS WITH PSYCHOTIC DISORDERS

- ANTIPSYCHOTIC MEDICATIONS:
 - ORAL ANTIPSYCHOTICS SHOULD BE USED IN ADDITION WITH PSYCHOLOGICAL INTERVENTIONS INCLUDING THERAPY
 - CONSIDER SIDE EFFECTS: METABOLIC, EPS, CARDIOVASCULAR, HORMONAL
- LONG ACTING INJECTABLE ANTIPSYCHOTICS
 - PATIENTS WHO WOULD PREFER LAI
 - AVOIDING NON-ADHERENCE
 - CAN BE USED EARLIER IN TREATMENT IF PT PREFERS, NO NEED TO WAIT FOR MULTIPLE RELAPSES

LAI COMPARISONS- FIRST GENERATION LAI

HALDOL DECANOATE (HALOPERIDOL)

- DOSING: Q4 WEEKS
- DOSES: 100MG
- CONVERSION FROM ORAL
 - 10-15 TIMES DAILY ORAL DOSE
- ADMINISTRATION
 - TOTAL DOSE SHOULD BE DIVIDED OVER 2 INJECTIONS 1 WEEK APART
 - THEN TOTAL DOSE CAN BE GIVEN MONTHLY
 - MAXIMUM DOSE 450 MG IM
- COST (WITHOUT INSURANCE)
 - 100 MG IM \$25
 - COVERED BY NC MEDICAID

PROLIXIN DECANOATE (FLUPHENAZINE)

- DOSING: Q2 WEEKS
- DOSES: . 25 MG/ML MULTIDOSE VIAL
- CONVERSION FROM ORAL
 - 1.6X DAILY DOSE
- ADMINISTRATION
 - INITIAL DOSE: 12.5-50 MG
 - ORAL OVERLAP FOR 1 WEEK
 - MAX DOSE 50 MG
- COST (WITHOUT INSURANCE)
 - \$15-30
 - COVERED BY NC MEDICAID

LAI COMPARISONS- SECOND GENERATION LAI

ABILIFY MAINTENA (ARIPIPRAZOLE)

- DOSING: Q4 WEEKS
- DOSES: 300 MG AND 400 MG
- CONVERSION FROM ORAL
 - NO ORAL EQUIVALENCY
- ADMINISTRATION:
 - INITIAL INJECTION 400MG IM
 - ORAL OVERLAP FOR 14 DAYS
- COST: 400 MG IM \$1900
300 MG IM \$1500
- COVERED BY NC MEDICAID

INVEGA SUSTENNA (PALIPERIDONE)

- DOSING: Q 4WEEKS
- DOSES: 234 MG AND 156 MG
- CONVERSION FROM ORAL:
 - 12 MG/DAY= 234 MG IM
 - 6MG/DAY = 156 MG IM
- ADMINISTRATION:
 - 1ST INJECTION 234 MG IM
 - 2ND INJECTION 156 MG IM IN 8DAYS
- COST: 235 MG IM \$2400
156 MG IM \$1600
- COVERED BY NC MEDICAID

LAI COMPARISONS- SECOND GENERATION LAI

ABILIFY MAINTENA (ARIPIPRAZOLE)

- DOSING: Q4 WEEKS
- DOSES: 300 MG AND 400 MG
- CONVERSION FROM ORAL
 - NO ORAL EQUIVALENCY
- ADMINISTRATION:
 - INITIAL INJECTION 400MG IM
 - ORAL OVERLAP FOR 14 DAYS
- COST: 400 MG IM \$1900
300 MG IM \$1500
- COVERED BY NC MEDICAID

INVEGA SUSTENNA (PALIPERIDONE)

- DOSING: Q 4WEEKS
- DOSES: 234 MG AND 156 MG
- CONVERSION FROM ORAL:
 - 12 MG/DAY= 234 MG IM
 - 6MG/DAY = 156 MG IM
- ADMINISTRATION:
 - 1ST INJECTION 234 MG IM
 - 2ND INJECTION 156 MG IM IN 8DAYS
- COST: 235 MG IM \$2400
156 MG IM \$1600
- COVERED BY NC MEDICAID

TIPS FOR DISCUSSING AN LAI WITH PATIENTS

- DISCUSS POSITIVES
 - PATIENTS WON'T HAVE TO WORRY ABOUT FORGETTING TO TAKE MEDICATIONS DAILY
 - PATIENTS WHO ARE HOMELESS OR HAVE UNSTABLE LIVING SITUATIONS WOULD NOT HAVE TO WORRY ABOUT LOSING THEIR MEDICATIONS
 - KEEPS MEDICATION AT A STEADY STATE, INCREASED SYMPTOM CONTROL
- KEEP DISCUSSION OPEN ENDED
- VALIDATE FEELINGS ABOUT BURDEN OF TAKING MEDICATIONS
- FOCUS ON HOW AN LAI HELPS THEM STAY STABLE SO THEY CAN WORK TOWARDS THEIR SELF- IDENTIFIED GOALS
- RESPECT THEIR DECISION IF THEY PREFER TO STAY ON ORAL MEDICATIONS

INFORMATION WHICH WILL BE COLLECTED

- AS PART OF THIS PRACTICE PROTOCOL, INFORMATION WILL BE COLLECTED REGARDING THE PATIENTS WHO COULD BE ELIGIBLE FOR THE PROTOCOL
- THIS INFORMATION WILL BE USED TO ADDRESS THE EFFECTIVENESS OF THE PROTOCOL AND LEARN MORE ABOUT THE PATIENTS WITH PSYCHOTIC DISORDERS WE WORK WITH
- DATA:
 - DIAGNOSIS
 - AGE
 - HISTORY OF LAI
 - LENGTH OF STAY
 - ADMINISTRATION OF LAI IN ED

HOW ARE WE COLLECTING THE DATA

- THERE IS A DOT PHRASE IN EPIC WHICH WILL PROMPT APP TO DOCUMENT
- THE DOT PHRASE IS ".EDLAI PROTOCOL"
- THIS CAN BE USED IN INITIAL PSYCHIATRY CONSULT NOTE OR DAILY PROGRESS NOTES
- WILL ASK THE FOLLOWING:
 - HISTORY OF LAI
 - CURRENTLY ON AN LAI AND WHICH ONE
 - LAST DOSE OF LAI
 - WAS LAI OPTION DISCUSSED? OUTCOME?
 - LAI ADMINISTERED IN ED?
- CHART REVIEWS WILL BE CONDUCTED TO COLLECT THE DATA FOR THE DOT PHRASES
- PROVIDERS WILL ALSO BE GIVEN A SURVEY ABOUT THEIR EXPERIENCE WITH THE PROTOCOL AND IF THE EDUCATION WAS HELPFUL IN TREATMENT PLANNING

Appendix B

EMR Template

History of Long acting injectable antipsychotic (LAI)?

Option 1: yes

Option 2: no

Is patient currently on an LAI? If so which one?

Option 1: yes

Option 2: no

Last Dose: insert date here

Was LAI Treatment discussed?

Option 1: No patient unable to participate in treatment planning

Option 2: Yes, Pt is not interested at this time

Option 3: Yes, Pt is interested

Pt response to LAI Discussion:

Option 1: Insert patient's comments about discussion

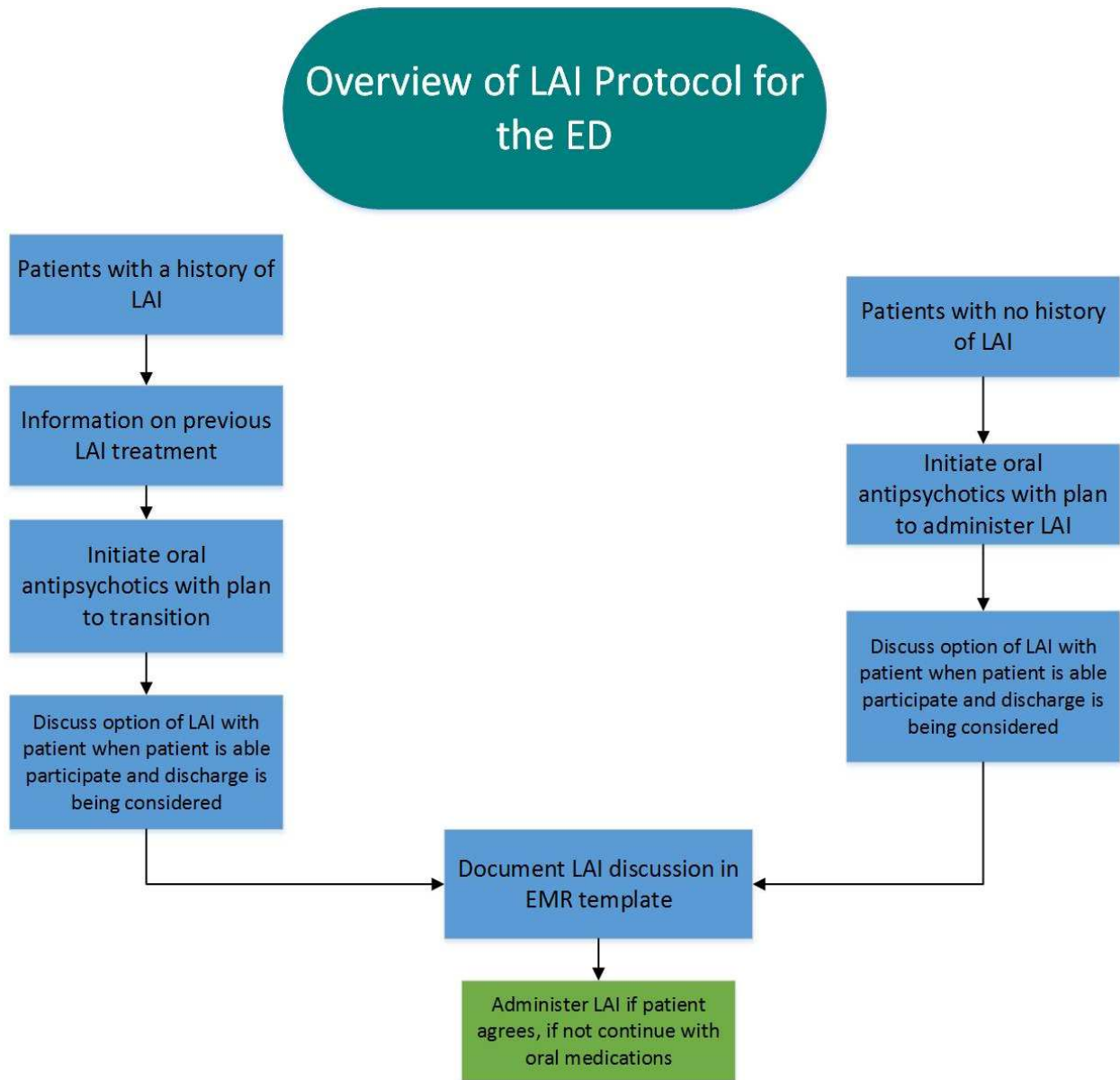
LAI administered in ED? If yes, date administered:

Option 1: Yes, add date

Option 2: No

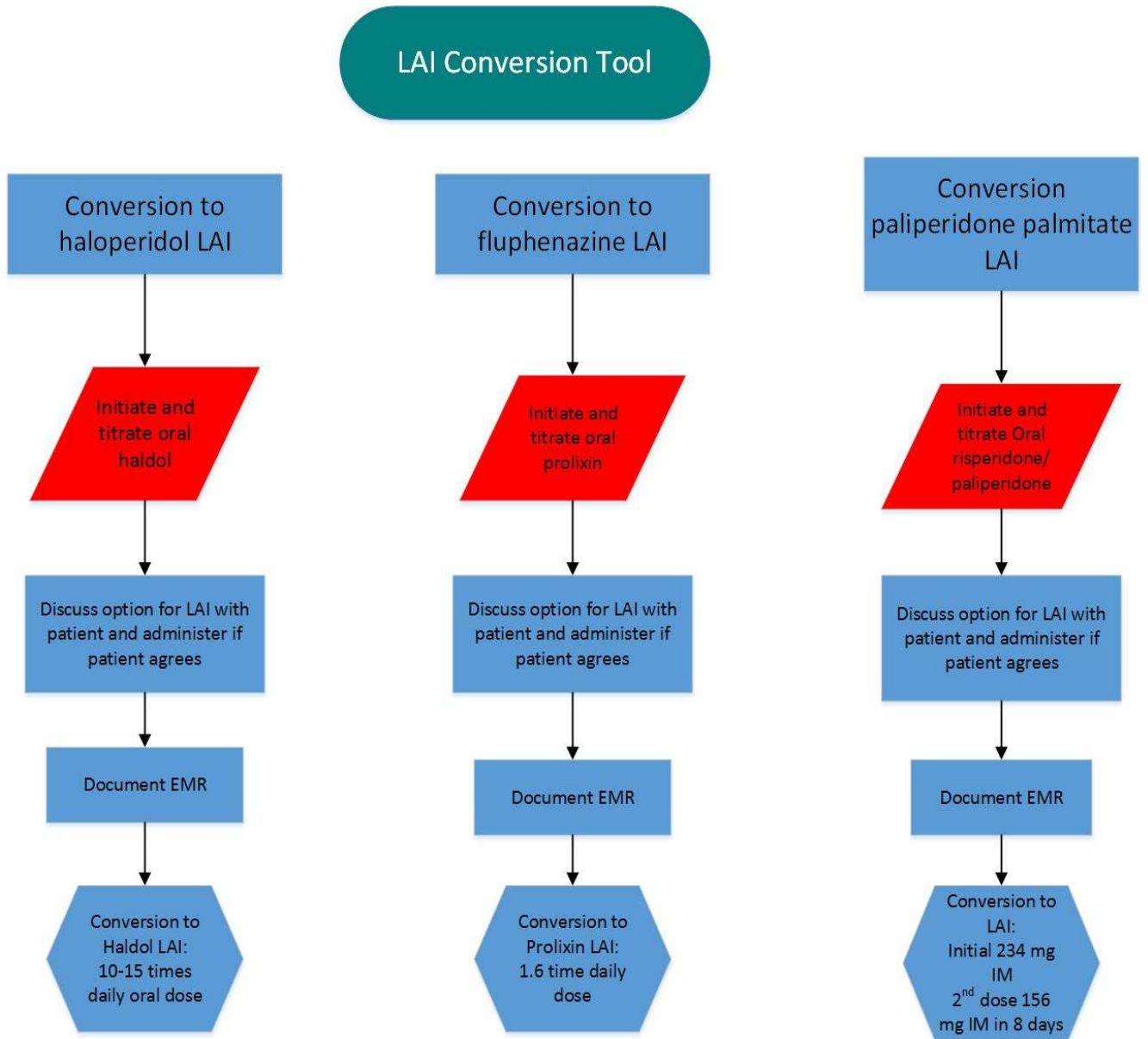
Appendix C

Overview of LAI Protocol Flow Diagram



Appendix D

LAI Conversion Tool



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