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Impact and Prevention of Psychiatric Polypharmacy in the Elderly

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Walden University

College of Health Sciences

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Rose Onyekwe

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Walden University
2015

Abstract

Impact and Prevention of Psychiatric Polypharmacy in the Elderly

by

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MSN/PMHNP, California State University Long Beach. 2011

MSN/Ed, California State University Dominguez Hills. 2009

BSN, University of Phoenix, 2005

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Adequate medication management is a focus of effective care that is often overlooked in caring for adults with comorbid psychiatric and physical conditions, especially in patients who are treated by multiple care providers and have a variety of health issues at the same time. The purpose of this project was to develop evidence-based policies and practice guidelines to reduce polypharmacy in elderly patients in a rural outpatient psychiatric clinic. Bandura's self-efficacy theory was used to inform the project for its value in assessing motivation, capacity for self-regulation, and perceptions of individual ability. An interdisciplinary team of stakeholders explored best practices for electronic health records (EHR) in a rural mental health facility, created policy and practice guidelines, and developed implementation and evaluation plans to guide the initiative as it moves forward. The team included physicians, psychiatrists, psychologists, nurse practitioners, nursing support staff, social workers, and substance abuse counselors. The team explored approaches for implementing EHR-based medication management based on research in the current literature and goals/objectives of each department. Team members identified major issues and proposed guideline changes based on evidence in their own fields. The team then collaborated to develop policies and practice guidelines in a series of meetings designed to build consensus for supporting a unified set of products to be accepted by all departments. The resulting policies and practice guidelines are accompanied by plans for implementation and evaluation that provide the institution with a comprehensive solution to polypharmacy in elderly patients. This project may improve overall quality of care by reducing medication and preventing health complications related to polypharmacy.

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Dedication

To my late Grandparents

Mr. and Mrs. J.A. Onyekwe

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Section 1: Nature of the Project

Introduction

Polypharmacy in populations of adults age 65 or older is a significant issue, especially in populations receiving care in mental health facilities. In this evidence-based project, I assessed the problem of polypharmacy from a variety of perspectives, provided a definition for polypharmacy for this specific population, and proposed a method that can be implemented to create greater accountability in addressing the needs of an aging population through the use of electronic health records (EHRs). When implemented, this project will have the potential of changing the way in which healthcare professionals address the needs of their patients in rural health clinics, including assessing their medication needs and seeking information that can prevent polypharmacy in this vulnerable population through the use of improved technologies.

Background

Medical advancements in the 20th century and improvements in the quality of life across populations have led to improvements in longevity in the United States. This has led to the aging of the American society, which brings about increasing healthcare needs for older adults (CDC, 2013). The percentage of the population over the age of 65 will increase to more than 20% by 2030, and this population currently consumes more than 66% of the country's outlay for healthcare (CDC, 2013). Estimates suggest that unless there is another major shift by 2050, Americans over the age of 65 will exceed 89 million (CDC, 2013).

These figures demonstrate the breadth of the challenge that emerges when attempting to meet the healthcare needs of the population over the age of 65. Over the course of their lifespans, people develop many different conditions impacting health, and chronic disease is more common

in this population than in any other. Conditions prevalent in this population include heart disease, cancer, diabetes, and mental illness, all of which are frequently treated pharmacologically (CDC, 2013). Therefore, the threat of polypharmacy, or the overprescribing of multiple medications, is especially problematic for this vulnerable population.

Inappropriate drug use in elderly populations occurs in about 14% of community-dwelling patients and rises to 40% among nursing home residents (Trivalle et al., 2010). Subsequently, the problem of polypharmacy is becoming increasingly common in older adults and poses considerable challenges for practitioners, including nurse practitioners working in psychiatric outpatient clinics in rural settings. Developing methods and strategies to improve patient outcomes and to reduce adverse events is becoming a necessary component of care for elderly patients.

Problem Statement

The problem focused on in this project is the way in which nurses and other professionals address the issue of polypharmacy in elderly patients in rural outpatient psychiatric clinics. Polypharmacy is the use of multiple medications to treat a single illness or a syndrome in one individual patient. It is a common practice among the elderly, both for physical health issues and mental health issues. One of the confounding issues in the rural psychiatric clinic where I practice is that most elderly psychiatric patients have more than one chronic illness; they often have several. Many researchers have shown that these elderly patients are receiving several prescriptions from different physicians that may increase their risk for adverse drug reactions.

Adequate management of patient medication regimens can be a difficult component of care, primarily because many practitioners rely on reports from patients about their medications,

both prescribed and over-the-counter, in order to determine the need for additional medications or if adverse interactions might occur. This results in the problem of polypharmacy, which Viktil et al., (2007) described as “the concurrent use of multiple drugs ... the use of more drugs than are clinically indicated or too many inappropriate drugs” (p. 187). Hoffman et al., (2011) maintained that this can sometimes reflect an imprecise view of the overall problem in relation to psychiatric patients, so they more clearly defined polypharmacy for this population as the use of two or more medications in the same patient to treat the same condition, or the use of two or more of the same chemical class of medications used to treat the same psychiatric ailment.

For geriatric psychiatric patients who often have multiple comorbid psychiatric and physical conditions, polypharmacy can result from the use of multiple psychiatric drugs, multiple prescribers, and/or the use of drugs that result in adverse drug reactions because of the lack of continuity in communications regarding overlapping medication regimens (Hoffman et al., 2011). Slabaugh et al., (2010) also maintained that polypharmacy can complicate the treatment process for elderly patients who have multifactorial health states and require medications for psychiatric conditions. Another problem for elderly populations is that medication regimens may become less effective over time, resulting in the perceived need for additional medications, especially in the treatment of psychiatric conditions (Bilyeu et al., 2011).

Purpose Statement

The purpose of this DNP project was to create a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. This quality improvement program focused on three specific areas designed to reduce polypharmacy:

1. Identifying all medications, prescribed and over-the-counter, used by each patient;

2. Increasing patient understanding of the purpose and side effects of each medication; and
3. Improving communications between practitioners to reduce the opportunities for polypharmacy.

The focus of this project was the incorporation of new policies and systems in a multidisciplinary team approach to improving patient care.

Goals and Outcomes

The goal of this project was to create a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The goal of developing the project to reduce polypharmacy required the ability to assess current perspectives on changing the present system and the level of commitment that individuals have to improving patient outcomes.

For the purpose of assessing perspectives on the planned change, the definition of polypharmacy reflected the concurrent use of multiple drugs for the treatment of the same clinically indicated illness and the presence of inappropriate drug use, or the use of multiple drugs in a manner that is ineffective, excessive, or can result in adverse events (Viktil et al., 2007). Creating a multidisciplinary approach to reducing polypharmacy required an assessment of current systems, the creation of recommendations from the multidisciplinary team for change, and an assessment of the views of practitioners about their commitment to reducing the problem of polypharmacy.

The most significant measurable outcomes for this project at the time it was proposed were to demonstrate reduction in polypharmacy from current levels to no incidences after implementation of the multidisciplinary team-initiated EHR project. Because no level of

polypharmacy would be acceptable and because of the severity of adverse reactions for the elderly population studied, the use of EHRs as a change in protocol was believed to ensure reduction to zero events after implementation. The EHR system identifies when three or more medications are being prescribed for a single patient to treat the same condition, so different providers have the option to go back in and assess their prescribing decisions to prevent polypharmacy. Once the EHR alerts the prescribing professional of the presence of polypharmacy resulting from their prescribing choice, they can then initiate discourse with the other professionals and refrain from their current prescribing plan as a way to prevent polypharmacy. Subsequently, the use of EHRs in combination with the multidisciplinary method was viewed as an approach to use; the technology and the protocols for addressing polypharmacy could reduce the level of polypharmacy in the rural facility to zero.

Frameworks for the Project

The quality improvement program was defined by a multidisciplinary model that enhanced communications and improved identification of risk factors for polypharmacy. In correlation with this approach, though, a nursing theory was applied to the focus of educational support services and improved patient participation. Creating a system that supported more effective communication had to start with an effective understanding of treatment modalities and a self-awareness for the patients themselves. This included a focus on self-efficacy theory. Self-efficacy theory can be used to assess a person's motivation, capacity for self-regulation, and perceptions regarding individual ability to meet particular end goals, including effective medication management (Bandura, 1997). Self-efficacy theory was applied to health promotion

activities for patients that are based on a patient's choices and behaviors and the adaptations necessary for change.

Nature of the Project

This evidence-based project focused on the implementation of an EHR-based approach that ensured the documentation and sharing of information about patient care across multidisciplinary teams and ensured improved information sharing for the treatment of elderly populations in a rural psychiatric outpatient facility. The rationale for this approach was the belief that this type of method could be effective in reducing adverse events that occur as a result of polypharmacy through closer tracking of patient drug use (Viktil et al., 2007). The creation of this program and the strategies for implementation focused on the specific use for elderly patients who are at greater risk of polypharmacy and the perceived benefits of and resistance to this kind of approach in reducing the problem.

Significance of the Project

Elderly populations seeking treatment in rural psychiatric outpatient clinics may have a long history of psychiatric disorders and demonstrate problems that range from effective adherence to medication regimens to the need for periodic and/or systematic changes in medication that can impact the level of control over the psychiatric disorder (Greenawalt, 2009; Hoffman et al., 2011; Hogan & Kwan, 2006). For example, an elderly patient may have experienced years of well-controlled bipolar disorder and may find that he or she is suddenly experiencing symptoms. This patient may be treated by one or more practitioners, who may prescribe a range of medications to treat the symptoms. Changes in physiological processing of medication and changing levels of response to medication may result in a variety of different

views on the best treatment modalities for the patient. In addition, the presence of comorbid health conditions and medications can result in polypharmacy that has a negative impact on the patient's psychiatric and physical condition.

Most practitioners reflect on the patient's history, including prescribing history, as a part of their evaluation of the need for new medications (Hutchinson, 2008). At the same time, a focus on patient self-reports of medication and the present use levels for medication does not always reflect a full and complete assessment of the medication regimen. Subsequently, practitioners need to determine more effective strategies for gaining insight into patient medication use, medication regimens prescribed, and the potential for adverse events each time a patient presents in the rural psychiatric outpatient clinic.

The significance of the project related directly to the increase in the number of elderly patients seeking services, the increasing need for effective medication management, and the noted number of adverse events that occur as a result of medication mismanagement. There were approximately 40 million people living in the United States over the age of 65 in 2010, which comprises about 13% of the population. That number will jump to over 72 million in 2030, increasing to about 20% of the population (Federal Interagency Forum on Aging-Related Statistics, 2012).

There are distinct physiological and psychological changes that occur with age. Elderly adults experience changes that impact how medications are processed, and this can change expected outcomes of medications. Specifically, bioavailability can be impacted by age, and this is reflective of changes that correspond with aging, including weight gain, changes in excess fat deposition, and changes in GI processing, increased levels of stress, and decreased levels of

physical activity (Porter & Kaplan, 2012). As people age, their metabolism of medications can slow, and this corresponds both with a general slowing of their metabolism and the impacts of physical condition, all of which require adjustments to drug interventions or therapies that are being used for elderly patients.

Patients aged 65 and older often experience suboptimal pharmacotherapy, primarily because of changes in drug metabolism, target organ sensitivity, problematic drug interactions, and even drug toxicity (Trivalle et al., 2010). Commonly, these changes result in longer periods of drug activity, which can have a greater or lesser drug effect, and an increased level of potential toxicity resulting from metabolic changes (Trivalle et al., 2010). Cefalu (2006) maintained that while this predisposition to adverse reactions occurs in populations over the age of 65, the most problematic outcomes of these reactions occur in patients over the age of 85, who can take an average of five to eight drugs each day. Cefalu stated that a number of reports have shown that the risk of adverse drug events in elderly patients rises with comorbidity; increasing numbers of medications; inappropriate medications; the use of antipsychotics, anticoagulants, diuretics, and antiepileptics; and the use of multiple prescribers and pharmacies by patients and caregivers.

The use of a patient profile and pharmacology questionnaire should occur at each visit, including an identification of any alternative treatments or supplements that could interfere with the function of other drugs. Sharing this information through the use of electronic health records was identified as the program approach best suited to reduce polypharmacy and improve patient outcomes.

Implications for Social Change

Disease rates have decreased over the last quarter century, at the same time that life expectancy rates of the elderly have increased for both men and women (FIFARS, 2012). Longevity has led to the increasing need for medical services, including services for both psychiatric and physiological health concerns. Many people over the age of have prescriptive and nonprescriptive medications used to treat pain, inflammation, and problematic symptoms related to their conditions. Men and women over 65 are more likely than any other single population to take multiple medications at one time. While some of these medications may be prescribed, it is not uncommon for patients to use a combination of prescribed medication and over-the-counter drugs and supplements that can result in problematic interactions.

Inappropriate drug use in elderly populations occurs in about 14% of community-dwelling patients rising to 40% in nursing home residents (Trivalle et al., 2010). Subsequently, the problem of polypharmacy is becoming increasingly common in older adults and poses considerable challenges for practitioners, including nurse practitioners working in psychiatric outpatient clinics in rural settings. Developing methods and strategies to improve patient outcomes and reduce adverse events is becoming a necessary component of care for elderly patients.

Definitions of Terms

Adverse drug events (or Adverse medication events): Adverse drug events, or adverse medication events, occur when a patient's medication is not managed effectively and the patient experiences physiological or psychological responses that are undesirable, including decline in health or mental status resulting from the level, combination or type of medications used.

Electronic health records: A technology-based documentation and charting system that provides practitioners and clinicians with access to patient information at a wide range including remote locations to ensure the accuracy of patient health information that informs medical treatment.

Inappropriate drug use: Inappropriate drug use is drug use that is either ineffective, excessive, or results in adverse medication events (Trivalle et al., 2010).

Polypharmacy: Polypharmacy can be described as “the concurrent use of multiple drugs,[or]...the use of more drugs than are clinically indicated or too many inappropriate drugs” (Viktil et al., 2007, p. 187).

Quality improvement program: The quality improvement program used for this DNP project will focus on closer scrutiny and documentation of patient prescribing regimens and medication intake, scrutiny of each patient’s regimen, and more effective communication within a multidisciplinary team. This quality improvement program will be supported by evidence-based practices identified in the current literature.

Rural outpatient psychiatric clinic: The rural outpatient psychiatric clinic used for the purpose of this study is a facility that provides services for patients with psychiatric disorders that can be managed through medication and support services while residing at home. In this case, the psychiatric outpatient clinic is one located in a rural area and generally provides services for a patient population living within 40 miles of the clinic.

Assumptions and Limitations

The assumption at the onset of this study was that the problem of polypharmacy existed in the general population and would be found to some degree in participants in a rural psychiatric

outpatient facility. This study was also based on the assumption that other mitigating factors, including decreased educational level of rural patients and decreased communication between practitioners using electronic medical records, played a role in the level of polypharmacy in this facility. The study was limited by the focus on a single rural facility and the willingness of practitioners on the multidisciplinary team to support transitions from the protocols currently in place.

Summary

In this project, I focused on the level of service being provided to patients in a rural outpatient psychiatric clinic, especially in relation to the use of medication regimens. One of the struggles that practitioners in this kind of setting had was that they often were not fully aware of the level of medication that a patient was taking and may have prescribed more than one medication for the same condition or may have experienced difficulties in assessing the medications a patient is taking. A strategy that was beneficial to support patients in this setting in reducing adverse events, especially in elderly populations, was to support a level of patient education and patient/practitioner communication that was maintained by a multidisciplinary team. In this project, I assessed the level of polypharmacy for elderly patients in this clinical setting and considered the implications of creating improved services, focusing on the use of EHR in determining methods for reducing adverse events.

Section 2: Review of Literature and Theoretical and Conceptual Framework

Introduction

This project was designed to assess the impact of a quality improvement program designed to address the problem of polypharmacy in elderly patients in a rural outpatient psychiatric clinic. This problem was identified in a variety of studies about polypharmacy, adverse events, issues in elderly medical care, and in the presence of comorbid conditions in elderly populations. Current studies on the changing nature of the elderly population, increasing issues with medication management, and the need for better methods of communication were all a part of the review of literature provided (Cefalu, 2006; Greenawalt, 2009; Hoffman et al., 2011; Hogan & Kwan, 2006; Hutchinson, 2008; Porter & Kaplan, 2012; Trivalle et al., 2010; Viktil et al., 2007).

The review of literature includes an overview of the literature search strategy and an identification of major models and theories used to support the change initiative. The literature was used to identify the scope of the problem in the specific context of care in the rural outpatient mental health facility. The relevant literature selected demonstrated the scope of the problem and the strategies that were used in the past, including the use of medical records, to support positive outcomes in reducing polypharmacy.

Literature Search Strategy

An initial Google Scholar search was conducted to determine if any recent online resources could be located in full-text and to determine if other search terms should be used. Some of the search terms considered for this project included *polypharmacy*, *elderly*, *adverse events*, *mental health*, *electronic medical records*, and *electronic health records*. Other terms,

including *hospital* and *nursing*, were included to distinguish medical studies from studies in other fields (e.g., social services) in which assessments of adverse events might occur. The search that produced the most potential sources in Google Scholar was one that used the terms *polypharmacy* and *elderly* and also limited sources to nursing journals. This search produced 711 results that included studies on polypharmacy in the elderly, adverse events in the elderly, and views of strategies used to prevent adverse events. Of the first two pages of results, though, only four sources had any reference to a specific focus on comparisons of different strategies that were used with patients.

A search of the CINAHL, Healthsource, and Medline databases produced a much smaller body of overall literature. One of the key aspects of the search was to limit to full-text sources in order to ensure that the resources could be viewed and used. After completing a search limited by data (2006-2014), full-text status, and peer reviewed sources, a search of the terms *polypharmacy* and *elderly* and also limited sources to nursing journals resulted in 41 full-text studies, only 17 of which pertained to the topic being investigated. The sources selected included those that addressed some of these separate parameters as a foundation for a study on the link between adverse events and polypharmacy, especially in patients with mental illness.

The body of evidence that was produced from a search of terms related to the impact of polypharmacy in elderly patients in the rural mental health setting presented a range of information that included surveyed responses, a focus group, and a retrospective review of patient data. One of the key issues in exploring this topic was that many of the studies that were produced to support hospital redesign measures were carried out in the early 2000s, and much of the current literature focused on the end products of specific design approaches, including

methods of improving patient safety and the use of medical health records. The lack of current literature that indicated the benefits of this kind of change in rural mental health facilities produced the gap in literature that suggested the need for the benefits of the proposed approach.

Scope of the Problem

The existing literature related the scope of the problem of polypharmacy in elderly populations to the increasing number of elderly in this country. In 2009, approximately 12.9% of the U.S. population was over the age of 65, amounting to approximately 39.6 million people (Administration on Aging, 2014). This number is expected to almost double by 2030, reaching 72.1 million people (American Agency on Aging, 2014).

In addition to comprising a large segment of the population, people over the age of 65 comprise a significant portion of the population using pharmaceuticals. Elderly populations use more than 50% of all prescribed medications and 40% of all over-the-counter medications in this country (Pretorius et al., 2013). More than 90% of all elderly patients not institutionalized are taking at least one form of prescription medication on a regular basis (Pretorius et al., 2013). For those actively participating in regular healthcare-related maintenance, elderly people over the age of 65 are likely to have six to eight medications they are taking at the same time to address a range of comorbid health conditions (Pretorius et al., 2013). As the number of medications being prescribed or used increases in this population, the risk of adverse events also increases. Fulton and Allen (2005) identified the risks of the use of two medications at 15% for elderly populations, while that risk level increases to 58% with five medications and to 82% with seven medications. These researchers further asserted that as the number of medications increases, the

risk for adverse events also increases, and this defined the impetus for relating literature about this problem.

Risks for Psychiatric Populations: Background and Context

A variety of literature has indicated that polypharmacy is particularly problematic in geriatric patients and in psychiatric populations (Langan & Shajahan, 2010; Tiihonen et al., 2012; Zink, Englisch, & Meyer-Lindberg, 2010). While the current literature reflected the nature of this problem in regards to psychiatric patients in clinical settings, the assumption that these individuals were uninvolved in their medication management was a general misnomer recognized by researchers, including Mizokami et al., (2012) and Munger (2010). Literature has indicated that communications and effective medication management is a cooperative element requiring compliance, support, and regular assessments in order to reduce the chances of problematic medication mismanagement (Tiihonen et al., 2011). Existing literature has maintained the importance of the use of technology and the use of patient support mechanisms to reduce the chances of polypharmacy that results in adverse events (Langan & Shajahan, 2010).

Suokas et al., (2013) conducted a large nationwide study to determine the prevalence and potential predictors of long-term polypharmacy specific to patients receiving treatment for schizophrenia. This project specifically focused on the impacts of antipsychotic polypharmacy in patients and reflected on those who had experienced at least one hospitalization during the study period for schizophrenia (Suokas et al., 2013). The researchers conducted a cohort study defined by the presence of hospitalization for schizophrenia between 2000 and 2007 in order to determine if antipsychotic polypharmacy had occurred. Because of the precarious nature of treatment modalities for patients with schizophrenia, these researchers identified the problem of

polypharmacy simply as patients being prescribed two or more overlapping prescriptions for different antipsychotics in a 60-day period (Suokas et al., 2013). They found that patients with schizophrenia and antipsychotic polypharmacy were at an unacceptable level, with more than 46% of patients experiencing this problem. In addition, the researchers posited that there were implications that this kind of prescribing mismanagement in the case of schizophrenic patients will possibly require hospitalization.

Literature specific to the issue of polypharmacy in elderly patients with psychiatric disorders referred to the connections amongst changing psychiatric medications, the changes in patient needs, and the comorbid conditions that exist for elderly patients, all of which can increase the risk of polypharmacy. This specific project provided a foundation for understanding the overall problem and could subsequently be applied to the scrutiny of the process at a rural outpatient psychiatric clinic.

Patient Health Worldwide

Research about polypharmacy and its potential impacts has been conducted in the international community for decades. Sato and Akazawa (2013), for example, maintained that it is common in Japan for elderly populations to have multiple comorbidities and to be medicated by multiple practitioners, increasing the chances that individuals will experience adverse drug reactions. These researchers further maintained that the risk of adverse drug reactions increases when patients are taking five or more medications and when they are being treated for both psychiatric and physiological health issues. In Japan, this is especially true of a growing population of elderly patients who are hypertensive and being treated for psychiatric conditions, amongst others (Sato & Akazawa, 2013). One of the notable elements in this Japanese study is

that researchers found there were times when multiple medications were being used to treat the same condition, which both was unnecessary and increased the risk of adverse events.

Other studies in international populations also underscored the problem of polypharmacy in elderly populations and the increased risk of problematic health impacts. For example, Jyrkk et al., (2009) assessed populations of elderly patients in Finland and found that adverse physiological implications could also be assessed as a result of polypharmacy. The researchers found that it was not uncommon for elderly patients receiving multiple medications, some for the same conditions, to experience greater levels of physical instability. Subsequently, elderly patients in their Finnish cohort study demonstrated a higher degree of physiological instability leading to falls and individual injury resulting from polypharmacy (described as the use of six to nine drugs) or excessive polypharmacy (the use of 10 or more drugs; Jyrkk et al., 2009). The researchers found that excessive polypharmacy was a significant underlying cause of increased mortality rates amongst elderly populations and indicated the importance of addressing the issue of multiple prescribing physicians' communications and the need for improved medication management in order to decrease the use of multiple medications for the same conditions (Jyrkk et al., 2009).

In an Egyptian study of elderly populations, researchers found that polypharmacy and the inappropriate use of certain types of medication was more common in elderly patients than in any other population (Hamza et al., 2012). The researchers studied populations of people over the age of 60 and found that polypharmacy occurred in 56% of the subjects studied, and this included the use of prescribed medications from multiple practitioners. Inappropriate use of medications was especially high in this population, with about 41% receiving inappropriate or

poorly managed medications, including contraindicated medication combinations (Hamza et al., 2012). Because the use of antidepressants and antipsychotic medications in elderly populations is on the rise, the significant association between the use of multiple practitioners and polypharmacy was an element identified in the study as increasing the risk of adverse events (Hamza et al., 2012).

In a study of subjects in Sweden, Haider et al., (2009) maintained that a range of factors can impact the effectiveness of medication management and can serve to foster problematic adverse drug events in patients with medical and psychiatric comorbidities. Researchers in this study evaluated the impacts of low levels of educational attainment on the ability of elderly patients to assess and self-manage their medication regimen. These researchers maintained that a lower educational level was associated with a higher degree of polypharmacy and the potential for adverse events occurring from inappropriate drug use (Haider et al., 2009). Lower levels of educational attainment increased the risk of individuals taking three or more psychotropic drugs, and these individuals had a high level of adverse events resulting from polypharmacy, especially when comorbidity between psychiatric and physiological issues emerged (Haider et al., 2009).

In a study of Nigerian patients, prescribing patterns for patients over the age of 65 years suggested a very high level of inappropriate medication use, primarily because of the presence of multiple practitioners and lack of effective medication self-management by patients (Fadare et al., 2013). After evaluating medical records for 220 patients, the researchers found that the patients were prescribed an average of almost four medications per person, including medications for hypertension as well as medications for psychological conditions. Polypharmacy that could result in adverse events (specifically, potentially inappropriate medication prescribing)

occurred in almost 26% of the cases. Similarly, Chirn-Bin et al., (2011) maintained that elderly patients in a Taiwan study experienced inappropriate prescribing with significant frequency, resulting in adverse events occurring as often as 24% of the time. One of the problems that emerged, as noted by Chirn-Bin et al., is that medication regimens are often not assessed until patients experience an adverse event. For elderly patients who may already be experiencing physiological fragility, waiting until an adverse event occurs to address polypharmacy is a risky proposition.

Salih et al., (2013) explored polypharmacy in outpatient clinics in Saudi Arabia and found that of 766 patients, 89% were taking five or more medications prescribed by physicians each day. The most frequently treated conditions included hypertension, diabetes mellitus, and dyslipidemia, but a range of other conditions also existed, including depression, cardiovascular disease, and pain management medications. The presence of polypharmacy and the risk of adverse events are often discussed in contrast to appropriate medication management and the focus for elderly patients on medication compliance (Salih et al., 2013). As a result, the World Health Organization has sought to determine ways of reducing polypharmacy in geriatric patients, recognizing that many elderly experience polypharmacy as they are treated for a range of conditions, including psychiatric diseases, by different practitioners (as cited in Shah, Gajjar, & Desai, 2012). The World Health Organization has identified an imperative to improve the quality of care for geriatric patients and to promote the rational use of medications through increased communication and patient medication management systems.

The general literature provided an understanding of the issue of polypharmacy as a whole and the potential risks involved. The literature showed studies from all over the world that

indicated that even in areas where technology is commonly applied, the use of multiple prescribing practitioners and the lack of adequate patient information resulted in poor outcomes for patients. This information also furthered an understanding of the specific issues for elderly patients, many of whom experienced comorbid conditions that resulted in a wide range of medications and potential adverse medication reactions.

The Application of Quality Improvement Strategies: Concepts, Models, and Theories

The quality improvement program was defined by a multidisciplinary model that enhanced communications and improved identification of risk factors for polypharmacy. In correlation with this approach, though, a nursing theory was also applied to the focus of educational support services and improved patient participation. Creating a system that supported more effective communication had to start with effective understanding of treatment modalities and self-awareness in the patients themselves. This included a focus on self-efficacy theory. Self-efficacy theory could be used to assess a person's motivation, capacity for self-regulation, and perceptions regarding individual ability to meet particular end goals, including effective medication management (Bandura, 1997). Self-efficacy theory could be applied to health promotion activities for patients who are based on a patient's choices and behaviors and the adaptations necessary for change.

Self-efficacy theory is based on the "beliefs in one's capabilities to organize and execute the courses of action required producing given attainments" (Bandura, 1997, p. 3). In using self-efficacy theory as a foundation for promoting health, it is important to recognize that self-efficacy is behavior-specific and reflects beliefs and perceptions regarding one's own skills and abilities and their application. Self-efficacy generally describes the perceptions and feelings a

person has towards goal achievement and his or her own participation in transformative behaviors. Self-efficacy relates to both internal and external cues and individuals and social messages that can impact a person's motivation, self-confidence, and perceptions regarding capacity to reach health promotion goals, including reduction of polypharmacy and the patient's effective self-management of medication regimens.

The connection between self-efficacy theory and any program developed to determine methods to reduce polypharmacy should be education-based and should focus on methods of supporting improved interactions between practitioners in the clinical setting and patients requiring support. The connection between methods for improving outcomes and specific approaches utilized by patients to take part in their care suggested a beneficial line to explore as a part of programming to reduce polypharmacy.

Measuring Polypharmacy: Framework

There are two strategies for measuring polypharmacy and specifically providing data for the evaluation of measures to reduce polypharmacy through the use of electronic health records (EHRs): the use of a patient questionnaire before and after implementation of the change initiative or the comparison of health record data and comparisons before and after implementation of EHR use. Studies that reflect the use of both of these measures are identifying the issue of polypharmacy in this particular population and creating a body of comparative data. Rambhade et al., (2012), for example, created a questionnaire that was specifically designed to assess polypharmacy by reviewing demographic information, prescribing physicians, date of prescriptions, purpose of the use of the prescription in medical treatment, a complete list of current medical conditions, and any signs and symptoms related to the use of medications. The

information in the study by Rambhade et al., (2012) was collected using the questionnaire categories as the survey instrument and semi-structured patient interviews. Before the onset of the interview, patients agreeing to participation were asked to bring a list of all their medications and prescription dates to the interview, as well as any over-the-counter medications they were taking not prescribed by a physician. This type of interview provided a large body of current data and the same type of interviews can be conducted following the implementation of an electronic health record system in order to evaluate the implications for reducing polypharmacy.

Another option for measuring reductions in polypharmacy would be to assess the level of medication use and the specific patient diagnoses in a population in a health facility utilizing traditional recording methods, and comparisons with the electronic medical record data that can be collected after implementation. Freund, Meiman and Kraus (2013) demonstrated the use of medical records to characterize the level of medication use based on demographic characteristics, including age, and the evaluation of polypharmacy in relation to specific patient conditions identified through the use of this electronic data. This approach to evaluating data allowed for the application of a retrospective inquiry into patient medication use, categories of medication prescribed, and prescribing conditions, all of which was derived in correlation with patient demographics and comorbidities. When assessing this kind of data, Freund, Meiman and Kraus (2013) found that patients in older demographic groups had a much higher level of polypharmacy and comorbidity than younger groups, placing them at higher risk of adverse events.

Section 3: Methodology

Introduction

In this quality improvement project, I used a multidisciplinary team to determine protocols for the use of EHRs with the aim of reducing polypharmacy for geriatric patients seeking treatment in a rural outpatient psychiatric clinic. The purpose of this DNP project was to create a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic.

Overall Approach/Rationale

The overall approach to developing a multidisciplinary team approach was to address the problem of polypharmacy based on the need to determine the best route for change and to determine a collaborative set of policies that ensured adequate communication across departments. The following activities were central to the progression of the quality improvement initiative from an initial idea to an applicable set of steps that was implemented:

1. I acted as the leader of a multidisciplinary team created to develop a quality improvement program based on EHR technology to reduce polypharmacy. The team included a range of different institutional stakeholders, with individuals responsible for prescribing medication for this population. As a result, I was responsible for selecting and integrating members of a multidisciplinary team in the development of policies and protocols to reduce polypharmacy.
2. I led the multidisciplinary team in exploring studies on the use of EHRs in reducing medication polypharmacy and adverse events caused by medication errors (Croll, 2010; Jha et al., 2010).

3. I led the project team to develop policy and practice guidelines.
4. I validated the content of policies and practice guidelines by sharing the information with scholars in the field. This provided a foundation for assessing the mechanisms for change in alignment with their views of evidence-based approaches.
5. I led the project team to develop an implementation plan and an evaluation plan (See Appendix C and D).
6. This approach provided a cost-effective system for creating a change initiative because it focused on my work in leading a team and creating the plan.

Assembling the Team

I approached departmental leaders at a rural psychiatric facility and outlined the project parameters. The departmental leaders were then asked to provide recommendations within their departments for participants in the project team. After collecting a document of potential candidates for participation in the team, members of each of the multidisciplinary stakeholder groups were approached and asked to participate. This process continued until at least one member of each stakeholder group was identified for participation in the team.

The multidisciplinary team was comprised of physicians, psychiatrists, psychologists, licensed clinical social workers, substance abuse counselors, nurse practitioners, and nursing support staff who provided direct services to geriatric psychiatric patients in a rural outpatient clinic. The team included one representative from each discipline among those who were present and discussed any suggestions, challenges, and concerns with the group about the implementation of a quality improvement strategy. This team also distinguished roles for the

implementation of the quality improvement program and determined lines of communication to support improvements in medication management across disciplines. The team met once a week for 6 weeks.

During the first weekly meeting, the team was asked to come together and identify themselves and discuss any specific skills they have that they bring to the table for resolving the major problem of polypharmacy for geriatric populations. This was done as a part of the strategy of opening dialogues and sharing information that could improve departmental communications. The team then assessed the existing policies and practice guidelines of the organization in order to identify any deficiencies in relation to medication management and documentation systems. The team members identified issues and provided a rationale for any changes that were proposed and subsequently implemented. This meeting set the stage for group decision-making at the next meetings. This meeting also determined the roles of participants and set goals to be completed before the next meeting. These goals included seeking evidence-based practice research in support of any proposed changes.

At the second and third weekly meeting, the team members discussed research, pursued additional research, and identified the specific policy changes proposed as extensions of the development process. The group discussed how effective the change initiative was in meeting the goals set by the group in regards to reductions in polypharmacy and improved medication management. I presented information derived from research and assembled a report for the group on the goals met by the proposed change.

At the fourth meeting of the team, the group provided a structure for the policy changes and discussed how the changes would be applied in specific policy outcomes. The team also

related methods for integrating policy changes, including educational and informational sessions to be used with staff, and the implications of not implementing the changes as identified in the new policy guidelines (See Appendix A).

The final meeting provided a wrap-up of the process, which included a review of the policy, a review of the literature pertaining to the change, and a review of instructional/informational content that was shared across departments. This end meeting was the culmination of the first five team sessions and concluded with the production of a clear guideline and presentation process for integrating the change initiative in the organization (See Appendix B).

Description of the Products

The primary products that were created through the project and team involvement in the DNP project included a new set of policies related to the use of electronic medical records to be used as the foundation for integrating EHRs into different aspects of patient care (See Appendices A and B). The primary products of the DNP project included the creation of specific policies and practice guidelines used in the clinical setting (Appendices A and B). The members of the multidisciplinary team were responsible for the creation of the primary products, and I provided a narrative review of these products. Validation procedures were based on an evaluation of outcomes and patient data both before and after implementation. The comparative data was evaluated on a departmental level in order to assess areas of change and areas in which the change initiatives were most effective (Croll, 2010; Jha et al., 2010). This corresponded with existing literature about the benefits of electronic record keeping in relation to patient process and also related to the findings of each department about the overall level of adverse events as reflections of the success or failure of policy changes.

The secondary products include an implementation plan (Appendix C) used to assess the levels of polypharmacy and the nature of adverse events prior to the integration at each level of the organization and an evaluation plan (Appendix D) used to determine variations in the outcomes for patients before and after implementation of the policies and practice guidelines. Project team members worked collaboratively to create the policy and practice guideline changes and to assess levels of need for each department prior to implementation. Implementation practices were discussed through collaboration on departmental levels. Each team member demonstrated a commitment to foster in others the same commitment to apply the initiative in the workplace. The validation procedures for the secondary products were based on an evaluation of existing literature and best practice approaches, including literature related to the use of technology and methods for developing policies across departments.

Time and Resource Constraints

This project required participation of members in the multidisciplinary team during a 6-week period in the fall and winter of 2015. This constraint was related both to the parameters of the team process and the need to complete the project in a limited span of time. Because project team participants were asked to be part of the team process on a volunteer basis, there was not a significant budget allocated to the use of staffing resources in the hospital setting. Subsequently, the project budget was limited to expenses I incurred.

Developing Policy and Practice Guidelines

The general policy change was integrated through the multidisciplinary team, which applied the change initiative that was designed to improve the quality of care by reducing polypharmacy. The policy specifically addressed the roles of different players at each tier of the

organization and has promoted the use of improved documentation systems through EHRs and a structured approach to care that ensured that patient prescribing information could be communicated to each practitioner who provided the patient with care (Croll, 2010; De Wet, 2011; Harrington, 2011; Jha et al., 2010). The policies developed were assessed in relation to the evidence-based practices identified in the existing literature to determine the set of practices that would be used at the clinic.

The leadership approach that I took in leading the team to successful policy development and implementation focused on a transformational leadership approach, which can be described as a style that raises leadership to the next level. Transformational leadership involves inspiring followers to commit to a shared vision and goals...challenging them to be innovative problem solvers, and developing [their] capacity via coaching, mentoring, and provision of both challenge and support (Bass & Riggio, 2006, p. 4).

Transformational leadership can also be described as “the process whereby a person engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower” (Northouse, 2012, p. 186). Because of the significance of this issue and the need for a more effective approach to improving patient care, this leadership style was used to help foster a sense of commitment to the change initiative during the study process.

Data and Participants

The setting for this study was a rural outpatient psychiatric clinic. This setting was selected in order to evaluate the factors that impact the services provided for patients in this kind of setting and the potential implications for services orientation using a multidisciplinary team approach. This type of clinic was also selected because of limitations in its communication

modalities and its approaches to medication management in order to support the potential of a quality improvement program to improve services.

The specific clinic provided support for people with a range of psychiatric disorders, including geriatric patients with schizophrenia, bipolar disorder, substance use disorders, and depression. In addition, this clinic frequently works with patients who have recently been released after short-stay hospital visits for psychiatric or physiological health conditions; referrals to the clinic were provided to improve patient outcomes after hospitalization.

Implementation Plan Products

I acted as the leader of the multidisciplinary team that developed a plan to be implemented in each department that provided directives for methods of communication and the use of EHRs in the rural facility. The multidisciplinary team determined which practitioners were responsible and had access to EHRs. The team also determined which practitioners providing support services would do follow-ups, which professionals provided educational support for patients, and which providers were in charge of communicating with other practitioners the information necessary to ensure appropriate medication management.

The policy plan and informational presentation were distributed to a number of specialists in the area of polypharmacy and policy development, an expert from School of Pharmacy, Yorba Linda University, and my preceptor, who is also an expert in the area of polypharmacy, working with geriatric patients, and who is an adjunct professor at USC and UCLA. These individuals were selected because of their work and their specific focus on the issue of polypharmacy in mental illness and methods to prevent polypharmacy in the elderly.

Evaluation Plan Products

I was responsible for assessing the outcomes of the project and my team determined what data were used and how they influenced assessments of the change initiative over time. The team also determined if information collected would be compared to national data collected from the current literature about the level of polypharmacy in this country, the level of polypharmacy in psychiatric patient populations, and the number of overall adverse events that occur as a measure of the success or failure of the change initiative.

Summary

The objectives and outcomes of this program were based on a DNP candidate-led multidisciplinary team that was formed to address the issue of polypharmacy in a rural mental health facility. The team members focused on methods to improve patient outcomes based on the use of electronic health records to be used to reduce polypharmacy in rural outpatient psychiatric clinics. This was based on the practice changes determined by the team during weekly meetings over a 6-week period.

This plan for use of a DNP candidate-led team in creating a change initiative was recognized as a method of contributing to evidence-based practice by providing documentation of support for developing quality improvement methods that reduced polypharmacy. This project focused on a multidisciplinary approach to supporting improvements in the use of EHRs, attention to patient evaluation, and improved understanding of medication compliance. The application of the project in this area was viewed as a way of helping to defend the need for differentiated services in the outpatient psychiatric clinic linked to the quality improvement measure. This program was in response to an identified need in the clinical setting, in this case

the need to reduce polypharmacy for elderly patients, and the perceived benefits of the use of improved technologies.

Section 4: Findings, Discussion, and Implications

Introduction

For geriatric patients who frequently experience multiple comorbid physical and psychiatric conditions, the issue of polypharmacy is especially problematic. The use of multiple drugs prescribed by multiple prescribers, sometimes for the same condition, can result in adverse drug reactions (Hoffman et al., 2011). Polypharmacy can cause significant adverse events and can hinder effective treatment for elderly patients who have multifactorial health states. In the rural psychiatric facility, the focus of this project is the implementation of a strategic approach to reducing polypharmacy by improving communication and documentation methods of a range of providers (Slabaugh et al., 2010). The purpose of this DNP project was to create a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The expected outcomes of this study were to identify medications for each patient, increase patient knowledge, improve communications between practitioners, and reduce polypharmacy through the use of EHRs. Reducing polypharmacy requires a commitment on the part of practitioners to support improved patient outcomes through the implementation of a quality improvement change initiative.

The primary products that were developed as a part of this process included a set of policy and practice guidelines (Appendices A and B). The secondary products developed included an implementation plan (Appendix C) and an evaluation plan (Appendix D). The implementation plan was developed with the goal of assessing the levels of polypharmacy and adverse events before a change initiative. The evaluation plan was developed to determine variations in the outcomes through the process of implementation of policies and practice

guidelines. The policy and practice guidelines were created with input from a multidisciplinary team to clearly identify expectations and changes. The overall results of the project included the creation of a multidisciplinary team, the development of a set of policies and protocols for the use of EHRs in the clinical setting, and the successful implementation and evaluation of the change initiative.

Discussion of Project Products

The project process required specific steps, the first of which was the creation of a multidisciplinary team. This team was responsible for the development of the project products, including the implementation and evaluation plans as well as the policy and practice guidelines that will dictate how the change initiative is maintained in the clinical setting over time. These products provide the framework and support for the change initiative and demonstrate the connection between what were the practices in the facility at the time and the gaps in information that had to be addressed to reduce polypharmacy. The implementation plan was created with the aim of evaluating the levels of polypharmacy and the impacts of adverse events in order to define the scope of the problem.

The implementation plan identified the specific areas of the organization and the level of involvement without actually being derived from an implementation process. These areas included the organizational level and departmental level. One of the most compelling statements made by participants in the multidisciplinary team was that there needed to be protocols and systems that were maintained at the organizational level and implemented at the departmental level, and this was demonstrated in the differentiation between the two in the implementation plan outline in Appendix C.

The implementation plan included organizational evaluations of the key access points for EHRs in order to determine how effective a change initiative using EHRs could be, the existing organizational directives for the prescribing systems already in place, and the overall problem of polypharmacy for the organization as a whole. In conjunction with these points, the implementation plan also related the need for the integration of technology-based reporting systems and the underlying connection between these systems and funding mechanisms for the mental health facility. The reflections for the organization as a whole are provided in Appendix E.

From a departmental standpoint, the implementation plan took on a much more concrete focus and identified the level of responsibility as well as the departmental expectations for the use of EHRs, and it specifically noted the occupations in which participation in the change initiative would be mandated. This included identifying every person in each department who would have access to EHRs and all of the people involved in prescribing at each level of the organization. In order to create an impetus for acceptance of the change initiative, the focus on levels of polypharmacy for each was a necessary component of the implementation plan. Finally, the implementation plan at the departmental level also included the identification of methods through which technology could be expanded and individuals trained to ensure adequate use.

An example of potential results from the departmental assessment is included in Appendix F. This specifically focused on the key components of the implementation plan and potential outcomes for the Geriatric Psychology department of the mental health facility, because of the prevalence of this problem for the specific population being assessed and the role of the department in addressing their service needs. The information provided in this implementation

plan addressed the specific needs of the department in terms of overall prescribers, access point needs, and the problems that relate specifically to how polypharmacy is assessed, including intake information and its impacts.

The evaluation plan provided in Appendix D outlined the variations in the outcomes through the process of implementing policies and practice guidelines. The organizational rubric set out the parameters for assessing planning, initiation, strategic implementation, policy assessment, and successful outcomes in relation to the different aspects of the problem: communication, polypharmacy, and adverse events. One of the notable elements regarding communications in the interdisciplinary team was that adverse events were not reported as concretely as they should have been. One nurse practitioner maintained that not all adverse events that were likely impacted by polypharmacy were described that way in the evaluation or treatment process, and so were not always indicated in data collected about the level of impact on a department.

The project focused on the planning and development process, and so outcomes of the implementation and evaluation were not a part of this project. Members of the multidisciplinary team reflected on how they perceived the implementation and evaluation plan processes to evolve, and this information is provided in Appendices E, F, and G.

The policy guidelines outlined in Appendix A were the foundation for the change initiative and were clearly identified by the multidisciplinary team as the foundation for the changes that occurred. These represent the end product, and modifications were not made to these policies after they were finalized. The policies included the use of EHRs for patient documentation, the use of EHRs across departments, the use of technology to support accuracy

in record keeping, the identification of privacy approaches that are in alignment with HIPAA to diminish breaches of privacy from multiple access points, and the use of educational systems in the mental health facility to improve overall integration of technology. Multidisciplinary team members worked collaboratively to create the policy and practice guideline changes and to assess levels of need for each department prior to implementation. Implementation practices occurred through collaboration on departmental levels. Each team member demonstrated a commitment to the process of change and fostered commitment in others to apply the change initiative to the workplace process.

The outcomes of this project reflected the views of team members about the connection between communication modalities and the approaches to maintaining accurate records for geriatric patients, specifically with the aim of reducing polypharmacy. For geriatric patients who have multiple comorbid conditions, polypharmacy is becoming increasingly common when communication between practitioners is inadequate (Hoffman et al., 2011). Members of the multidisciplinary team maintained that even though their facility was relatively small, communications did not occur on a regular basis to support the accuracy of patient care plans in reflecting the prescribing practices for each patient. This corresponds with the findings of researchers including Slabaugh et al., (2010), who argued that polypharmacy for elderly patients is exacerbated by the fact that there are multiple states of health that may be treated by a range of practitioners, resulting in medication regimens that overlap. For example, Bilyeau et al., (2011) maintained that conditions like depression may be treated by multiple practitioners, including a psychiatrist and a general practitioner, seeing the same symptoms in a patient.

One of the challenging aspects of creating the plan and identifying approaches to change within the multidisciplinary team was settling on a definition of the problem of polypharmacy. The team settled on creating a definition and reflecting the need for intervention based on the belief that polypharmacy can be seen as the concurrent use of multiple drugs for the treatment of the same clinically indicated illness as well as the presence of inappropriate drug use or the use of multiple drugs in a manner that is ineffective, excessive, or can result in adverse events (Viktil et al., 2007).

The most significant measurable outcomes sought in this project were the demonstration of a reduction in polypharmacy from current levels to no incidences after implementation of the multidisciplinary team-initiated EHR project. Though this was clearly an aim of the process, the details identified in Appendices E, F, and G reflected projected views of what could occur when implemented. This was based on the assertion that no level of polypharmacy would be acceptable in the clinical setting and that EHRs should trigger a report when multiple prescribers enter data about patient process into the system. One of the key tracking elements of this operation involves the constant use of updated material and ready access to the EHR system. Members of the multidisciplinary team questioned the methods for implementation that could occur through the application of the project and the impact for project outcomes. Participation and compliance with EHR use is imperative in any facility where the project is implemented because of the mechanisms involved in ensuring that polypharmacy does not occur. The EHR system identifies when three or more medications are being prescribed for an individual patient for a single condition or when overlapping prescriptions have been produced by multiple providers. When the EHR notifies the prescribing professional of the presence of polypharmacy

during the chart update process, the practitioner has a number of opportunities to contact the other professional or assess the orders that exist for the patient in order to make necessary corrections to avoid polypharmacy. Even in light of these protocol changes and the policy development, members of the multidisciplinary team maintained that errors may still occur even after implementation of the EHR system.

In the evaluation of outcomes related to the DNP project, I took on a number of roles, including the leader of the multidisciplinary team and the liaison between each department and the team itself. The team focused on the creation of the policy plan and also provided narrative information about any problem, its potential solutions, and major areas of concern in relation to the use of EHR systems and the training protocols needed for successful implementation. I was also responsible for assessing the outcomes of the project and for integrating narrative data and specific resources to determine if practitioners believed polypharmacy might continue once the plan is implemented.

Implications

Policy

The change initiative developed in this DNP project has a number of implications for policy, practice, research, and social change. The general policy change was integrated through the multidisciplinary team to apply the change initiative designed to improve the quality of care for the geriatric patients being served in the mental health facility. As a result, the policy change was in alignment with the goal and it reflected an evidence-based approach (Croll, 2010; De Wet, 2011; Harrington, 2011; Jha et al., 2010). Subsequently, the DNP project resulted in policy changes that were implemented departmentally and across the organization.

Practice

The policy changes also determined specific practice changes, including changes in the way communications occur across departments and in the approaches used to document patient process. The use of EHRs was the defining element in this practice change, and it led to significant alterations in communication systems and approaches to care. Increasingly, the team approach for creating the policies reflected a greater need for such team approaches in providing patient care. Because of the significance of this issue and the need for a more effective approach to improving patient care, this focus of this process resulted in improved function in the facility as a whole.

Research

In this research, I identified provided a foundation for policy changes and demonstrated the application of best-practice approaches related to research evidence. Current studies on the changing nature of the elderly population, increasing issues with medication management, and the need for better methods of communication are all a part of the review of literature provided (Cefalu, 2006; Greenawalt, 2009; Hoffman et al., 2011; Hogan & Kwan, 2006; Hutchinson, 2008; Porter & Kaplan, 2012; Trivalle et al., 2010; Viktil et al., 2007). Research has indicated that polypharmacy was a significant problem that had to be addressed through the policy changes (Langan & Shajahan, 2010; Tiihonen et al., 2012; Zink et al., 2010). Existing research has supported the value of the use of technology and the use of patient support mechanisms to reduce the chances of polypharmacy that result in adverse events (Langan & Shajahan, 2010). These elements were clearly identified in the change initiative for the facility.

Social Change

The change initiative and policy decision-making also reflected the importance of improving outcomes as a social change strategy. The overall problem of polypharmacy has a significant impact on populations as a whole, and this project sets the tone for increasing use of technology in rural settings to improve patient outcomes (Trivalle et al., 2010). Correspondingly, the importance of creating mechanisms through which communications can advance to improve patient outcomes was also clearly demonstrated in this project. Both of these elements support social change because they improve outcomes for patients while addressing the need for improvements in a variety of different settings.

Dissemination of the Project

The implications for both research and social change require the dissemination of this project to other professionals who can benefit from the information presented. As a result, this DNP project will be presented in informal nursing settings in mental health facilities and at a conference on mental health nursing.

Strength and Limitations of the Project

This study provided an accurate reflection of the range of different ways in which EHRs can be used to ensure medication use is in alignment with patient needs, and the use of data from a facility and a multidisciplinary team are both strengths of this project. One of the weaknesses is that this project did limit the focus to the application in a single rural facility and so the outcomes cannot fully be understood if applied in other settings.

Analysis of Self

As a DNP candidate, I recognized the importance of accurate and adequate communication in the care of patients and also sought methods to ensure that this could occur in

rural settings where practitioners may be spread out over different facilities. My focus was to ensure that communication could occur and that medication management was as accurate as possible through the use of new technologies. I sought this information and used a multidisciplinary team approach to developing protocols for its use in the rural mental health facility. The policy development process required a leader for the multidisciplinary team and I became this leader, employing a variety of leadership techniques and fostering beneficial communication in the group through a transformational leadership model. Transformational leadership involves inspiring followers to commit to a shared vision and goals, "...challenging them to be innovative problem solvers, and developing [their] capacity via coaching, mentoring, and provision of both challenge and support" (Bass & Riggio, 2006, p. 4). This was my focus during the process, and I used a range of strategies during the team process to realize applicable change. I gained a significant amount of insight into the development of policy through the discourse about policy process and also recognized the variety of stakeholders who can be involved and the different stakeholder interests that are reflected when discussions about policy process occur.

As a practitioner, scholar and project manager, I found that the two elements are intertwined when exploring major policy changes in the clinical setting. The stakeholders involved in the process of change frequently require a broad range of information supporting a change initiative, and solid leadership requires a rationale for change in order to challenge resistance. The use of the team approach had significant benefits in addressing stakeholder concerns and in creating an effective method for communicating both the need for change and the approaches to best address change in each department.

The long-term goals for myself as a practitioner, scholar, and project manager include some of the same elements: to maintain a consistent message, to demonstrate understanding of a range of perspectives, to strive for greater knowledge, and to enact effective change.

Recognizing that nursing is a dynamic profession requiring continuous change and constant awareness of stakeholder interests should be a foundational element in driving nursing research.

After this DNP project was completed, I recognized my need to constantly assess the best approaches in nursing care and to determine strategic approaches through the application of effective research.

Summary

Research clearly indicates that polypharmacy is particularly problematic in geriatric patients and in psychiatric populations as a whole (Langan & Shajahan, 2010; Tiihonen et al., 2012; Zink, Englisch, & Meyer-Lindberg, 2010). There is increasing evidence that effective communication and effective medication management go hand-in-hand, and this project provided additional support for this assertion. Communication and management systems that are technology-based, including the use of electronic health records (EHRs) provide a foundation for communications between varied practitioners in the rural mental health facility and can help to reduce the level of polypharmacy.

The aim of this DNP project was to create a quality improvement program for reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The multidisciplinary team created and supported a policy change and new technologies. This information suggests the need for continued study of the impacts of EHRs in the clinical setting and continued research into the best approaches to reducing adverse events from poor medication management.

Section 5: Scholarly Product

Abstract

Adequate medication management should be a focus of effective care for patients, but can often be overlooked in caring for adults with comorbid psychiatric and physical conditions. This is especially true when patients see multiple care providers and when they have a variety of health issues that are being treated at the same time. The purpose of this DNP project was to create a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The theoretical foundations are based on Bandura's (1997) self-efficacy theory used to assess a person's motivation, capacity for self-regulation, and perceptions regarding individual ability to meet particular end goals. The goals of this project included creating a multidisciplinary team to explore the best approaches to implementing electronic health records (EHR) in a rural mental health facility, and creating a policy change and educational program to implement the new plan developed by the multidisciplinary team. The multidisciplinary team successfully developed a protocol and educational plan for nursing staff to apply to the use of EHRs to prevent polypharmacy in the rural psychiatric outpatient setting. This project led to the creation of protocols for the introduction of an electronic health record (EHR)-based approach to patient medication management supported by professionals from a range of fields. This project utilized a multidisciplinary team to explore the best approaches for implementing an EHR-based approach. The major products for this project included the multidisciplinary team, the plan for integrating medical records and assessments through EHRs, and the specific practice guidelines. The problem of polypharmacy is becoming increasingly common in older adults, and poses a threat to individuals in rural settings. Developing methods

and strategies to improve patient outcomes and reduce adverse events is becoming a necessary component of care for elderly patients.

Program Evaluation Report

The preliminary outcomes of the evaluation plan after an initial period of implementation reflected interesting perspectives on the impacts of each stage of the process. These preliminary results were reflected in documentation provided in Appendix G. The results included here integrated both the views of the strategic process and the steps through which changes were made in relation to improving communication and reducing both polypharmacy and adverse events. This included relating whether successful outcomes were achieved. Though the aim was to reduce polypharmacy so that zero adverse events would occur, this goal was not achieved as a part of the change initiative. Continued participation in the policies and approaches outlined would determine the continued movement towards this aim over time.

Problem

Adequate management of patient medication regimens can be a difficult component of care, primarily because many practitioners rely on reports of patients about their medications, both prescribed and over-the-counter, in order to determine the need for additional medications or if adverse interactions might occur. This results in the problem of polypharmacy, which Viktil et al., (2007) described as “the concurrent use of multiple drugs, [or]...the use of more drugs than are clinically indicated or too many inappropriate drugs” (p. 187). Hoffman et al., (2011) maintained that this can sometimes reflect an imprecise view of the overall problem in relation to psychiatric patients, and they more clearly defined polypharmacy for this population as the use

of two or more medications in the same patient to treat the same condition, or the use of two or more of the same chemical class of medications used to treat the same psychiatric ailment.

For geriatric psychiatric patients, who often have multiple comorbid psychiatric and physical conditions, polypharmacy can result from the use of multiple psychiatric drugs, multiple prescribers, and/or the use of drugs that result in adverse drug reactions because of the lack of continuity in communications regarding overlapping medication regimens (Hoffman et al., (2011). Slabaugh et al., (2010) maintained that polypharmacy can complicate the treatment process for elderly patients who have multifactorial health states and require medications for psychiatric conditions. In addition, one of the problems for elderly populations is that medication regimens may become less effective over time, resulting in the perceived need for additional medications, especially in the treatment of psychiatric conditions (Bilyeu et al., 2011).

Purpose

The purpose of this DNP project was to develop a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. This quality improvement program focused on three specific areas designed to reduce polypharmacy: 1-identifying all medications, prescribed and over-the-counter, utilized by each patient; 2-increasing patient understanding of the purpose and side effects of each medication; and 3-improving communications among practitioners to reduce the opportunities for polypharmacy. The focus of this program was the incorporation of new policies and systems in a multidisciplinary team approach to improving patient care.

Goals and Outcomes

The most significant goal of this project was to introduce a new approach to systematically addressing the issue of polypharmacy with the aim of reducing the problem in elderly populations receiving treatment in a rural psychiatric outpatient clinic. The goal of creating the project to reduce polypharmacy required the ability to assess current perspectives on changing the present system and the level of commitment that individuals have to improving patient outcomes through the implementation of the project.

The overall approach to developing a multidisciplinary team method was to address the problem of polypharmacy based on the need for effective collaborative policies, leading to the creation of a multidisciplinary team to develop a quality improvement program based on EHR technology to reduce polypharmacy. The team included a range of different institutional stakeholders and individuals responsible for prescribing medication for this population.

Significance for Future Practice, Research, and Social Change

Elderly populations seeking treatment in rural psychiatric outpatient clinics may have a long history of psychiatric disorders and demonstrate problems that range from effective adherence to medication regimens to the need for periodic and/or systematic changes in medication that can impact the level of control over the psychiatric disorder (Greenawalt, 2009; Hoffman et al., 2011; Hogan & Kwan, 2006). For example, an elderly patient may have experienced years of well-controlled bipolar disorder and may find that he or she is suddenly experiencing symptoms. This patient may be treated by one or more practitioners, who may prescribe a range of medications to treat the symptoms. Changes in physiological processing of medication and changes in the levels of response to a medication may result in a variety of

different views on the best treatment modalities for the patient. In addition, the presence of comorbid health conditions and medications can result in polypharmacy that has a negative impact on the patient's psychiatric and physical condition.

Most practitioners reflect on the patient's history, including prescribing history, as a part of their evaluation of the need for new medications (Hutchinson, 2008). At the same time, a focus on patient self-reports of medication and the present use levels for medication does not always reflect a full and complete assessment of the medication regimen. Subsequently, practitioners need to determine more effective strategies for gaining insight into patient medication use, medication regimens prescribed, and the potential for adverse events each time a patient presents in the rural psychiatric outpatient clinic.

The significance of the project related directly to the increase in the number of elderly patients seeking services, the increasing need for effective medication management, and the noted number of adverse events that were occurring as a result of medication mismanagement. The increase in our aging population is ongoing: There were approximately 40 million people living in the United States over the age of 65 in 2010, which comprised about 13% of the population (FIFARS, 2012); that number will jump to over 72 million in 2030 to comprise about 20% of the population (FIFARS, 2012).

Literature and Evidence

There are distinct physiological and psychological changes that occur with age. Elderly adults experience changes that impact how medications are processed, and this can change expected outcomes of medications. Specifically, bioavailability can be impacted by age, and this is reflective of changes that correspond with aging, including weight gain, changes in excess fat

deposition, and changes in GI processing, increased levels of stress, and decreased levels of physical activity (Porter & Kaplan, 2012). As people age, their metabolism of medications can slow, which corresponds both with a general slowing of metabolism and the impacts of physical condition, all of which require adjustments to drug interventions or therapies that are being used for elderly patients.

Patients aged 65 and older often experience suboptimal pharmacotherapy, primarily because of changes in drug metabolism, target organ sensitivity, problematic drug interactions, and even drug toxicity (Trivalle et al., 2010). Commonly, these changes result in longer periods of drug activity, which can have a greater or lesser drug effect and an increased level of potential toxicity resulting from metabolic changes (Trivalle et al., 2010).

While the current literature reflected the nature of this problem in regards to psychiatric patients in clinical settings, the assumption that these individuals were uninvolved in their medication management was a general misperception that was recognized by researchers, including Mizokami et al., (2012) and Munger (2010). Literature has indicated that communications and effective medication management is a cooperative element requiring compliance, support, and regular assessments in order to reduce the chances of problematic medication mismanagement (Tiihonen et al., 2011). Existing literature has maintained the importance of the use of technology and the use of patient support mechanisms to reduce the chances of polypharmacy that results in adverse events (Langan & Shajahan, 2010).

Suokas et al., (2013) conducted a large nationwide study to determine the prevalence and potential predictors of long-term polypharmacy specific to patients receiving treatment for schizophrenia. This project specifically focused on the impacts of antipsychotic polypharmacy in

patients and reflected on those who had experienced at least one hospitalization for schizophrenia during the study period (Suokas et al., 2013). The researchers conducted a cohort study defined by the presence of hospitalization for schizophrenia between 2000 and 2007 in order to determine if antipsychotic polypharmacy had occurred. Because of the precarious nature of treatment modalities for patients with schizophrenia, these researchers identified the problem of polypharmacy simply as patients being prescribed two or more overlapping prescriptions for different antipsychotics in a 60-day period (Suokas et al., 2013). They found that patients with schizophrenia and antipsychotic polypharmacy were at an unacceptable level, with more than 46% of patients experiencing this problem. In addition, the researchers posited that there were implications that this kind of prescribing mismanagement of patients with schizophrenia can lead to the need for hospitalization.

Cefalu (2006) maintained that while this predisposition to adverse reactions occurs in populations over the age of 65, the most problematic outcomes of these reactions occur in patients over the age of 85, who can take an average of 5 to 8 drugs each day. “A number of reports have shown that the risk of adverse drug events in elderly patients rises with comorbidity; increasing numbers of medications; inappropriate medications; the use of antipsychotics, anticoagulants, diuretics, and antiepileptics; and the use of multiple prescribers and pharmacies by patients and caregivers” (Cefalu, 2006). The use of a patient profile and pharmacology questionnaire should occur at each visit, including an identification of any alternative treatments or supplements that could interfere with the function of other drugs. Sharing this information through the use of electronic health records was identified as the program approach best suited to reduce polypharmacy and improve patient outcomes.

Literature specific to the issue of polypharmacy in elderly patients with psychiatric disorders related to the connection amongst changing psychiatric medications, changing patient needs, and comorbid conditions that exist for elderly patients, all of which can increase the risk of polypharmacy. This specific project provided a foundation for understanding the overall problem and could subsequently be applied to scrutinize the process at a rural outpatient psychiatric clinic.

Interdisciplinary Teams

Implementing a multidisciplinary approach to reducing polypharmacy required an assessment of current systems, the creation of recommendations from the multidisciplinary team for change, and the views of practitioners about their commitment to reducing the problem of polypharmacy through program implementation. This was completed within the team process as components of the DNP project. The DNP candidate acted as the leader of the multidisciplinary team. The project sought to demonstrate reduction in polypharmacy from current levels to no incidences after implementation of the multidisciplinary team-initiated EHR project planned by this DNP candidate.

The DNP candidate developed a multidisciplinary team from selected from different departments and set the goal of creating policies and practice guidelines to reduce polypharmacy. After selection, the multidisciplinary team explored studies on the use of EHRs in reducing medication polypharmacy and adverse events caused by medication errors (Croll, 2010; Jha et al., 2010). This information was then used in the development of policies and practice guidelines. The project team, led by the DNP candidate, developed policy and practice guidelines.

After these policies were developed, the information was shared with scholars in the field to validate the content of the policies and practice guidelines. This provided a foundation for assessing the mechanisms for change in alignment with their views of evidence-based approaches. The project team developed an implementation plan for these policies and methods for evaluating the outcomes of the policies (See Appendices C and D). The outcomes of the development process included recognition that the approach provided a cost-effective method of change that could improve patient outcomes and the quality of care.

This included the strategies for the application of the set of proposed policies in rural mental health facilities. Because no level of polypharmacy is acceptable and because of the severity of adverse reactions for the elderly population studied, the use of electronic health records as a change protocol should aim for reduction to zero events after implementation of the program planned in this project. The policies and practice guidelines and methods of evaluating their effectiveness were developed as a part of the multidisciplinary team approach.

1. The DNP candidate acted as the leader of a multidisciplinary team created to develop a quality improvement program based on EHR technology to reduce polypharmacy. The team included a range of different institutional stakeholders, with individuals responsible for prescribing medication for this population. As a result, the researcher was responsible for selecting and integrating members of the multidisciplinary team in the development of policies and protocols to reduce polypharmacy;

2. The DNP candidate led the multidisciplinary team in exploring studies on the use of EHRs to reduce medication polypharmacy and adverse events caused by medication errors (Croll, 2010; Jha et al., 2010).

3. The project team, led by the DNP candidate, developed policy and practice guidelines.
4. The DNP candidate validated the content of policies and practice guidelines by sharing the information with scholars in the field. This provided a foundation for assessing the mechanisms for change in alignment with their views of evidence-based approaches.
5. The project team, led by the DNP candidate, developed an implementation plan and an evaluation plan (See Appendices C and D)
6. This approach provided a cost-effective system for creating a change initiative because it engaged the work of the DNP candidate to lead the team and create the plan.

Discussion and Implications

The outcomes of this project reflected the views of team members about the connection between communication modalities and the approaches to maintaining accurate records for geriatric patients, specifically with the aim of reducing polypharmacy. For geriatric patients who have multiple comorbid conditions, polypharmacy is becoming increasingly common when communication between practitioners is inadequate (Hoffman et al., 2011). Members of the multidisciplinary team maintained that even though their facility was relatively small, communications did not occur on a regular basis to support the accuracy of patient care plans in reflecting the prescribing practices for each patient. This corresponds with the findings of researchers including Slabaugh et al., (2010) who argued that polypharmacy for elderly patients is exacerbated by the fact that there are multiple states of health that may be treated by a range of practitioners, resulting in medication regimens that overlap. The primary and secondary products

of this project demonstrate the progression towards this goal through the development of the team approach and the identification of potential policy and guideline changes.

Primary Products

The primary products created through the team's involvement in the DNP project included a new set of policies related to the use of electronic medical records, which created the foundation for integrating EHRs into different aspects of patient care (Appendices A and B). In addition to establishing new policies, the primary products of the DNP project included the creation of practice guidelines used in the clinical setting (Appendices A and B).

Secondary Products

The secondary products included an implementation plan (Appendix C) used to assess the levels of polypharmacy and the nature of adverse events prior to the integration at each level of the organization. It also included an evaluation plan (Appendix D) utilized to determine variations in the outcomes for patients before and after implementation of the policies and practice guidelines. Project team members worked collaboratively to create the policy and practice guideline changes and to assess levels of need for each department prior to implementation. Implementation practices were outlined through collaboration on departmental levels. Each team member demonstrated a commitment to the process of change and fostered commitment in others with the view of one day applying the change initiative to the workplace process.

Summary

Research clearly indicates that polypharmacy is particularly problematic in geriatric patients and in psychiatric populations as a whole (Langan & Shajahan, 2010; Tiisonen et al.,

2012; Zink, Englisch, & Meyer-Lindberg, 2010). There is increasing evidence that effective communication and effective medication management go hand-in-hand, and this research project provided additional support for this assertion. Communication and management systems that are technology-based, including the use of electronic health records (EHRs), could provide a foundation for communications among varied practitioners in the rural mental health facility to help reduce the level of polypharmacy.

The aim of this project was to create a quality improvement program for reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The policy changes produced in this project were designed to ensure reductions in polypharmacy and support measures for improved quality. These perspectives were seen through narrative data on a departmental level that supports the continued development of this kind of change protocol. This information suggests the need for continued study of the impacts of EHRs in the clinical setting and continued research into the best approaches to reducing adverse events due to poor medication management.

Dissemination Project

My DNP project was based on the identification of polypharmacy as a significant problem for health care practitioners and nursing staff in psychiatric hospitals. As the DNP project coordinator, I sought methods to reduce polypharmacy for this population and pursued research-based methods to improve patient outcomes. The specific focus of this project was to bring together a multidisciplinary team to create a set of policies and guidelines to be used for the implementation of electronic health records as a standard of care to reduce polypharmacy in a rural mental health facility.

Polypharmacy in populations of adults age 65 or older is a significant issue, especially in populations receiving care in mental health facilities. This evidence-based research project assessed the problem of polypharmacy from a variety of perspectives, provided a definition for polypharmacy for this specific population, and proposed a method that was preliminarily implemented to create greater accountability in addressing the needs of an aging population through the use of electronic health records (EHRs). This project was developed to change the way in which healthcare professionals address the needs of their patients in rural health clinics, which includes assessing their medication needs and seeking information, through the use of improved technologies, that can prevent polypharmacy in this vulnerable population.

Problem

This project is based on the belief that adequate management of patient medication regimens can be a difficult component of care, but only through doing so can practitioners ensure the safety of their patients. The problem of polypharmacy is a significant one that impacts elderly psychiatric populations more than any other single population (Slabaugh et al., 2010). For geriatric psychiatric patients who often have multiple comorbid psychiatric and physical conditions, polypharmacy can result from the use of multiple psychiatric drugs, multiple prescribers, and/or the use of drugs that result in adverse drug reactions because of the lack of continuity in communications regarding overlapping medication regimens (Hoffman et al., 2011).

Purpose

The purpose of this DNP project was to develop a quality improvement program with the aim of reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. This

quality improvement program focused on the creation of policies and guidelines by a multidisciplinary team to implement the use of EHRs in reducing polypharmacy.

Goals and Outcomes

The overall approach to developing a multidisciplinary team method was to address the problem of polypharmacy based on the need for effective collaborative policies. This entailed the creation of a multidisciplinary team to develop a quality improvement program, as well as policies and guidelines based on EHR technology to reduce polypharmacy. The team included a range of different institutional stakeholders, including individuals responsible for prescribing medication for this population.

Significance

The significance of the project related directly to the increase in the number of elderly patients seeking services, the increasing need for effective medication management, and the noted number of adverse events that occur as a result of medication mismanagement. There were approximately 40 million people living in the United States over the age of 65 in 2010, which comprises about 13 percent of the population (FIFARS, 2012). That number will jump to over 72 million in 2030, increasing to about 20 percent of the population (FIFARS, 2012).

Literature and Evidence

Patients aged 65 and older often experience suboptimal pharmacotherapy, primarily because of changes in drug metabolism, target organ sensitivity, problematic drug interactions and even drug toxicity (Trivalle et al., 2010). Commonly, these changes result in longer periods of drug activity, which can have a greater or lesser drug effect, and an increased level of potential toxicity resulting from metabolic changes (Trivalle et al., 2010).

Existing literature maintained the importance of the use of technology and the use of patient support mechanisms to reduce the chances of polypharmacy that results in adverse events (Langan, & Shajahan, 2010). Literature specific to the issue of polypharmacy in elderly patients with psychiatric disorders related to the connection amongst changing psychiatric medications, changing patient needs, and comorbid conditions that exist for elderly patients, all of which can increase the risk of polypharmacy. This specific project provided a foundation for understanding the overall problem and could subsequently be applied to scrutinize the process at a rural outpatient psychiatric clinic.

The Team

Implementing a multidisciplinary approach to reducing polypharmacy required an assessment of current systems, the creation of recommendations for change by the multidisciplinary team, and the views of practitioners about their commitment to reducing the problem of polypharmacy through program implementation. This was completed within the team process as components of the DNP project. The project sought to demonstrate reduction in polypharmacy from current levels to no incidences after implementation of the multidisciplinary team-initiated EHR project planned by this DNP candidate.

Discussion and Implications

The outcomes of this project reflected the views of team members about the connection between communication modalities and the approaches to maintaining accurate records for geriatric patients, specifically with the aim of reducing polypharmacy. For geriatric patients who have multiple comorbid conditions, polypharmacy is becoming increasingly common when communication between practitioners is inadequate (Hoffman et al., 2011).

Primary Products

The primary products that were created through the project and team involvement in the DNP project included a new set of policies related to the use of electronic medical records to be used as the foundation for integrating EHRs into different aspects of patient care (Appendices A and B). The primary products of the DNP project included the creation of specific policies and practice guidelines used in the clinical setting (Appendix A and B).

Secondary Products

The secondary products included an implementation plan (Appendix C) used to assess the levels of polypharmacy and the nature of adverse events prior to the integration at each level of the organization and an evaluation plan (Appendix D) utilized to determine variations in the outcomes for patients before and after implementation of the policies and practice guidelines. Project team members worked collaboratively to create the policy and practice guideline changes and to assess levels of need for each department prior to implementation. Implementation practices were outlined through collaboration on departmental levels. Each team member demonstrated a commitment to the process of change and fostered commitment in others with the view of one day applying the change initiative to the workplace process.

Summary

Research clearly indicates that polypharmacy is particularly problematic in geriatric patients and in psychiatric populations as a whole (Langan & Shajahan, 2010; Tiihonen et al., 2012). There is increasing evidence that effective communication and effective medication management go hand-in-hand, and this research project provided additional support for this assertion. Communication and management systems that are technology-based, including the use

of electronic health records (EHRs) could provide a foundation for communications between varied practitioners in the rural mental health facility and help to reduce the level of polypharmacy.

The aim of this DNP project was to create a quality improvement program for reducing polypharmacy in elderly patients in a rural outpatient psychiatric clinic. The policy changes produced in this project were designed to ensure reductions in polypharmacy and support measures for improved quality. These perspectives were seen through narrative data on a departmental level that supports the continued development of this kind of a change protocol. This information suggests the need for continued study of the impacts of EHRs in the clinical setting and continued research into the best approaches to reducing adverse events from poor medication management.

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Appendix A: Policy Final Product

Purpose: Following are the central components of the policy's purpose:

- To establish a set of guidelines for the use of electronic health records (EHRs) in the rural health care facility;
- To create the parameters by which EHRs will be used to ensure the accuracy of patient prescribing, thus reducing medication errors;
- To meet medical records compliance requirements set forth by the Federal and State Laws;
- To ensure the confidentiality of every patient.

Scope: This policy applies to all employees and management of the rural mental health facility across all departments, including any practitioners contracted to work on behalf of the facility.

Responsibility: Physicians, nursing staff, mental health practitioners, clinicians, and medical records/billing staff at the rural mental health facility.

Policy: The rural mental health facility will ensure the maintenance and protection of health records in alignment with legal requirements. After implementation, each patient will participate in an in-take interview that will include a review and documentation in EHR of all medications and OTC products utilized by the patient, in addition to health status updates. EHRs will be used to ensure the adequate sharing of technology-based patient information to support appropriate care; the use of the EHR by practitioners with licensure to prescribe medications, including

access to and review of patient EHR prior to prescribing any medication; the entering of prescribed medications, and the review of any flags that occur prior to distributing medications to a patient; the documentation of any subsequent medication conflicts; practitioner-to-practitioner communications; and changes made to prescribed medications or medication management plans in the EHR.

Confidentiality: All personnel who have access to patient protected health records must sign a Confidentiality Agreement that assures the privacy of password and patient information, and the protection of access points. Access to EHRs will be protected in accordance with HIPAA regulations in regards to the retrieval, availability, accessibility and confidentiality of personal patient information.

Patient Referral and Tracking: EHRs will also be utilized to support increased communication during patient referral or transfer to other mental health facilities or practitioners, and this includes managing EHR operations in real-time to maintain the immediacy and accuracy of patient information as they move between practitioners.

Reference

Health Insurance Portability and Accountability Act (HIPAA) Privacy & Security Rule, 45 CFR 160-164.524

Appendix B: Practice Guidelines

The practice guidelines for the rural health care facility are based on two specific aims: 1. To create a systems-oriented approach to maintaining the safety of all patients, and 2. To create a safe environment within which all patients can work towards their personal goals by recognizing the errors, their causes, and a strategic approach for change. Following are the guiding points for practice:

1. Adopt the use of EHRs as a part of a systems approach to reducing medication errors in the rural mental health facility;
2. Utilize EHRs as a means of systematically documenting patients at each stage of their treatment, including their intake, assessments, medication management, outtake, and referral or transfer.
3. Maintain the confidentiality of each practitioner accessing patient care.
4. Utilize EHRs to ensure that reporting mechanisms are updated in real-time and can support communication across departments.
5. Provide physicians, clinics, nursing professionals, and others involved in medication administration with the skill they need to effectively assess patient condition, identify red flags, and use technology as a basis for communication with other practitioners providing care.
6. Support the use of EHRs in every department in the organization.
7. Create training for practitioner groups in order to improve the quality of medication management.

Guidelines	Approach
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<p>Adopting EHRs to Reduce Medication Management</p>	<p>Nursing staff will document EHRs at intake and the information will be used by physicians, nurse practitioners and other professionals with prescribing licensure to make medication management decisions.</p>
<p>Systematic Documentation at Each Patient Stage</p>	<p>Any mental health professionals working directly with patients will access and update EHRs whenever treatment is provided. Documentation will include: updating medication information, relating OTC medication use, relating significant alterations in health that can impact decision-making.</p>
<p>Confidentiality</p>	<p>The Privacy Rule provides that an individual has a right to adequate notice of how a covered entity may use and disclose protected health information about the individual, as well as his or her rights and the covered entity's obligations with respect to that information (HIPAA, 2003). Because a variety of access points exist for the EHR technology, the Privacy Rule will be applied to protection of patient information at remote locations. Passwords will be identified through a generated system and clinicians</p>

	will have to utilize these to log into specific information.
Real-Time Communication	All health professionals will document their interactions with patients and any alteration of patient information while working directly with the patient. The person-to-person sharing of information in real time is based on the importance of this information that is needed for change.
Prescribing Professional Process	The following process will be followed: Review of EHR information; Input of new patient information; Update of medication management plan; Identification of new prescription; Input of new prescription; Evaluation of any red flags; Communication with other prescribing professionals, when needed; Subsequent update of any new or changing prescribing plan.
Training	Two mandatory training programs will be conducted prior to use of the new system. Key components of the training program will include the

	<p>rationale/purpose of the approach, the systematic approach to be utilized, methods for evaluating the outcomes, assessments and communications utilized between practitioners, and the importance of real-time action and communication.</p>
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Appendix C: Implementation Plan

The implementation plan was developed with the goal of assessing the levels of polypharmacy and the nature of adverse events prior to the integration at each level of the organization.

	EHR Access Points	Prescribing Systems	Levels of Polypharmacy	Reporting Systems
Organizational	Identify key access points and determine which departments will be utilizing EHR systems.	Apply overarching organizational directives to determine the application of EHR systems for practitioners responsible for patient prescribing.	Identify the nature of the problem for the organization as a whole through reporting systems and the identification of polypharmacy in patient populations.	Integrate technology-based operations to improve reporting systems, including Medicare, Medicaid and health insurance reporting mechanisms.
Departmental	Define those responsible for access	Identify those involved in prescribing systems	Assess incidences of polypharmacy and issues	Provide training and systematic support for the

	point protection.	t each organizational ier.	related to poor performance levels and continually increasing polypharmacy rates.	continued application of echnology.
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Appendix D: Evaluation Plan

The evaluation plan was utilized to determine variations in outcomes through the process of implementing policies and practice guidelines. Following is the organizational rubric that could be used to relate the progress of the program over time.

	Planning	Initial Stage	Strategic Implementation	Policy Assessment	Successful Outcomes
Communications					
Polypharmacy					
Adverse Events					

Appendix E: Potential Organizational Implementation Outcomes

	EHR Access Points	Prescribing Systems	Levels of Polypharmacy	Reporting Systems
Organizational	Alcohol and Drug Use Child and Adolescent Services Geriatric Psychiatry Women's Mental Health Clinical Services	Start with prescribing mechanisms for departments with direct involvement in geriatric care, including Alcohol and Drug Use, Depression and Anxiety Specialists, Geriatric Psychiatry, Women's Mental Health, and Clinical Services departments.	The narrative reflections of members of the multidisciplinary team and assessments of their charting system suggest that polypharmacy occurs in almost 25 percent of cases seen in the mental health facility. Adverse events related to polypharmacy occur in only about 5 percent of cases, but members of the team maintained that	Only the billing department currently utilized technology-based reporting for their operations, based on the need for mechanized reporting systems for Medicaid and Medicare.

			polypharmacy significantly reduces the effectiveness of care.	
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Appendix F: Potential Departmental Implementation Outcomes

	EHR Access Points	Prescribing Systems	Levels of Polypharmacy	Reporting Systems
Departmental: Ex. Geriatric Psychology	Physicians Psychiatrists Nurse Practitioners Nurses Psychologists Social Workers	Physicians, psychiatrists, and nurse practitioners all have prescribing responsibilities that can be impacted by the organizational change initiative. Nurses, psychologists and social workers may provide information within the EHR system that can impact decision-making regarding prescribing, including the presence of	Higher overall rates of polypharmacy were noted in this population. About 30 percent of patients were noted as having multiple prescribers for the same medication. Nurses at in-take will be asked to interview patients regarding prescribed drug use, medication management, OTC drug use, and recreational drug use at the time of in-take. Nurses and nurse practitioners will be responsible for identifying or noting any prescription	After implementation, the Geriatric Psychology Department will relate concerns about the reporting mechanisms and other issues that might arise, e.g. the need for a shift in approaches to training or maintaining a skilled population of professionals in the rural mental health facility.

		<p>prescriptions from other practitioners, the identification of OTC drug use, or the presence of comorbid substance use disorders.</p>	<p>discrepancies or significant potential interactions, though it may be difficult to follow through with this kind of approach without the use of technology and without specific accurate information about existing prescriptions, medication management strategies, and communications between prescribers in and out of the facility.</p>	
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Appendix G: Evaluation Plan Results

The evaluation plan was utilized to determine variations in the outcomes through sharing with others in the field the policies and practice guidelines from Appendices A-B. This information is provided in narrative form with some quotes from multidisciplinary team members to support specific assertions.

	Planning	Strategic Implementation	Policy Assessment	Successful Outcomes
Communications	Adequate communications about planning were accomplished through the multidisciplinary team. (“Planning went very well and people were very cooperative.”)	The multidisciplinary team were successful in creating a clear view of the implementation process that would be applied. (“The creation of clear directives” was noted.).	Policy changes resulted in a comparison of old and new approaches and this improved communication between practitioners. “Many of us didn’t realize how little we communicated until we [viewed the] policy.”)	Communications were improved across departments through the multidisciplinary team approach, as noted through reflections of the team.
Polypharmacy	Planning incorporated direct assessments of	All members of the multidisciplinary team were on board	The needed changes in policy were clearly aligned with	Protocols for the assessment of polypharmacy were

	<p>departmental and organizational views of the problem.</p>	<p>with the process of strategic implementation to reduce polypharmacy. The goals were developed and utilized as a part of the directive for strategic change.</p>	<p>the directive to reduce polypharmacy on departmental and organizational levels.</p>	<p>identified and, when implemented, could be compared to past rates to determine areas of continued improvement.</p>
Adverse Events	<p>The planning process reflected the fact that adverse events were not always identified as directly related to polypharmacy.</p>	<p>Clearer identification of adverse events would include an evaluation of past events as a part of the strategic process in departments where the strategy would be applied.</p>	<p>Policies identified by the multidisciplinary team also identified discrepancies in views of adverse events.</p>	<p>The attainment of zero adverse events was the goal to be achieved once the plan was implemented, as was clearly outlined in the methods for implementation and evaluation.</p>