

SCREENING FOR BIPOLAR DISORDER IN THE PRIMARY CARE SETTING USING THE  
MOOD DISORDER QUESTIONNAIRE

A Dissertation  
Submitted to the Graduate Faculty  
of the  
North Dakota State University  
of Agriculture and Applied Science

By

Julian David Good

In Partial Fulfillment of the Requirements  
for the Degree of  
DOCTOR OF NURSING PRACTICE

Major Department:  
Nursing

March 2017

Fargo, North Dakota

North Dakota State University  
Graduate School

---

**Title**

Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder  
Questionnaire

---

**By**

Julian David Good

---

The Supervisory Committee certifies that this *disquisition* complies with North Dakota State  
University's regulations and meets the accepted standards for the degree of

**DOCTOR OF NURSING PRACTICE**

SUPERVISORY COMMITTEE:

Dr. Tina Lundeen

---

Chair

Dr. Dean Gross

---

Dr. Norma Kiser-Larson

---

Dr. Paul Rokke

---

Patrick Monahan

---

Approved:

3/28/2017

---

Date

Dr. Carla Gross

---

Department Chair

## ABSTRACT

The majority of patients who have mental health needs are seen by their primary care provider (PCP) for treatment. In 2014, an estimated 6.6% of adults in the United States met diagnostic criteria for a major depressive episode during the past year. However, not all patients who present to their healthcare provider with symptoms of depression have a major depressive disorder. Some of these patients may have bipolar disorder, which in addition to symptoms of depression, include symptoms of mania or hypomania.

This practice improvement project aimed to improve PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder. The project's objectives were: 1) to implement clinic wide use of the Mood Disorder Questionnaire (MDQ), which screens for a lifetime history of mania or hypomania, to assist the PCPs in the diagnosis of depression and identifying patients with possible bipolar disorder and 2) improve PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder.

The project took place at a family medicine residency clinic over a seven-month period. Four one-hour educational sessions were presented to the PCPs with pre-educational surveys and post-educational surveys administered at the beginning of the project and towards the end of the project. The surveys included seven statements assessing PCPs' confidence in identifying, diagnosing, and managing patients with depression and bipolar disorder. A four-point Likert scale was used with 1 being very confident to 4 being not confident. During the seven-month project MDQs were offered to clinic patients presenting with mental health concerns.

During the project, the MDQ was used 71 times with 23 of the 71 screens being positive. Eighteen PCPs completed the pre-education surveys and 15 PCPs completed the post-education

surveys with confidence scores increasing pre-to post survey for all seven depression and bipolar disorder statements.

Recommendations include continued use of the MDQ to screen for bipolar disorder in patients presenting with mental health concerns and offering educational sessions to increase PCP confidence in treating patients with depression and identifying patient with possible bipolar disorder.

## ACKNOWLEDGMENTS

This practice improvement project would not have been possible without the support and assistance from numerous University of Wyoming Family Medicine Residency Program at Cheyenne staff including all the nursing staff and resident physicians. My thanks to family medicine resident Dr. Cameron Grove, MD who partnered with me on this project. The hard work and time commitment from Information Technologist, David Unruh, was critical to the project's success and I would also like to thank clinic director Patrick Monahan, who agreed to be a dissertation committee member, for his wisdom and support throughout this project.

I would like to thank Dr. Tina Lundeen, my advisor and committee chair, for her knowledge, patience, and continual support.

Lastly, I would like to thank my wife Raina and our daughters Kate and Rachel who put up with me returning to graduate school, again. This should be my last degree.

## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGMENTS .....	v
LIST OF TABLES .....	ix
LIST OF FIGURES .....	x
CHAPTER ONE. INTRODUCTION .....	1
Background .....	1
Significance of Proposed Project .....	5
Purpose of the Project .....	5
CHAPTER TWO. LITERATURE REVIEW .....	6
History .....	6
Prevalence of Bipolar Disorder .....	7
Pathophysiology .....	8
Mood Disorder Questionnaire .....	9
Screening for Bipolar Disorder in Primary Care .....	11
Using Electronic Health Record System to Screen for Bipolar Disorder .....	13
Behavioral Health in Family Medicine Resident Education .....	14
Behavioral Health in Nurse Practitioner Education .....	15
Iowa Model .....	17
CHAPTER THREE. PROJECT DESCRIPTION .....	19
Project Objectives .....	20
Project Design .....	21
Objective One .....	23
Objective Two .....	25

Project Resources .....	26
Protection of Human Subjects .....	27
CHAPTER FOUR. EVALUATION .....	29
Objective One .....	29
Objective Two .....	31
CHAPTER FIVE. RESULTS .....	33
Objective One Results .....	33
Objective Two Results .....	35
Interest in Behavioral Health Topics .....	38
Educational Session Evaluations .....	40
CHAPTER SIX. DISCUSSION AND RECOMMENDATIONS .....	42
Interpretation of Results .....	42
Objective One Results .....	42
Objective Two Results .....	44
Limitations .....	45
Future Recommendations for Practice Improvement .....	48
Dissemination Strategies .....	49
Implications for Advanced Practice Nursing .....	50
REFERENCES .....	52
APPENDIX A. MOOD DISORDER QUESTIONNAIRE .....	59
APPENDIX B. THE IOWA MODEL OF EVIDENCE-BASED PRACTICE TO PROMOTE QUALITY CARE.....	60
APPENDIX C. PERMISSION TO USE THE IOWA MODEL .....	61
APPENDIX D. PRE-EDUCATION SURVEY .....	62
APPENDIX E. HEALTHCARE PROVIDER INFORMED CONSENT .....	63

APPENDIX F. MDQ COMPLETION WORKFLOW .....	65
APPENDIX G. PERMISSION TO USE THE MDQ .....	66
APPENDIX H. EDUCATIONAL SESSIONS .....	67
APPENDIX I. POST-EDUCATION SURVEY .....	82
APPENDIX J. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL .....	83
APPENDIX K. EXECUTIVE SUMMARY .....	84
Project Summary .....	84
Background .....	84
Process .....	85
Findings .....	86
Conclusions .....	87
Recommendations .....	88



## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Mood Disorder Questionnaires Completed at UWFM-Cheyenne .....	33
2. Pre-Education Surveys .....	36
3. Post-Education Surveys .....	37
4. Pre-Education Survey Interest in Behavioral Health Topics .....	39

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Pre and Post Education Survey Provider Confidence .....	38

## **CHAPTER ONE. INTRODUCTION**

According to the 2014 National Survey on Drug Use and Health there were 43.6 million adults in the United States with a mental illness in 2014. This represents 18.1% of the adult population in the country. In 2014, an estimated 6.6% of adults in the United States met diagnostic criteria for a major depressive episode during the past year (Center for Behavioral Health Statistics and Quality, 2015). Cerimele, Chwastiak, Dodson, and Katon (2013) reported that many patients who have bipolar disorder initially present to primary care with depression or symptoms of anxiety. My chosen practice improvement project, implemented at the University of Wyoming Family Medicine Residency Program at Cheyenne (UWFM-Cheyenne), aimed to improve primary care providers' confidence in treating patients with depression and identifying patients with possible bipolar disorder.

Bipolar disorder, also known as manic-depressive illness, is a disorder of the brain that can cause shifts in mood, activity levels, energy, and the ability to carry out daily tasks (National Institute of Mental Health, 2016). Cerimele et al. (2013) mentioned that bipolar disorder likely ranges from three to nine percent in the primary care patients that present with depression or other psychiatric complaints. Hirschfeld et al. (2002) reported that patients with bipolar disorder usually exhibit symptoms of depression but also have problems with substance use, irritability, impulsivity, insomnia, agitation, and other concerns. Information is rarely volunteered about manic or hypomanic episodes, so the clinician must ask about mood dysregulation, lability, or other associated manic symptoms including increased energy and a decreased need for sleep.

### **Background**

According to the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5), bipolar disorder is characterized by episodes of depression alternating with recurrent

mania or hypomania. Mania involves a period of elevated or irritable mood accompanied by increased energy or goal directed activity that lasts at least one week and is present most of the day. Three or more of the following symptoms are present: grandiosity, a decreased need for sleep, being more talkative than usual, being easily distracted, mind racing, an increase in goal directed activity, and activities, which have a potential for painful consequences such as unrestrained buying sprees or sexual indiscretions. The mood change is severe enough that it causes impairment in occupational functioning, social functioning, or results in hospitalization. The manic episode is not due to physiologic effects of a substance. Hypomania has similar features of mania but the duration is at least four days and of lesser severity than the manic episode (American Psychiatric Association, 2013).

The DSM-5 lists seven types of bipolar disorder: Bipolar I Disorder, Bipolar II Disorder, Cyclothymic Disorder, Substance/Medication-Induced Bipolar Disorder, Bipolar Disorder due to another medical condition, Other Specified Bipolar Disorder, and Unspecified Bipolar Disorder. Bipolar I Disorder must include at least one lifetime manic episode. Bipolar II Disorder is characterized by hypomania and a current or past episode of major depressive disorder. Cyclothymia involves at least a two-year period where hypomanic symptoms and depressive symptoms have occurred but criteria for hypomania and major depressive disorder have not been met (American Psychiatric Association, 2013).

A major depressive disorder is characterized by symptoms that have been present for a period of two weeks or more. These symptoms represent a change from previous functioning. At least five symptoms are necessary for the diagnosis to be made, one of the five symptoms must be depressed mood or a loss of interest in activities. Other symptoms of a major depressive disorder are significant weight loss, insomnia or hypersomnia, fatigue, feelings of worthlessness

or excessive/inappropriate guilt, trouble concentrating or thinking, recurrent suicidal ideation, and psychomotor retardation or agitation. The above-mentioned symptoms must cause impairment in functioning and cannot be attributed to another medical condition or substance. Additionally, the major depressive disorder cannot be explained by a schizophrenic spectrum, psychotic disorder, manic, or hypomanic episode (American Psychiatric Association, 2013).

According to Blount and Miller (2009), the majority of patients who have mental health needs are seen by their primary care provider (PCP) for treatment. Michels (2009), in his forward to Kaplan and Sadock's *Comprehensive Textbook of Psychiatry* (9th ed.) suggested that PCPs will have an increasingly important role in the mental health care system due to the high prevalence of mental disorders, as well as the fact that primary care prescribes more antidepressant medication than psychiatrists.

In a mailed survey to 3,375 physicians, of whom 1,125 were family physicians, 1,125 were general internists, and 1,125 were obstetrician-gynecologists, Williams et al. (1999) asked the physicians if they felt treating depression was their responsibility. The survey also asked the physicians about their confidence in treating depression. There were 1,350 physicians who returned the survey. The sample population consisted of 621 family physicians, 474 general internists, and 255 obstetrician-gynecologists. When asked if treating depression was their responsibility, 87.5% of family physicians felt it was their responsibility to treat depression, compared to 73.0% of general internists, and 40.8% of obstetrician-gynecologists. However, only 34.7% of the family physicians, 15.4% of general internists, and 3.1% of obstetrician-gynecologists were very confident in their overall ability to manage depression. Another 48.3% of family physicians, 48.5% of general internists, and 31.2% of obstetrician-gynecologists were mostly confident in their overall ability to manage depression. Consistent with the above survey

results, the de facto treatment setting for patients who have unipolar depression is primary care. However, there is an increased awareness that numerous patients with bipolar disorder are seen exclusively by their PCPs, possibly due to stigma associated with receiving care in a mental health care setting or due to lack of access to mental health care providers (Kilbourne, Goodrich, O'Donnell, & Miller, 2012).

In January 2016, the United States Preventive Services Task Force (USPSTF) recommended screening the general adult population for depression. The USPSTF indicated that with a moderate amount of certainty, the net benefits of depression screening are likely to be of moderate to substantial overall benefit. The USPSTF recommended that adequate systems should be in place to ensure an accurate diagnosis, effective treatment, and appropriate follow-up care. Positive depression screens should then lead to additional assessment of depression, comorbid psychological problems, and alternate diagnoses. There currently are no USPSTF recommendations for anxiety or bipolar disorder screening in the general adult population.

In 2013, Stahl mentioned that an important development in the field of mood disorders is the recognition that some patients once considered to have major depressive disorder actually have bipolar disorder. If the hypomania or mania symptoms go undiscovered, bipolar patients are often prescribed antidepressant monotherapy, which may increase mood cycling, mixed states, and conversion of hypomania to mania. Patients diagnosed with a bipolar spectrum disorder, and if clinical guidelines are followed, will be treated first with lithium, an anticonvulsant mood stabilizer, and/or an atypical antipsychotic medication.

Hirschfeld, Cass, Holt, and Carlson (2005) advise clinicians to consider the possibility of bipolar disorder for all patients presenting with depression. A screening tool such as the Mood

Disorder Questionnaire (MDQ), which is a screen for a lifetime history of mania or hypomania, can be a valuable tool for the PCP in identifying patients with possible bipolar disorder.

### **Significance of Proposed Project**

In Wyoming, with the exception of Laramie and Natrona counties, the entire state is considered rural or frontier. Patient access to mental health services can be challenging as the entire state is designated as a Mental Health Professional Shortage Area (MHPSA) (Wyoming Department of Health, 2014). UWFM-Cheyenne is one of two family medicine residency programs in the state of Wyoming and one of the largest primary care clinics in the state. As in other primary care settings, patients with major depressive disorder and bipolar disorder are commonly encountered. A problem at UWFM-Cheyenne, as in other primary care settings, is a low confidence level in treating major depressive disorder or identifying those patients who might have bipolar disorder and would benefit from specialty referral.

### **Purpose of the Project**

The purpose of this practice improvement project was to improve existing mental health care services offered at UWFM-Cheyenne through screening for bipolar disorder using the Mood Disorder Questionnaire (MDQ). The project's objectives were two-fold. The first objective was to implement clinic wide use of the MDQ to assist the PCPs in the diagnosis of depression and identify patients with possible bipolar disorder (Appendix A). The second objective was to improve UWFM-Cheyenne PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder. Four one-hour educational sessions were presented to PCPs at UWFM-Cheyenne. A questionnaire was administered before the first educational session and after the fourth educational session to assess confidence in diagnosing and managing depression and bipolar disorder.

## CHAPTER TWO. LITERATURE REVIEW

In Chapter Two, a history of bipolar disorder, prevalence of bipolar disorder, and pathophysiology of depression and mania are discussed. A review of the literature involving the MDQ, the MDQ's use in primary care, screening for bipolar disorder using an electronic health record system, behavioral health education in primary care residency programs, and preparedness of nurse practitioners for clinical practice is presented. Lastly, Chapter Two includes a discussion of the Iowa Model of Evidence-Based Practice to Promote Quality Care (Iowa Model) and how the Iowa Model was used to guide this practice improvement project.

### History

Bipolar disorder was first described in 1851 by French physician, Jean-Pierre Falnet (Pichot, 1995). Dr. Falnet was head of the psychiatric admission unit at Hospices of La Salpetriere in Paris. Although psychiatry was not officially taught at the medical school, Dr. Falnet gave a series of ten lectures. In the last lecture he discussed a circular form of insanity. The circular form of insanity alternated a period of excitement with a period of depression. In 1854, Dr. Falnet expanded his original ten lectures in the book, *Leçons Cliniques De Médecine Mentale Faites à l'Hospice De La Salpêtrière*. He named the circular insanity *folie circulaire*. Also, in 1854, another French physician in Paris, Jules Baillarger, gave a lecture on a type of madness characterized by regular periods of depression and excitement. Dr. Baillarger termed this *folie a double forme*. In 1894 at Hospices of La Salpetriere both physicians were together honored for describing what would later be termed bipolar disorder (Pichot, 1995).

The first Diagnostic and Statistical Manual of Mental Disorders (DSM-I), published by the American Psychiatric Association in 1952, describes psychotic reactions marked by severe mood swings and a tendency for remission and recurrence. Specifically, manic depressive



reaction-manic type, manic depressive reaction-depressed type, and manic depressive reaction-other are listed. In the DSM-5, bipolar and related disorders have their own chapter with seven types of bipolar disorder described (American Psychiatric Association, 2013).

### **Prevalence of Bipolar Disorder**

The combined one-year prevalence estimates for bipolar I disorder and bipolar II disorder in the United States, according to the National Institute of Mental Health, is 2.6%. This estimate was obtained from the National Comorbidity Survey Replication study conducted from February 2001 through April 2003. The National Comorbidity Survey Replication study was a face-to-face household survey of 9,282 English speaking respondents over the age of 18. The study's objective was to estimate the one-year prevalence, severity, and comorbidity of anxiety, mood, impulse control, and substance use disorders (Kessler, Chiu, Demler, & Walters, 2005). Rihmer and Angst (2009) listed the lifetime prevalence of the full bipolar disorder spectrum at 2.6 to 7.8%. Oswald et al. (2007) reported that the prevalence of bipolar I disorder is equal in men and women. More women are affected by bipolar II disorder than men.

The age of onset of bipolar disorder is typically early in life. Hirschfeld, Lewis, and Vornik (2003) conducted a survey in 2000 of individuals diagnosed with bipolar disorder. Surveys were sent to National Depression and Manic-Depressive Association chapters in the United States. A total of 4,192 surveys were sent and the first 600 surveys returned were analyzed. The surveys contained 36 questions that asked about onset of illness, course of illness, impact on quality of life, and clinical treatment of bipolar disorder. The first question in the survey asked if the individual had ever been diagnosed with bipolar disorder. If the answer was no, respondents were instructed not to complete the survey. Of the 600 returned surveys, 66% of the respondents were female. Thirty-three percent of the respondents were under the age of 15

when symptoms of bipolar disorder began and 27% were between the ages of 15 and 19. Forty-five percent of the respondents had immediate family members who had been diagnosed with bipolar disorder. Hirschfeld, Lewis, and Vornik found 69% of the respondents had been misdiagnosed with a mean of 3.5 other diagnoses and having consulted an average of four physicians. The most common incorrect diagnoses were unipolar depression and anxiety disorder in 60% and 26% respectively. According to Rihmer and Angst (2009), males with bipolar disorder typically have an onset of symptoms four to five years before females. In 2009, Kelsoe reported that there is no single gene that has been identified as a cause of bipolar disorder. Rather, genes explain 50 to 70% of mood disorder etiology with nonheritable factors explaining the remainder.

### **Pathophysiology**

According to Stahl (2013), the pathophysiology of mood disorders involves three principal neurotransmitters: serotonin, norepinephrine, and dopamine. These three neurotransmitters comprise a monoamine neurotransmitter system. One hypothesis about the biological etiology of depression is that a deficit in monoamine neurotransmitters may cause various brain circuits to malfunction. The specific neurotransmitter(s) involved may account for the symptom profile of the individual patient. Unfortunately, direct evidence to support the monoamine neurotransmitter hypothesis is largely lacking. Another hypothesis suggests that depression symptoms are caused by an abnormality in the monoamine neurotransmitter receptors versus the monoamine neurotransmitters. Direct evidence supporting this hypothesis is lacking also (Stahl, 2013).

Stahl (2013) believes the pathophysiology of mania can be explained in a similar manner to that of depression. Inefficient information processing in various brain circuits results in

different patient symptoms. With depression, a deficit in monoamine neurotransmitters or neurotransmitter receptors is implicated. With mania, an excess in monoamine neurotransmitter or out of tune circuits may be the cause of individual patient symptoms. With this in mind, medication treatments for mania work by either reducing or stabilizing those out of tune circuits that are associated with manic symptoms (Stahl, 2013).

### **Mood Disorder Questionnaire**

The MDQ was developed by Hirschfeld et al. in 2000. The goal was to create a brief and easy to use screening tool for bipolar spectrum disorder, which included Bipolar I Disorder, Bipolar II Disorder, Cyclothymia, and Bipolar Disorder Unspecified. The MDQ is a single-page, self-report, questionnaire consisting of three parts. The first part of the MDQ consists of 13 yes or no statements about hypomanic/manic symptoms. The second part of the MDQ is a yes or no statement asking whether the statements in part one have happened during the same period. Part three of the MDQ asks about functional impairment on a four-point scale. A MDQ screen is positive if there are seven or more ‘yes’ responses in part one, a yes answer in part two, and a “moderate problem” or “serious problem” response in part three. The MDQ can be quickly scored by the provider or trained office staff. Hirschfeld et al.’s study was conducted at five outpatient psychiatric clinics. One hundred ninety-eight subjects completed the MDQ as well as a follow-up structured clinical interview by telephone. The MDQ’s sensitivity was measured at 0.73 and the specificity at 0.90. In this study, a Cronbach’s alpha coefficient of 0.90 was achieved for the MDQ. Hirschfeld et al. felt further research was needed to assess whether the MDQ would be useful in the primary care setting or in other community agency settings.

Zimmerman and Galione (2011) conducted a systematic review of twenty studies involving 5,479 patients who were screened for bipolar disorder using the MDQ. The authors

found the MDQ's positive predictive value to be 58.0%, negative predictive value 88.9%, sensitivity 61.3%, and specificity of 87.5%. Zimmerman and Galione concluded that across all studies the MDQ had modest sensitivity and good specificity. Because primary care clinicians are not experts in diagnosing bipolar disorder, Zimmerman and Galione offered that the MDQ could be used to screen patients with depression. Patients with positive MDQ screens could then be referred to a mental health provider for further evaluation and treatment.

Wang et al. (2015) performed a meta-analysis to investigate the diagnostic accuracy of the MDQ. The authors were interested in part one of the MDQ and the cutoff value of seven out of thirteen yes responses resulting in that section being positive. Twenty-one studies were included in the analysis. Seven studies excluded those patients with a previous diagnosis of bipolar disorder. Fourteen studies included patients with major depressive disorder and bipolar disorder. Eleven of the studies were conducted in Western countries and the other ten studies in Eastern countries. Options for a modified cutoff of seven included ignoring parts two and three of the MDQ, ignoring only part three of the MDQ, or including "Minor Problem" in addition to "Moderate Problem" and "Serious Problem" in part three of the MDQ. Twelve of the research studies in this meta-analysis provided information on diagnostic accuracy of the standard seven cutoff or modified cutoff. When the standard cutoff or modified cutoff was applied, the sensitivity of the MDQ was 0.62 and the specificity was 0.85. Six of the research studies provided data for the standard cutoff and modified cutoff. When the modified cutoff was used, the sensitivity improved to 0.74 compared to 0.55. However, specificity decreased from 0.86 to 0.78. The authors recommended that when using the MDQ in populations who have depression but no previous diagnosis of bipolar disorder, a modified cutoff which ignores parts two and three of the MDQ, can improve MDQ accuracy. Limitations identified in the study were that no

research studies written in a language other than English were included and more than half of the studies were completed at University hospitals or tertiary medical centers (Wang et al., 2015).

### **Screening for Bipolar Disorder in Primary Care**

Olfson et al. (2005) conducted a study of established patients ages 18 to 70 years who presented to see their PCP at Associates in Internal Medicine Practice at New York-Presbyterian Hospital. The clinic serves a predominantly low-income immigrant population. One thousand one hundred forty-three patients were screened for bipolar disorder with the MDQ. Patients were also screened with the DSM-IV Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD) to identify symptoms of depression and anxiety as well as past year alcohol use disorder. Of the 1,143 patients, 15.1% (173) screened positive for unipolar depression and 4.6% (53) screened positive for bipolar disorder. This study also found 49.0% of patients with bipolar disorder had been prescribed antidepressant medication. Unfortunately, a majority of the bipolar patients treated with an antidepressant medication did not receive concurrent treatment with a mood stabilizing medication (Olfson et al., 2005).

At a family medicine clinic affiliated with the University of Texas Medical Branch in Galveston, 649 primary care patients over the age of 18, who were receiving antidepressant medication for depression, were screened with the MDQ (Hirschfeld et al., 2005). Of the 649 patients who completed the MDQ, 138 (21.3%) screened positive for bipolar disorder. Additionally, this research study used a Structured Clinical Interview (SCID), in patients who agreed to a telephone interview, to determine the sensitivity and specificity of the MDQ. When adjusted for sample protocol, the MDQ had a sensitivity of 0.58 and a specificity of 0.93. The clinical presentation of bipolar and unipolar depression may be identical. Because of this, the clinician must consider a history of mania or hypomania when initiating a treatment plan.

Otherwise, the clinician risks treating a bipolar patient as a unipolar depressed patient which could make a bad situation worse (Hirschfeld et al., 2005).

Cerimele et al. (2013) conducted a systematic review to identify the prevalence of bipolar disorder in primary care patients who were already diagnosed with depression or saw their PCP for other psychiatric complaints. The authors identified seven studies, of which five studies used the MDQ. Four of the five MDQ studies measured bipolar disorder prevalence in primary care patients with depression, one study measured bipolar disorder prevalence with any psychiatric complaint, one study measured bipolar disorder prevalence with trauma exposure, and one study measured bipolar disorder prevalence with medically unexplained symptoms. Of the primary care patients with depression symptoms, 20.9-23.5% had positive MDQ screens for bipolar disorder.

Sasdelli et al. (2013) compared the MDQ with the Hypomania Checklist (HCL-32) in a primary care setting. The objective of their study was to assess bipolar spectrum symptom prevalence in primary care patients who had a current diagnosis of major depressive episode or an episode of major depression within the past six months. The study was conducted in two primary care clinics involving 37 PCPs in Bologna, Italy in 2011. Ninety-three patients completed the two screening tools and 67 of the patients underwent a diagnostic assessment by a psychiatrist. The mean age of the patients was 49.1 years, 72.3% were female. Using a Receiver Operating Characteristic (ROC) Analysis, a MDQ cutoff of seven demonstrated a sensitivity of 0.36 and specificity of 0.87. A cutoff of five resulted in a sensitivity of 0.91 and a specificity of 0.67. Eleven of the study participants met diagnostic criteria for bipolar disorder. Using standard criteria, the MDQ was positive in 8.6% of the sample and the HCL-32 was positive in 43% of the sample. The authors concluded that the MDQ might aid PCPs in recognizing patients

with bipolar disorder, who present with symptoms of depression. The authors identified the MDQ as more specific than the HCL-32 and that the MDQ fits well in primary care with its short completion time (Sasdelli et al., 2013). Having the information from the MDQ can assist the PCP in making therapeutic choices, proceeding with a more thorough investigation of the patient's symptoms, or referring the patient to a mental health provider for further evaluation and treatment.

### **Using Electronic Health Record System to Screen for Bipolar Disorder**

Gill, Chen, Grimes, and Klinkman (2012) conducted a controlled, prospective study of primary care practices using the Centricity Electronic Medical Record (Centricity) system. The purpose of the study was to examine the impact a screening tool for bipolar disorder would have on new diagnosis of bipolar disorder, as well as treatment for bipolar disorder in patients who had a current diagnosis of depression. The primary care offices included those family medicine, general practice, and general internal medicine clinics that cared for adult patients, had been using Centricity for at least one year, and were affiliated with the Centricity Health Care User Research Network (CHURN). Offices could participate either as an intervention group or as a comparison group. The comparison group knew they were involved in a study related to bipolar disorder but unaware of study details. Patients included in the study had been diagnosed with unipolar depression and had no history of bipolar disorder diagnosis.

The screening tool used, which was embedded in Centricity, was the World Health Organization Composite International Diagnostic Interview (CIDI). The study involved 8,355 intervention patients and 8,799 comparison patients. In the intervention group, 93 patients were diagnosed with bipolar disorder compared to 32 patients in the comparison group. The study

results supported the clinical utility of the bipolar disorder screening tool as clinicians screened nearly half of all patients with a depression diagnosis (Gill et al., 2012).

### **Behavioral Health in Family Medicine Resident Education**

According to the Accreditation Council for Graduate Medical Education (2013), program requirements for family medicine residencies must include a structured curriculum whereby residents are educated in the diagnosis and management of common mental illnesses. The American Academy of Family Physicians (2011) has provided recommendations for curriculum guidelines with regards to mental health and human behavior. In accordance with the program requirements, upon completion of their residency training, resident physicians should be able to demonstrate the ability to apply knowledge of mental health disorders including mood disorders and anxiety disorders. Family medicine resident physicians should also be able to demonstrate the ability to independently perform assessment of depression, use evaluation tools to enhance data collection, evaluate the need for psychiatric consultation, as well as appropriately use psychopharmacologic agents.

Leigh, Steward, and Mallios (2006) conducted a survey of primary care residency program directors (family practice, internal medicine, pediatrics, and obstetrics/gynecology) inquiring about the status of mental health training in their programs. Seven hundred thirty-three program directors responded out of 1,365 with 323 responses representing family practice directors. Forty-one percent of family practice program directors felt that mental health/psychiatry training was minimal or suboptimal, compared with 71% of internal medicine, 92% of obstetrics/gynecology, and 85% of pediatrics. The survey found mental health training most often involved didactic sessions and case conferences and that family practice programs had the greatest number of formats. Eighty-two percent of family practice residencies hired non-



physician mental health professionals to assist with training. Leigh, Steward, and Mallios questioned whether the greater diversity of mental health training offered by family practice programs led to higher percentages of program directors in family practice versus other specialties believing training was adequate. The authors concluded that due to the growing shortage of psychiatrists as well as the performance-based competencies required by the Accreditation Council for Graduate Medical Education (ACGME), adequate and effective learning experiences for primary care resident physicians is of increasing importance.

### **Behavioral Health in Nurse Practitioner Education**

The National Organization of Nurse Practitioner Faculties (NONPF) provides core competencies for nurse practitioners. These competencies were last updated in 2012. In 2013, a task force of nurse educators added population focused competencies for all family nurse practitioners (FNP), neonatal nurse practitioners, pediatric acute care nurse practitioners, pediatric primary care nurse practitioners, psychiatric mental health nurse practitioners, and women's health nurse practitioners that provide the foundation for entry into practice (Thomas et al., 2013). According to the NONPF competencies, FNPs should be able to perform and document physical examinations on patients of all ages to include mental health evaluations. The FNP must also manage acute and chronic physical and mental illnesses. The FNP should be able to demonstrate knowledge of the different roles in mental health services to include psychologists, psychotherapists, social work, psychiatrists, and advance practice nurses. The task force's 2013 competencies recommend curriculum content for nurse practitioner programs to support the competencies. Specifically mentioned is curriculum inclusive of education on substance abuse and violence, signs and symptoms of mental status change, assessment of cognitive impairment and psychiatric/substance abuse disorders, and evidence based screening

tools for assessment of mood disorders, anxiety disorders, attention deficit hyperactive disorder, autistic spectrum disorder, substance disorders, and suicidal ideation (Thomas et al., 2013).

Hart and Macnee (2007) conducted a cross-sectional descriptive study of 562 nurse practitioners to assess preparedness of nurse practitioners for practice. A four-page booklet questionnaire with 32 numbered items (two of those items contained 25 sub-items), was administered in 2004 to attendees of the 30<sup>th</sup> Annual NONPF meeting in San Diego, California and the 29<sup>th</sup> Annual NP Symposium in Keystone, Colorado. The total number of participants at the two conferences were 432 for NONPF and 900 for the NP Symposium. A response rate of 28% for the NONPF conference and 49% for the NP Symposium was obtained. Sixty-one percent of the survey respondents were FNPs. Ninety-four percent of the respondents were female, the average age was 49 years, and the length of time in practice averaged 11 years. Only 10% of the respondents felt they were very well prepared for clinical practice after completing their nurse practitioner program and another 38% felt generally well prepared. The respondents felt least prepared in the areas of billing and coding, complementary and alternative medicine, advanced diagnostic skills, and mental illness management. Only 22% of respondents felt generally or well prepared with management of mental health disease, however 90% felt management of mental health disease to be of substantial or utmost importance (Hart & Macnee, 2007).

A repeat survey of nurse practitioners by Hart and Bowen (2016) found similar results to the 2004 study. In 2012, a link to an electronic survey was distributed to approximately 51,000 subscribers of Fitzgerald Health Education Associates newsletter. The web-based survey consisted of 81 multiple choice questions, 27 demographic questions, and 6 open-ended questions. Eligibility to complete the survey consisted of graduating from a nurse practitioner

program between 2006 and 2011, a current license as a nurse practitioner, and having practiced as a nurse practitioner in the United States. Six hundred ninety-eight nurse practitioners completed the survey. The majority of respondents were FNPs (69.4%). Only 3.3% of the survey respondents felt very well prepared to practice after completing their nurse practitioner program while 38.9% felt generally well prepared. Nurse practitioners reported feeling least prepared for x-ray interpretation, billing and coding, suturing, simple office procedures, EKG interpretation, and management of mental health concerns. Hart and Bowen (2016) concluded that perception of preparedness for nurse practitioners was very similar between the 2004 and 2012 studies. They specifically mentioned that nurse practitioner educators should work to strengthen curriculum, and evaluation in management of mental health problems, due to the shortage of mental health providers in the United States and the public health implications associated with mental health problems. Nurse practitioners are needed to fill the gap in mental health care.

### **Iowa Model**

According to Sackett, Rosenbery, Gray, Haynes, and Richardson (1996) evidence-based practice integrates the best available clinical evidence with individual practice expertise. It also takes into account a patient's preferences and predicaments when making clinical decisions. Harris, Roussel, Walters, and Dearman (2011) added that evidence-based practice provides a framework to assist in creating clinical questions, searching for evidence, and evaluating evidence. Applying the evidence can be a challenge, using a practice improvement model can help that process. Healthcare outcomes can be improved by using an evidence-based practice improvement model, which incorporates evidence-based practice with process improvement. One such model is The Iowa Model of Evidence-Based Practice to Promote Quality Care.

The Iowa Model (Appendix B) was developed and implemented in 1994 at the University of Iowa Hospitals and Clinics to guide healthcare providers in using research findings to improve patient care (Titler et al., 2001). Schaffer, Sandau, and Diedrick (2012) reported that the Iowa Model has been successfully used in a variety of practice settings to guide decision making and practice change. Because the Iowa Model considers input from the entire organizational system, it works well in large organizations. Additional strengths of the Iowa Model are it includes a trial of the practice change before deciding on full implementation, an algorithm approach includes decision points and feedback loops throughout the implementation process, and it is designed to involve an interdisciplinary approach to evidence-based practice implementation. A weakness of the Iowa Model is that it does not specifically address making the organization's staff aware of any practice changes. Doody and Doody (2011) detail seven steps in the Iowa Model. The seven steps are: 1) Selection of a topic, 2) Forming a team, 3) Evidence retrieval, 4) Grading the evidence, 5) Developing an evidence-based practice standard, 6) Implementing evidence based practice, and 7) Evaluation. The Iowa Model was used to guide this clinical practice improvement project at UWFM-Cheyenne. Permission to use the Iowa Model was requested and obtained from the University of Iowa Hospitals and Clinics (Appendix C).

### **CHAPTER THREE. PROJECT DESCRIPTION**

Wyoming is a rural state covering 97, 813 square miles, making it the tenth largest state in the United States. A 2015 estimated population of 586,107 people shows Wyoming to be the least populated of any state (U.S. Census Bureau, 2016). All counties in Wyoming are designated by the federal government as either a primary care or mental health professional shortage area, with 21 of the 23 counties designated as both. Laramie County, which includes the city of Cheyenne, is designated as a mental health professional shortage area (U.S. Department of Health and Human Services, 2016).

The site chosen for this clinical practice improvement project was the University of Wyoming Family Medicine Residency Program at Cheyenne. There are two residency programs in Wyoming. Both programs are family medicine residency programs affiliated with the University of Wyoming. One program is located in Casper, the other in Cheyenne. In 2013, the two residency programs formed the Educational Health Center of Wyoming and on August 1, 2014, the Educational Health Center of Wyoming was awarded Federally Qualified Health Center Look-A-Like designation. Look-A-Like clinics adhere to the same federal rules as Federally Qualified Community Health Centers, however they do not receive federal grant funding under Section 330 of the Public Health Service Act. UWFM-Cheyenne began operations in 1980 and in November 2015 had eight full-time faculty, one full-time Psychiatric Mental Health Nurse Practitioner (PMHNP), one full-time FNP, two part-time FNPs, and 18 family medicine resident physicians (six in each of three years). Required Uniform Data System reporting for the Educational Health Center of Wyoming, completed in February of 2016, revealed that for the 2015 calendar year, UWFM-Cheyenne had 6,891 patients who made 12,762 clinic visits. The top ten primary diagnoses were: 1) essential hypertension, 2) hyperlipidemia,

3) depressive disorder, unspecified, 4) diabetes mellitus, 5) hypothyroidism, 6) anxiety, unspecified, 7) tobacco use, 8) bronchitis, 9) esophageal reflux, and 10) lumbago (D. Unruh, personal communication, October 3, 2016).

UWFM-Cheyenne is in the process of becoming a patient centered medical home (PCMH). The Agency for Healthcare Research and Quality (2016) believes the medical home model will improve healthcare in the United States by transforming how primary care is coordinated and delivered. The PCMH model has five attributes that are central to this transformation: comprehensive care, patient centered care, coordinated care, accessible services, and quality/safety. Six family medicine organizations have recognized behavioral healthcare as a central part of the PCMH. The Working Party Group on Integrated Behavioral Healthcare (2014) recommended that behavioral health must be included with physical health in order to treat the whole person. Treating patients with mental health concerns is a priority for UWFM-Cheyenne. It is not only an educational requirement of the family medicine residency program but also necessary for successful implementation of the PCMH model.

### **Project Objectives**

Mental health continues to become an important part of primary care. Primary care providers increasingly include bipolar disorder, antipsychotic medication, and mood stabilizing medication in their practice along with anxiety, depression, antidepressants, and anxiolytics (Olfson, Kroenke, Wang, & Blanco, 2013). Faced with an increasing number of office visits for mental health concerns and management of more severe and complex mental health problems, a clinical practice improvement project was conducted at UWFM-Cheyenne to address these problems and concerns. The project had two objectives. The first objective was to implement clinic wide use of the MDQ to assist PCPs in the diagnosis of depression and identify patients

with possible bipolar disorder. The second objective was to improve UWFM-Cheyenne PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder.

### **Project Design**

The Iowa Model of Evidence-Based Practice to Promote Quality Care was used to guide project implementation at UWFM-Cheyenne. The first step in the Iowa Model is topic selection. When selecting a topic for evidence-based practice, factors that must be considered include problem priority within the organization, magnitude of the problem, how addressing the problem will improve patient care, staff commitment to addressing the problem, and multidisciplinary nature of the problem (Doody & Doody, 2011). As discussed in chapter one, many patients with mental health concerns are seen solely by their PCP. Patients presenting to primary care with mental health concerns, combined with a low confidence by PCPs in their ability to manage patients with depression, suggested a problem also existed at UWFM-Cheyenne. Treating patients with mental health concerns are a priority for UWFM-Cheyenne. One requirement for family medicine residency programs are providing an educational curriculum that encompasses diagnosis and management of common mental illnesses (Accreditation Council for Graduate Medical Education, 2013).

A multidisciplinary team was assembled at UWFM-Cheyenne to assist in project implementation and ensure project success. Doody and Doody (2011) recommend a bottom-up approach to evidence-based practice implementation. They reported there is a greater chance for project implementation success when healthcare providers on the frontline initiate change, as opposed to those in management positions. The multidisciplinary team at UWFM-Cheyenne included the two chief family medicine residents, a second-year family medicine resident, the

nursing supervisor and ultimately the entire nursing staff, a clinical pharmacist, and UWFM-Cheyenne's information technologist (IT). All resident physicians at UWFM-Cheyenne must complete a practice improvement project prior to their graduation. Including a second-year resident in this project fulfilled his program requirement and increased the likelihood that there would be project buy-in from the other clinic PCPs.

The project implementation took place over a seven-month period beginning in October 2015 and ending in April 2016. On October 8, 2015 at the monthly resident-faculty meeting, pre-educational surveys and healthcare provider informed consents were distributed to the clinic's PCPs (Appendices D & E). The three UWFM-Cheyenne FNPs were all interested in participating in the project but do not routinely attend the monthly resident-faculty meetings. The pre-educational surveys, healthcare provider informed consents, and the envelope used to collect the completed surveys were individually offered to the FNPs for completion at their convenience. The pre-education survey asked the respondents to evaluate seven statements assessing their confidence with identifying, diagnosing, treating, and managing depression and bipolar disorder. The PCPs were informed that for both the pre-education and post-education surveys, the Likert scale rated 1 as very confident and 4 as not confident. The survey used the same depression statements and Likert scale as Williams et al. (1999) in their study of family physicians, general internists, and obstetrician-gynecologists. The four-point Likert scale used a range of 1 (very confident) to 4 (not confident). Additionally, respondents were surveyed regarding their individual level of interest in behavioral health topics, which would guide topic selection for future educational sessions presented to UWFM-Cheyenne PCPs.

Following the resident-faculty meeting, the author met with the second-year resident physician, two chief residents, and nursing supervisor to develop a MDQ Completion Workflow



plan, which was presented to the clinic's PCPs and nursing staff prior to implementation of MDQ screening beginning the end of October 2015 (Appendix F).

### **Objective One**

Primary care providers and nursing staff had to be educated on the MDQ Completion Workflow plan to meet the first objective of implementing clinic wide use of the MDQ. In describing implementation of evidence based practice using the Iowa Model, Doody and Doody (2011) mentioned that direct interaction between the direct care providers, the organization, and those in leadership roles is necessary in order for change to be supported. This project had the support of UWFM-Cheyenne management including faculty physicians, the clinic director, and the nurse manager. The MDQ Completion Workflow was presented to UWFM-Cheyenne PCPs at the first one-hour educational session on October 26, 2015. At the first educational session, the author and second-year family medicine resident discussed which patients screening would be appropriate, how the MDQ screening process would take place, what staff would be involved, demonstrated the use of the MDQ, and discussed sensitivity/specificity of the MDQ along with criteria for positive and negative questionnaires. On October 26, 2015 the MDQ Completion Workflow was also presented to the nursing staff at their weekly nursing meeting. A paper copy of the MDQ was described, scoring of the MDQ was discussed along with instructions on where to find the MDQ within Centricity and how to transfer data from the paper MDQ to the electronic version at the time of the patient's appointment. The importance of nursing's role in this project was discussed and the assistance of UWFM-Cheyenne nursing staff was requested. With the support of the nurse manager, the UWFM-Cheyenne nursing staff agreed to participate in this project. After the MDQ Completion Workflow was presented to the PCPs and nursing staff, all 24 clinic exam rooms were supplied with folders containing paper copies of the MDQ.

The author worked with UWFM-Cheyenne Information Technology (IT) staff to transfer the paper MDQ to electronic health record format. Permission to use the MDQ for this project was granted by the primary author of the MDQ, Dr. Robert Hirschfeld, M.D. (Appendix G).

The Iowa Model recommends piloting practice change before adoption of change, collecting baseline data, and developing a written evidence based practice guideline be included in the implementation process. The trial should be evaluated and then modified as needed based on process and outcome data (Titler et al., 2001). Doody and Doody (2011) add that for any change to successfully take place, possible barriers which could hinder progress need to be identified. Project evaluation should occur at different intervals during the intervention as well as following the intervention. Mood Disorder Questionnaire implementation was carried out over a six-month period beginning on October 28, 2015 and ending April 30, 2016. During this time, patients presenting with behavioral health concerns were asked to complete a MDQ by nursing staff or their PCP. The paper copy of the MDQ was then entered into Centricity, usually by a nursing staff member, before the conclusion of the patient's scheduled appointment. Prior to project implementation, baseline data was obtained on how many MDQs had been done within Centricity by PCPs. Although the MDQ was not piloted before project implementation, the project was evaluated on a monthly basis. With the assistance of UWFM-Cheyenne IT, monthly reports were generated from Centricity listing the number of MDQs completed, the number of positive MDQs, and the number of negative MDQs. As discussed in chapter two, the MDQ was positive if the patient answered yes to seven or more statements in part one, yes to part two, which asks if the statements in part one happened during the same period of time, and a "moderate problem" or "serious problem" response to part three (see Appendix A). The author met monthly with the second-year family medicine resident as well as with nursing staff to

discuss barriers to the MDQ Completion Workflow. The MDQ and MDQ Completion Workflow were reviewed at the three remaining one-hour educational sessions presented to UWFM-Cheyenne PCPs.

## **Objective Two**

To meet the second objective of improving UWFM-Cheyenne PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder, four one-hour educational sessions in the form of noon conferences were presented between October 26, 2015 and December 14, 2015. The educational session topics were chosen based on responses to the pre-education surveys. PowerPoint presentations for the four educational sessions are included as Appendix H. Doody and Doody (2011) discussed barriers to practice change. Quality improvement may be seen as an additional task in an already busy workload and consequently have low priority among the other required job duties. To assist with making the educational session information available to UWFM-Cheyenne PCPs and nursing staff, as well as disseminate information to nurse practitioner students and other health science students, UWFM-Cheyenne IT staff and Cheyenne Regional Medical Center telehealth services assisted with the recording of the educational sessions.

A Polycom RealPresence Desktop camera and software program was installed on the UWFM-Cheyenne laptop computer that was used for the educational sessions. Additionally, the four PowerPoint education sessions were emailed to all UWFM-Cheyenne PCPs and nursing staff. On March 12, 2016 at a resident faculty meeting, a post-education survey was administered to UWFM-Cheyenne PCPs with the same seven statements and Likert scale as the pre-education survey (Appendix I). Similar to the pre-education survey, the post-education

survey and envelope used to collect completed surveys was offered individually to the three UWFM-Cheyenne FNPs for completion at their convenience.

### **Project Resources**

Several resources were necessary to implement and complete this project. The resources included healthcare personnel, time commitment, and materials. Much of the work involving administration of the MDQ and transferring MDQ screening results from paper into Centricity was completed by UWFM-Cheyenne's nursing staff. Time commitment was necessary for the four educational sessions. The first and third sessions were jointly presented by the author and the second-year resident physician. The second session was presented by the author. The fourth session was jointly presented by the author and a Licensed Professional Counselor/Licensed Addiction Therapist from Peak Wellness Center in Cheyenne. The therapist volunteered her time for both the educational session and its preparation.

Material costs for this project were minimal and permission to use existing UWFM-Cheyenne supplies, consisting of paper folders, paper, and copying equipment was obtained from UWFM-Cheyenne administration prior to project implementation. Folders for the 24 exam rooms, paper, and photocopying equipment for the MDQ forms as well as Appendices D, E, F, and H were readily available at UWFM-Cheyenne, so no additional supplies were purchased. Cheyenne Regional Medical Center's (CRMC) telehealth department uses Polycom RealPresence Media Suite. The laptop camera and Polycom RealPresence Media Suite computer software was donated by CRMC and installed on UWFM-Cheyenne equipment by CRMC's telehealth IT staff. The software allowed for the four educational sessions to be recorded and made available for future UWFM-Cheyenne use as well as distribution to NDSU School of Nursing and University of Wyoming Fay W. Whitney School of Nursing. The donated software

allows for future educational sessions between CRMC and UWFM-Cheyenne to occur live or by recording. Cheyenne Regional Medical Center's donation of time by their telehealth department, the laptop camera, computer software, and DVDs used to record the educational sessions were instrumental to project success and greatly appreciated.

### **Protection of Human Subjects**

The human subjects that were involved in this project included UWFM-Cheyenne PCPs. The UWFM-Cheyenne PCPs were the focus of this project and received Healthcare Provider Informed Consents. UWFM-Cheyenne adult patients were asked to fill out the MDQ form. They were not asked to participate beyond that or sign a consent. There was no risk to patients of UWFM-Cheyenne. If the UWFM-Cheyenne PCP was concerned about possible bipolar disorder or was uncomfortable managing the patient's behavioral health problem, the patient may have been referred to a mental health clinician for further evaluation and treatment. However, this is standard of care which would hopefully have occurred if the project had not been implemented. No patient names or identifying data were included in reports. Centricity reports identified the number of MDQ screens completed monthly at UWFM-Cheyenne between October 28, 2015 and April 30, 2016 as well as the number of positive and negative MDQ screens.

The risk to UWFM-Cheyenne PCPs was minimal, if any, and detailed in Appendix E, Healthcare Provider Informed Consent. Protection of human subjects was ensured by the North Dakota State University Institutional Review Board (Appendix J). Once exempt status was certified by North Dakota State University, the Research Compliance Coordinator at the University of Wyoming was contacted and a copy of the exempt certification was forwarded to her. After speaking with the Research Compliance Coordinator and University of Wyoming

General Counsel, it was determined that obtaining separate University of Wyoming Institutional Review Board approval was not necessary.

## **CHAPTER FOUR. EVALUATION**

The final step in the Iowa Model is project evaluation. Evaluation of the project is important, not only to determine if objectives were met, but to determine if the project was able to contribute to patient care and would be worthwhile to continue (Doody and Doody, 2012). This project had two objectives that involved UWFM-Cheyenne PCPs increasing their perceived confidence in identifying possible bipolar disorder. Distinctly separate activities were carried out during this project, and evaluated differently, in order to meet the two objectives.

### **Objective One**

Objective One was evaluated by tracking how many times the MDQ was used during the project's implementation. As discussed in chapter two, the MDQ was developed by Hirschfeld et al. in 2000. The MDQ is a single page, self-report, questionnaire which screens for a lifetime history of mania or hypomania. An identical version of the paper MDQ was created for UWFM-Cheyenne's Centricity by designated IT staff. UWFM-Cheyenne IT staff also created a program within Centricity that reported the number of MDQs completed by UWFM-Cheyenne PCPs and if the MDQ was a positive screen or a negative screen. The report could be run for any date range within the project's implementation period. The report included no patient identifying information or demographic data. As UWFM-Cheyenne PCPs were largely unfamiliar with the MDQ, objective one would introduce the providers and nursing staff to the MDQ to increase awareness of bipolar disorder with the intent of having the MDQ become a tool to assist the PCPs in diagnosing patients with depression and identifying patients with possible bipolar disorder. Data from Objective One would include the total number of patients screened by UWFM-Cheyenne PCPs during the project's implementation and if the screen was positive or

negative. The project did not track how many patients screened with the MDQ were referred to mental health clinicians.

Patients were expected to self-complete the MDQ form, therefore readability of the form needed to be considered. Readability involves the determination of the reading comprehension level a person must have in order to understand written materials (Badarudeen & Sabharwal, 2010). It has been recommended that patient education materials be no higher than a sixth to eighth grade level. The Flesch-Kincaid grade is the most commonly used formula for assessing readability in the English language. The lower the score, the easier it is to understand the document. The Flesch Reading Ease score is widely available through Microsoft Word with scores ranging from 0-100. The higher the score, the easier it is to understand the document (Badarudeen & Sabharwal, 2010). Typing the MDQ into Microsoft Word resulted in a Flesch-Kincaid grade of 6.0 and a Flesch Reading Ease score of 76. This project did not assess literacy level of UWFM-Cheyenne's patient population but results of the Flesch-Kincaid grade and Flesch Reading Ease score show favorable scores for readability of the MDQ.

Beginning on October 28, 2015 UWFM-Cheyenne clinic nursing staff, as well as UWFM-Cheyenne PCPs, asked those adult patients presenting with behavioral health chief complaints if they would be willing to complete the MDQ. If the patient agreed, a paper copy of the MDQ was provided and then results were transferred into Centricity by clinic nursing staff before the clinic appointment concluded. UWFM-Cheyenne nursing staff reported no difficulties or concerns with the MDQ Completion Workflow, nor did they mention any problems with patients completing the MDQ form. Paper MDQ forms for the 24 exam room folders were restocked by UWFM-Cheyenne nursing staff and by the author during the seven-month project.



## Objective Two

Objective Two was evaluated by using a pre-education survey and a post-education survey. The pre and post-education surveys consisted of identical statements assessing provider perceived confidence in identifying, diagnosing, treating, and managing depression and bipolar disorder. The two surveys used a four-point Likert scale from 1 to 4 with 1 being *very confident*, 2 being *mostly confident*, 3 being *somewhat confident*, and 4 being *not confident*. The first three statements: *I can diagnose depression*, *I can treat depression with medications*, and *Overall, I can manage depression*, as well as the four-point Likert scale were identical to what was used by Williams et al. (1999) in their mailed survey to 3,375 physicians. The last four statements in this project's pre and post-educational surveys involved similar statements about bipolar disorder with the addition of statement four, *I can identify patients with possible bipolar disorder*. Readability of the two surveys was not a concern as all respondents were either FNPs, medical doctors, or doctors of osteopathic medicine. The project was not looking at individual PCPs' survey results, but UWFM-Cheyenne PCPs' results as a whole. The total number of responses for each statement was tallied. Mean response scores for each survey statement were then calculated. Due to the small number of possible respondents, no in-depth statistical analysis was planned.

The pre-education survey asked the UWFM-Cheyenne PCPs to identify their interest in behavioral health topics with twelve topics being listed and a line listed as "other" for write-in topics not specifically mentioned. Results of the pre-education survey were then used to select topics for the four educational sessions.

The four one-hour educational sessions were evaluated using the on-line New Innovations Residency Management Suite (New Innovations). New Innovations has been used

by UWFM-Cheyenne for at least ten years to record resident rotation evaluations, resident work hours, monthly educational session schedules, and educational session evaluations. The evaluations asked the attendee to evaluate three statements with strongly agree, agree, neutral, disagree, or strongly disagree. The first statement is, "Content of this lecture met its objectives." The second statement is, "Level of material was appropriate for my level of training." The third statement is, "Presenter was effective in communication, both verbal and non-verbal." A fourth statement, "Conference contained information that advanced my level of understanding of this topic", is answered with yes, no, or not applicable. A fifth statement, "Audience was informed of any financial relationship with commercial companies", is also answered with yes, no, or not applicable. There is also a place for the evaluator to write in feedback, comments, and suggestions. Educational session evaluations were automatically generated after each educational session was presented. After all four educational session evaluations were presented, the two chief family medicine residents, gave a reminder/request to the other resident physicians to complete the educational session evaluations. This reminder was done at the monthly resident meeting that followed the final educational session.

## CHAPTER FIVE. RESULTS

The results of objectives one and two are presented in chapter five. Results for each objective are presented separately within this chapter as they involved separate measuring tools and occurred at different times.

### Objective One Results

Objective One was implementing clinic wide use of the MDQ to assist PCPs in the diagnosis of depression and identify those patients with possible bipolar disorder. Objective One results are presented in table format listing the number of positive MDQs, the number of negative MDQs, and the total number of MDQs. Results are listed for baseline MDQs completed prior to project implementation and then MDQs completed monthly beginning October 28, 2015 and ending April 20, 2016.

Table 1

#### *Mood Disorder Questionnaires Completed at UWFM-Cheyenne*

Month	Positive MDQ Questionnaires	Negative MDQ Questionnaires	Total MDQ Questionnaires
Baseline: 8/25/15-10/27/2015*	1	2	3
November: 10/28/15-11/30/2015	6	8	14
December: 12/01/15-1/31/15	4	11	15
January: 1/1/16-1/31/16	3	7	10
February: 2/1/16-2/21/16	2	2	4
February: 2/22/16-2/28/16**	0	2	2
March: 3/1/16-3/31/16	6	9	15
April: 4/1/16-4/30/16	2	9	11
Total for 6-month period	23	48	71

*Note.* \*Permission to use the MDQ received from Dr. Hirschfeld, M.D. on August 25, 2015.  
\*\*UWFM-Cheyenne and UWFM-Casper merged Centricity databases on February 22, 2016.

The number of scanned paper MDQs completed from March 1, 2009, when UWFM-Cheyenne began using Centricity, through October 27, 2015 was six. The electronic version of the MDQ, created by UWFM-Cheyenne IT, was implemented once approval was granted from Dr. Hirschfeld, M.D. on August 25, 2015. From August 25, 2015 to October 27, 2015 three electronic MDQs were completed (D. Unruh, personal communication, February 13, 2017). The author and the registered nurse working in UWFM-Cheyenne's mental health clinic were excluded from the baseline report data.

February 2016 is a split month in Table 1. On February 22, 2016 the Centricity electronic health record system for UWFM-Cheyenne and UWFM-Casper were merged. Although no providers from UWFM-Casper were included in the reporting data, a separate report was required from February 22, 2016 through February 28, 2016.

Although not part of the project's two objectives, some data were available on the number of referrals made by UWFM-Cheyenne PCPs to behavioral health services during the project's implementation time period. There were 31 referrals in Centricity between November 1, 2015 and April 30, 2016. Twenty of those referrals were to Cheyenne area mental health therapists, eight referrals were to Cheyenne Regional Medical Center Behavioral Health Services, two referrals were to Peak Wellness Center, which is Laramie County's community mental health center, and one referral was to UWFM-Cheyenne's PMHNP (D. Unruh, personal communication, February 13, 2017). During the MDQ project time frame, UWFM-Cheyenne's PMHNP completed 64 new patient intakes, of which 54 were on patients 18 years of age and older. Eleven of the 64 new patients did not have health insurance. Because tracking parameters for the number of patients referred from UWFM-Cheyenne PCPs to UWFM-Cheyenne's

PMHNP had not been set up, it is unknown how many of the 64 new patient intakes were referrals from within UWFM-Cheyenne or how many of the referrals were for positive MDQs.

### **Objective Two Results**

Objective Two was to improve UWFM-Cheyenne PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder. Results are presented in table format for both pre-education surveys and post-education surveys. The two survey results are then compared in bar graph form in Figure 1. Following the pre and post-education surveys assessing UWFM-Cheyenne PCPs' perceived confidence, UWFM-Cheyenne PCPs' interest in behavioral health topics is presented as Table 4. Lastly, the four one-hour educational session evaluation results are detailed.

Pre-education surveys were presented to UWFM-Cheyenne's PCPs at the monthly resident-faculty meeting on October 8, 2015. Results of the pre-education surveys are presented in Table 2.

Table 2

*Pre-Education Surveys*

	No. Respondents (N=18)				Mean Response Score
	Very Confident (1)	Mostly Confident (2)	Somewhat Confident (3)	Not Confident (4)	
I can diagnose depression	4	11	3	0	1.94
I can treat depression with medications	1	7	9	1	2.56
Overall, I can manage depression	0	10	8	0	2.44
I can identify patients with possible bipolar disorder	0	4	10	4	3.00
I can diagnose bipolar disorder	0	2	11	5	3.17
I can treat bipolar disorder with medications	0	1	7	10	3.50
Overall, I can manage bipolar disorder	0	2	6	10	3.44

Eighteen UWFM-Cheyenne PCPs completed the pre-education survey. They felt most confident with being able to diagnose depression (mean response score of 1.94) and least confident with being able to treat bipolar disorder with medications (mean response score of 3.50). The respondents felt more confident in their ability to diagnose depression (mean response score of 1.94) versus their ability to diagnose bipolar disorder (mean response score of 3.17). Fifteen respondents felt either very confident or mostly confident they could diagnose depression while only two respondents felt mostly confident they could diagnose bipolar disorder. No respondents felt very confident they could diagnose bipolar disorder. Objective Two specifically aimed to improve PCPs' confidence in identifying patients with possible bipolar disorder. Four respondents felt mostly confident they could identify patients with possible bipolar disorder, no respondents felt very confident they could identify patients with possible bipolar disorder.

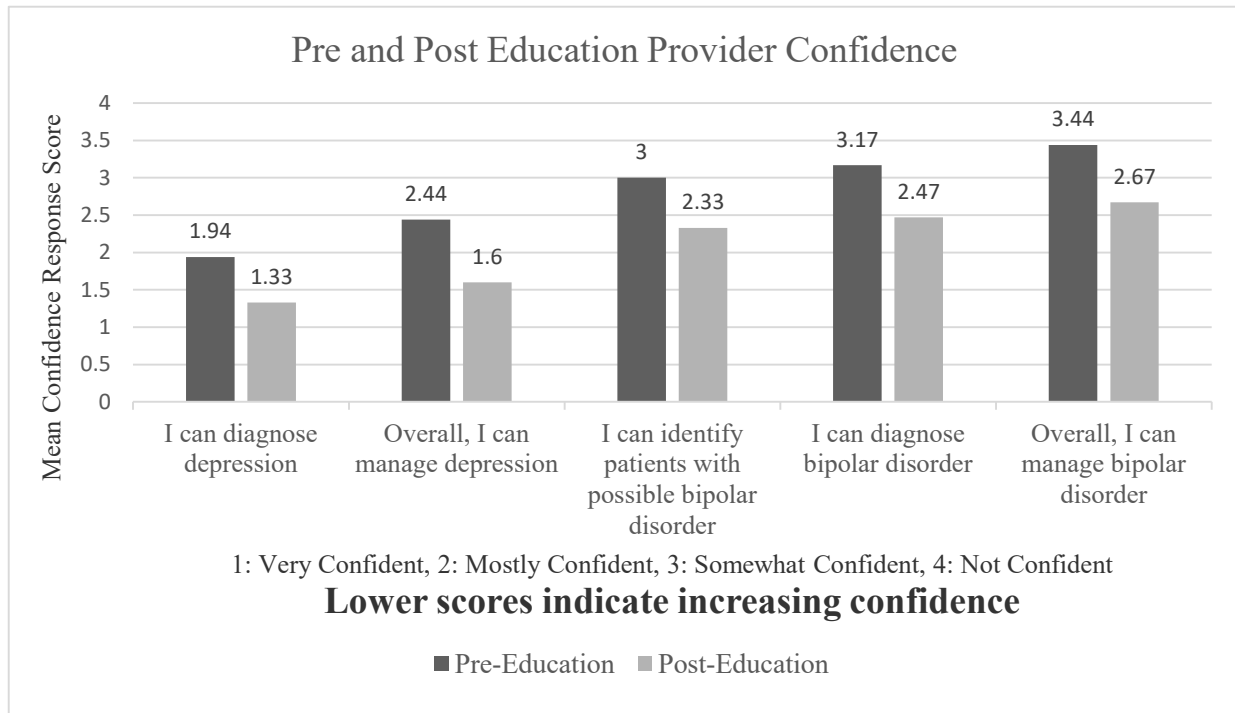
Post-education surveys were presented to UWFM-Cheyenne’s PCPs on March 14, 2016 at a resident faculty meeting. Results of the post-education surveys are presented in Table 3.

Table 3

*Post-Education Surveys*

	No. Respondents (N=15)				Mean Response Score
	Very Confident (1)	Mostly Confident (2)	Somewhat Confident (3)	Not Confident (4)	
I can diagnose depression	10	5	0	0	1.33
I can treat depression with medications	7	7	1	0	1.6
Overall, I can manage depression	7	7	1	0	1.6
I can identify patients with possible bipolar disorder	2	6	7	0	2.33
I can diagnose bipolar disorder	1	8	4	2	2.47
I can treat bipolar disorder with medications	0	6	7	2	2.73
Overall, I can manage bipolar disorder	0	6	8	1	2.67

In their study of family physicians, general internists, and obstetrician-gynecologists, Williams et al. (1999) reported 34.7% of family physicians felt very confident in the overall management of depression and 48.3% mostly confident in the overall management of depression. Pre-education, no UWFM-Cheyenne PCPs felt very confident in the overall management of depression and 55.6% felt mostly confident in the overall management of depression. Post-education, 46.7% of UWFM-Cheyenne PCPs felt very confident in the overall management of depression and another 46.7% felt mostly confident in the overall management of depression. Figure One offers a comparison in mean response scores from the Pre Education Survey to the Post Education Survey.



*Figure 1.* Pre and Post Education Survey Provider Confidence.

The perceived confidence UWFM-Cheyenne PCPs had improved for all seven statements pre-education to post-education. The number of respondents who felt very confident they could diagnose depression pre-education was 4 out of 18 (22.2%) and mostly confident, 11 out of 18 (61.1%). Post-education, the number of respondents who felt very confident they could diagnose depression was 10 out of 15 (66.7%) and mostly confident, 5 out of 15 (33.3%). There were no respondents pre-education who felt very confident they could identify patients with possible bipolar disorder and 4 out of 18 (22.2%) respondents who felt mostly confident. Post-education, there were 2 out of 15 (13.3%) who felt very confident they could identify patients with possible bipolar disorder and 6 out of 15 (40%) who felt mostly confident.

### **Interest in Behavioral Health Topics**

The four one-hour educational session topics were selected based on responses received from UWFM-Cheyenne PCPs in the pre-education survey. The author met with the two



UWFM-Cheyenne chief resident family medicine physicians to arrange days for the educational sessions as well as discuss the proposed topics. Provider interest in behavioral health topics is detailed in Table 4 below.

Table 4

*Pre-Education Survey Interest in Behavioral Health Topics*

Topic	No. of Respondents (N=18)
ADHD	12
Bipolar Disorder	12
Major Depressive Disorder	10
Personality Disorder	10
Substance Abuse/Dependence	10
Anxiety Disorders	9
Sleep-Wake Disorders	7
Smoking Cessation Medications	7
Schizophrenia	6
Post-Partum Depression	5
Community Behavioral Health Resources	3
Eating Disorders	3
Other*	1

*Note.* \*Under Other Category, one respondent wrote in Domestic Abuse.

Attention Deficit Hyperactivity Disorder and Bipolar Disorder received the most responses, each with 12. Major Depressive Disorder, Personality Disorder, and Substance Abuse/Dependence followed with 10 responses each. The first educational session was titled, *Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder Questionnaire*. The educational session was presented on October 27, 2015 and included an overview of bipolar disorder, DSM-5 criteria for a manic and hypomanic episode, MDQ examples, and medications used for treating bipolar disorder. The first educational session also included discussion regarding the sensitivity and specificity of the MDQ.

The second educational session was titled, *Attention Deficit Hyperactivity Disorder in Adults*. The educational session was presented on November 9, 2015 and included an overview of ADHD, DSM-5 diagnostic criteria for ADHD, neurobiology of ADHD, an introduction to the Adult ADHD Self Report Scale, and medications used to treat adult ADHD. The second educational session also included a case study of an adult female patient with ADHD.

The third educational session titled, *Suicide Facts and SSRI Antidepressant Medications*, was presented on November 23, 2015 and included discussion of suicide facts and figures, first line medication choices for major depressive disorder and anxiety disorders, as well as reviewing the Sequenced Treatment Alternatives to Relieve Depression Trial (Star\*D Trial). In the Pre-Education Survey, major depressive disorder and anxiety disorders received 10 responses and 9 responses respectively.

Substance Abuse/Dependence received 9 responses and was included in the fourth educational session titled, *Newer Drugs of Abuse and Cheyenne Community Resources for Substance Abuse Treatment* presented on December 14, 2015. The educational session presented information on bath salts and spice as well as including information on Cheyenne area resources for substance abuse treatment.

### **Educational Session Evaluations**

For the first educational session titled, *Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder Questionnaire*, two evaluations were completed. Both the evaluations replied “strongly agree” to statements one, two, and three. Both evaluations replied “yes” to statement four, one evaluation replied “yes” to statement five and the other evaluation “not applicable”.

For the second educational session titled, *Attention Deficit Hyperactivity Disorder in Adults*, three evaluations were completed. All three evaluations replied “strongly agree” to statements one, two, and three. All three evaluations replied “yes” to statement four. Two evaluations replied “not applicable” to statement five and the third evaluation had no response for statement five. One evaluation commented, “I’ve had better, but not many” and one evaluation commented, “great job.”

For the third educational session titled, *Suicide Facts and SSRI Antidepressant Medications*, two evaluations were completed. Both evaluations replied “strongly agree” to statements one, two, and three. Both evaluations replied “yes” to statement four. One evaluation replied “yes” to statement five and the other evaluation replied “not applicable.” One evaluation commented, “I enjoyed learning about topics of drugs that I hear about, but know nothing about.”

For the fourth educational sessions titled, *Newer Drugs of Abuse and Cheyenne Community Resources for Substance Abuse Treatment*, four evaluations were completed. One evaluation replied “strongly agree” to statements one, two, and three. Two evaluations replied “agree” to statements one, two, and three. One evaluation replied “agree” to statements one and three and “strongly agree” to statement two. All four evaluations replied “yes” to statement four and “not applicable” to statement five. One evaluation commented, “Good review, appropriate level of depth for primary care.”

## **CHAPTER SIX. DISCUSSION AND RECOMMENDATIONS**

Healthy People 2020 objectives related to mental health include reducing the proportion of people experiencing major depressive disorder, increasing the proportion of adults and children with mental health disorders who receive treatment, increasing depression screening by PCPs, and increasing the proportion of primary care facilities that provide mental health treatment (Healthy People 2020, 2017). The US Preventive Services Task Force (USPSTF) statement for screening adults for depression recommends screening for depression in the general adult population. The USPSTF has concluded that there is convincing evidence that treating adults with depression identified in the primary care setting decreases clinical morbidity. The USPSTF also recommends adequate resources be in place to ensure those patients who are screened positive are appropriately diagnosed and treated using evidence based guidelines. If treatment cannot be provided in the primary care setting, then patients need to be referred for the necessary care (2016). Stahl (2016) reported that categorical classification may be of use in the clinical setting, however there is increasing evidence that mood disorders can be viewed on a spectrum. Over one third of unipolar patients may eventually be diagnosed with bipolar disorder and up to sixty percent of patients with bipolar II disorder are initially diagnosed with unipolar depression. With the current recommendations in place by the USPSTF for depression screening in the primary care setting, it is essential that PCPs also have confidence in identifying those patients who may have bipolar disorder.

### **Interpretation of Results**

#### **Objective One Results**

The first project objective of implementing clinic wide use of the MDQ to assist UWFM-Cheyenne PCPs in the diagnosis of depression and identify patients with possible bipolar

disorder resulted in 71 completed MDQs between October 28, 2015 and April 30, 2016. Of the 71 completed MDQs by UWFM-Cheyenne PCPs, 23 (32.4%) were positive screens. The percentage of positive MDQs at UWFM-Cheyenne was higher than those studies in the literature review. Olfson et al. (2005) reported 4.6% of patients screened positive for bipolar disorder with the MDQ in their study of 1,143 adult patients at an internal medicine clinic in New York-Presbyterian Hospital. Hirschfeld et al. (2005) reported 21.3% of patients had positive MDQs in their study of 649 adult primary care patients in Galveston, TX who were receiving antidepressant medications. Cerimele et al.'s (2013) systematic review found 20.9 to 23.5% of primary care patients with symptoms of depression screened positive for bipolar disorder with the MDQ. It is possible that UWFM-Cheyenne's patient population has a higher prevalence of bipolar disorder than those geographic areas in the literature review studies. As discussed in the second one hour education session, Wyoming had the fourth highest suicide rate in the nation in 2013. Hirschfeld et al. (2002) mentioned that patients with bipolar disorder are at a high risk for suicide and individuals with bipolar disorder have a higher overall mortality than the general population.

The Iowa Model was used to guide implementation of this project as well as evaluate its effectiveness. As discussed in chapter three, following the Iowa Model's process for identifying the topic as a priority for the organization was essential. The Iowa Model also guided the search for relevant literature, formation of an interdisciplinary team that would implement the project from a bottom-up approach, and continued evaluation of the MDQ Completion Workflow. The chief residents, nursing staff, and second-year resident were necessary for scheduling educational sessions, administration of the MDQ, and project buy-in from the UWFM-Cheyenne PCPs.

## Objective Two Results

The second project objective was to improve UWFM-Cheyenne PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder. Direct observation of UWFM-Cheyenne PCPs' clinic appointments with patients did not occur. The pre and post-education surveys were self-assessments of provider confidence. All self-assessment scores improved from pre-education to post-education. Pre-education surveys from 18 UWFM-Cheyenne PCPs were received which showed a mean response score of 2.44 for the statement, *Overall, I can manage depression* and 3.00 for the statement, *I can identify patients with possible bipolar disorder*. These scores fall between mostly confident (2.00) and somewhat confident (3.00). Post-education surveys from 15 UWFM-Cheyenne PCPs were received which showed a mean response score of 1.60 for the statement, *Overall, I can manage depression* and 2.33 for the statement, *I can identify patients with possible bipolar disorder*. These scores improved from pre-education to post-education and fall between very confident (1.00), mostly confident (2.00), and somewhat confident (3.00). Post-education scores for the statement, *Overall, I can manage depression* are comparable to scores from family physicians surveyed by Williams et al. in 1999 although the sample size for this clinical practice improvement project was only 15 post-education.

Similar to findings by Leigh, Steward, and Malleos (2006), UWFM-Cheyenne's mental health educational training includes didactic sessions that are, in part, provided by non-physician mental health professionals. In addition to the four educational sessions provided during this project, didactic sessions on mental health topics are scheduled monthly and presented by clinical psychologists, behavioral health therapists, and Cheyenne area psychiatrists. Not only do some family practice program directors feel mental health training is suboptimal, but Hart and

Macnee (2007) and Hart and Bowen (2011) found nurse practitioners do not feel well prepared with management of mental health conditions. Implementing the use of screening tools such as the MDQ and providing educational sessions on mental health topics resulted in increased self-assessment scores at UWFM-Cheyenne. Continued use and expansion of the mental health education at UWFM-Cheyenne is recommended and attendance should be offered to local primary care providers and University of Wyoming Fay W. Whitney School of Nursing students.

Eleven on-line educational session evaluations were completed by UWFM-Cheyenne PCPs. The educational session evaluations consisted of five statements and a place for the evaluator to write in feedback, comments, and suggestions. The number of completed evaluations is low but the low response rate is not a problem only experienced at UWFM-Cheyenne. Cunningham et al. (2015) stated that physicians are a group with low survey response rates. In their study, an on-line survey about medical billing practices was distributed to 904 physicians from various specialties in a large Canadian city. The overall response rate was 35.0%. Cunningham et al. involved influential physicians to facilitate and encourage survey completion. They also recommended at least one reminder be sent after the initial survey request. At UWFM-Cheyenne a second-year family medicine resident was included in the project to increase the likelihood of project buy-in from the other clinic PCPs and the two chief residents did provide a reminder to the other resident physicians at the monthly resident meeting following the final educational session.

### **Limitations**

This project had several limitations. The timing of this project implementation was difficult due to the two residency clinics combining Centricity databases in February 2016. The electronic version of the MDQ did not exist in the Casper residency program's Centricity, which

could have resulted in the project's early termination as the electronic MDQ would have been discontinued. Requests were made, by the MDQ implementation team members, to UWFM-Cheyenne faculty, management, and IT staff to keep the MDQ in the combined Centricity electronic health record system. The timing of data collection for this project was difficult. The number of electronic health record system changes occurring during this period of time could have led to some UWFM-Cheyenne PCP and nursing staff frustration with Centricity overall and MDQ implementation was one more piece of data entry to complete in an otherwise busy clinic day.

Although the MDQ, MDQ Completion Workflow, and what patient presenting health concerns would be indication for MDQ screening was discussed with the UWFM-Cheyenne nursing staff, a written script that all nursing staff could follow when asking patients if they would be willing to complete the MDQ would have been helpful. The number of patients who declined to participate was not tracked, but this data would also have been beneficial.

The 31 referrals for behavioral health services from UWFM-Cheyenne PCPs during the project time period is a low number for the residency clinic. For referrals to the author, many UWFM-Cheyenne PCPs would go directly to the RN working in the mental health clinic and patients would be scheduled for an initial intake appointment without a formal referral placed in Centricity. UWFM-Cheyenne would benefit from formal referrals being placed in Centricity for all specialty referrals, both from a data tracking standpoint, but also to assist patients throughout the referral process. During the project implementation period, UWFM-Cheyenne patients may have been referred within Centricity, been referred to specialty care by having nursing or their PCP call the specialty clinic, or by contact information for the specialty clinic being provided to the patients so they could self-schedule appointments. By having referrals placed in Centricity



for all specialty referrals, coordination of care will improve and accurate data tracking will be available.

Reporting on the number of patients with a diagnosis of depression, anxiety, mood disorder unspecified, and bipolar disorder would have been valuable. Tracking the diagnosis to the number of referrals made to behavioral health would have provided information on the diagnoses most likely to be referred. This information may have determined if UWFM-Cheyenne PCPs were diagnosing bipolar disorder or deferring to mental health clinicians.

Demographic data was unattainable for the completed MDQs. The focus of this project was on introducing the UWFM-Cheyenne PCPs to the MDQ thereby increasing awareness of bipolar disorder. This was accomplished by tracking the total number of MDQs and whether results were positive or negative. Demographic data was not included in the MDQ reporting program. However, information about patient age, sex, race, and payer status would have been useful. This information would have provided some data on who the clinic serves, helping to guide future planning of clinic resources, working with other Cheyenne community resources, and planning for future clinic needs. Demographic data could potentially have been set up with the initial MDQ program just prior to project implementation.

The overall quality of the video recording for the first educational session was poor. This first educational session included the greatest dialogue with participants about bipolar disorder, medication treatment options for bipolar disorder, and information about the MDQ. The Polycom RealPresence Media Suite could have been used prior to the four educational sessions. This would have allowed the presenters to become familiar with the technology prior to the first scheduled educational session.

Overall attendance of UWFM-Cheyenne educational sessions, for all topics not just this project, is an area continually mentioned for improvement. The monthly educational session schedule for UWFM-Cheyenne is available within New Innovations Residency Management Suite and weekly educational session schedules are posted on the auditorium entrance door so all UWFM-Cheyenne clinic staff are made aware of the educational session schedule. Additionally, the number of completed participant educational session evaluations was low. New Innovations allowed for standardization of the evaluation form and consistency with what UWFM-Cheyenne currently uses, however there is no requirement for UWFM-Cheyenne PCPs to complete educational session evaluations. Completing educational session evaluations has always been encouraged, but not required.

More information may have been obtained if the pre and post-educational surveys would have been numbered. An option would have been using an on-line survey tool, which would have assigned a number to each UWFM-Cheyenne PCP while preserving confidentiality. This method would have provided information on how individual UWFM-Cheyenne PCPs improved their confidence pre-educational survey to post-educational survey. The challenge with administering an on-line survey would have been a potential low response rate similar to that obtained with the educational survey evaluations.

### **Future Recommendations for Practice Improvement**

Despite the project limitations continued use of the MDQ is recommended. As mentioned in chapter one, primary care has an important role to play in providing mental health care. This role will continue to grow, in part due to USPSTF recommendations for screening for depression in the general adult population. Additionally, there is a mental health workforce shortage and national emphasis being placed on integrating behavioral health and primary care.

According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2013) as of March 30, 2012 there were 3,669 mental health professional shortage areas in the United States which included a population around 91 million people. Fifty-five percent of the counties in the United States had no practicing psychiatrist. All of these counties were classified as rural. Compounding the difficulties with access to mental health care is an aging behavioral health workforce. In 2010 the average age of practicing psychiatrists was 55.7 years with 46% over the age of 65 (SAMHSA, 2013). Because of the shortage of mental health care providers and for some patients, health insurance barriers, inadequate health care insurance, or no health care insurance, PCPs will be tasked with diagnosis and management of behavioral health conditions. Using screening tools for anxiety, depression, attention-deficit hyperactivity disorder, and bipolar disorder as well as substance abuse disorders will assist PCPs with diagnosis and treatment decisions. As of December 2016, some of the UWFM-Cheyenne PCPs who consulted the author brought completed MDQs to their requested curb-side consultations. The continued use of the MDQ at UWFM-Cheyenne is encouraging and hopefully many of the graduating residents, medical students, and nurse practitioner students rotating through UWFM-Cheyenne will continue to use the MDQ or another screening tool for bipolar disorder when they have left UWFM-Cheyenne.

### **Dissemination Strategies**

The four educational sessions were recorded onto DVDs and copies provided to NDSU School of Nursing, UWFM-Cheyenne, and the University of Wyoming Fay W. Whitney School of Nursing. At UWFM-Cheyenne, the four recorded educational sessions are expected to be offered as part of the continued behavioral health education and shown yearly to reach the new class of family medicine resident physicians as well as other University of Wyoming College of

Health Science students rotating through UWFM-Cheyenne. It is hoped that by providing DVDs to the two schools of nursing both undergraduate nursing students as well as nurse practitioner students may benefit from the educational sessions.

On March 6, 2017 the Doctor of Nursing Practice projects will be presented as posters at North Dakota State University. The posters will present the projects' objectives, guiding framework, project design and project findings. This event will be open to the public and offer presenters the opportunity to answer any project questions.

May 5 through May 9, 2017 the author and second-year family medicine resident physician will present findings of this practice improvement project at the Society of Teachers in Family Medicine Annual Conference in San Diego, California. The poster presentation will detail the project's objectives, guiding framework, project design, and project findings. Anticipated conference attendance is 1,500 family medicine educators, residents, medical students, nurse practitioners, nurses, and physician assistants. A sixty-minute time slot is provided to the poster session presenters to discuss the project and answer any questions. Lastly, during the spring semester 2017, a letter of inquiry will be submitted to a peer reviewed nursing journal such as the Journal of the American Psychiatric Nurses Association.

### **Implications for Advanced Practice Nursing**

According to the American Association of Nurse Practitioners (n.d.), nurse practitioners comprise the fastest growing component of the primary care workforce. Eighty-nine percent of all nurse practitioners have an educational preparation in primary care (adult, family, gerontological, pediatric, women's health) with only 2.9 percent specializing in psychiatric nursing. The Institute of Medicine (2010), in their report, *The Future of Nursing*, stated that there are not enough primary care physicians to care for the aging population in the United States

and the patient load is expected to dramatically increase as more individuals gain insurance coverage with the Affordable Care Act. The American Psychiatric Nursing Association (2013) adds the majority of patients with mental health disorders receive some form of care for their mental health disorders from primary care, with primary care being the only form of health care used by over one-third of this population.

The Institute of Medicine (2010) recommended regulations and barriers be eliminated that prevent nurse practitioners from practicing to the full extent of their education and training. The Institute of Medicine mentioned that no studies have suggested Advance Practice Registered Nurses (APRNs) are less able than physicians to deliver care that is safe, effective, and efficient.

Nurse practitioners practicing in the primary care setting are providing care for many patients presenting with mental health care problems including depression and bipolar disorder. Due to the national shortage of mental health clinicians, it is of great importance that primary care nurse practitioners have confidence in their abilities to treat these patients amidst changes nationally and at the state level allowing APRNs to practice to the full extent of their education and training.

## REFERENCES

- Accreditation Council for Graduate Medical Education. (2013). *ACGME program requirements for graduate medical education in family medicine*. Retrieved from <http://www.acgme.org/acgmeweb/tabid/132/ProgramandInstitutionalAccreditation/MedicalSpecialties/FamilyMedicine.aspx>
- Agency for Healthcare Research and Quality. (2016). Defining the PCMH. Retrieved from <https://pcmh.ahrq.gov/page/defining-pcmh>
- American Academy of Family Physicians. (2011). Recommended curriculum guidelines for family medicine residents: Human behavior and mental health. Retrieved from [http://www.aafp.org/dam/AAFP/documents/medical\\_education\\_residency/program\\_directors/Reprint270\\_Mental.pdf](http://www.aafp.org/dam/AAFP/documents/medical_education_residency/program_directors/Reprint270_Mental.pdf)
- American Association of Nurse Practitioners. (n.d.). Nurse Practitioners in Primary Care. Retrieved from <https://www.aanp.org/images/documents/publications/primarycare.pdf>
- American Psychiatric Association. (1952). *Diagnostic and statistical manual of mental disorders*. Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.
- American Psychiatric Nurses Association. (2013). APNA Primary Care Statement. Retrieved from [http://www.apna.org/files/public/APNA\\_Primary\\_Care\\_Statement.pdf](http://www.apna.org/files/public/APNA_Primary_Care_Statement.pdf)
- Badarudeen, S. & Sabharwal, S. (2010). Assessing readability of patient education materials. *Clinical Orthopaedics and Related Research*, 460, 2572-2580.
- Blount, F. A. & Miller, B. F. (2009). Addressing the workforce crisis in integrated primary care. *Journal of Clinical Psychology in Medical Settings*, 16, 113-119.

- Center for Behavioral Health Statistics and Quality. (2015). *Behavioral health trends in the United States: Results from the 2014 national survey on drug use and health*. NSDUH Series H-50, HHS Publication No. SMA 15-4927. Retrieved from <http://www.samhsa.gov/data/>
- Cerimele, J. M., Chwastiak, L. A., Dodson, S., & Katon, W. J. (2013). The prevalence of bipolar disorder in primary care patients with depression or other psychiatric complaints: A systematic review. *Psychosomatics, 54*(6), 515-524.
- Cunningham, C., Quan, H., Hemmelgarn, B., Noseworthy, T., Beck, C., Dixon, E., ...Jette, N. (2015). Exploring physician specialist response rates to web-based surveys. *BMC Medical Research Methodology, 15*(32). doi: 10.1186/s12874-015-016-z.
- Doody, C. M. & Doody, O. (2011). Introducing evidence into nursing practice: Using the IOWA model. *British Journal of Nursing, 20*(11), 661-664.
- Gill, J. M., Chen, Y. X., Grimes, A., & Klinkman, M. S. (2012). Using electronic health record-based tools to screen for bipolar disorder in primary care patients with depression. *The Journal of the American Board of Family Medicine, 25*(3), 283-290.
- Harris, J. L., Roussel, L., Walters, S. E., & Dearman, C. (2011). *Project planning and management: A guide for CNLs, DNP's, and nurse executives*. Sudbury, MA: Jones & Bartlett Learning.
- Hart, A. M. & Bown, A. (2016). New nurse practitioners' perceptions of preparedness for and transition into practice. *The Journal for Nurse Practitioners, 12*(8), 545-552.
- Hart, A. M. & Macnee, C. (2007). How well are nurse practitioners prepared for practice: Results of a 2004 questionnaire survey. *Journal of the American Academy of Nurse Practitioners, 19*(1), 35-42.

- Healthy People 2020. (2017). Mental Health and Mental Disorders. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/ebrs>
- Hirschfeld, R. M., Bowden, C. L., Gitlin, M. J., Keck, P. E., Suppes, T., Thase, M. E., ...Perlis, R. H. (2002). *Practice guideline for the treatment of patients with bipolar disorder, (2<sup>nd</sup> ed.)*. Retrieved from <http://psychiatryonline.org/guidelines>
- Hirschfeld, R. M., Cass, A. R., Holt, D. C., & Carlson, C. A. (2005). Screening for bipolar disorder in patients treated for depression in a family medicine clinic. *The Journal of the American Board of Family Medicine, 18*(4), 233-239.
- Hirschfeld, R. M., Lewis, L., & Vornik, L. A. (2003). Perceptions and impact of bipolar disorder: How far have we really come? Results of the national depressive and manic-depressive association 2000 survey of individuals with bipolar disorder. *Journal of Clinical Psychiatry, 64*, 161-174.
- Hirschfeld, R. M., Williams, J. B., Spitzer, R. L., Calabrese, J. R., Flynn, L., Keck, P. E.,... Zajecka, J. (2000). Development and validation of a screening instrument for bipolar spectrum disorder: The mood disorder questionnaire. *American Journal of Psychiatry, 157*(11), 1873-1875.
- Institute of Medicine. (2010). The future of nursing: Focus on scope of practice. Retrieved from <http://www.nationalacademies.org/hmd/Reports/2010/The-Future-of-Nursing-Leading-Change-Advancing-Health/Report-Brief-Scope-of-Practice.aspx>
- Kelsoe, J. R. (2009). Mood disorders: Genetics. In B. J. Sadock, V. A. Sadock, & P. Ruiz (Eds.), *Kaplan & Sadock's comprehensive textbook of psychiatry (9<sup>th</sup> ed.)*. Philadelphia: Lippincott Williams & Wilkins.



- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the national comorbidity survey replication (NCS-R). *Archives of General Psychiatry*, 62(6), 617-627.
- Kilbourne, A. M., Goodrich, D. E., O'Donnell, A. N., & Miller, C. J. (2012). Integrating bipolar disorder management in primary care. *Current Psychiatry Reports*, 14, 687-695.
- Leigh, H., Stewart, D., & Mallios, R. (2006). Mental health and psychiatry training in primary care residency programs. Part I. Who teaches, where, when, and how satisfied? *General Hospital Psychiatry*, 28, 189-194.
- Michels, R. (2009). Forward: The future of psychiatry. In B. J. Sadock, V. A. Sadock, & P. Ruiz (Eds.), *Kaplan & Sadock's comprehensive textbook of psychiatry* (9<sup>th</sup> ed., p. lv-lix). Philadelphia: Lippincott Williams & Wilkins.
- National Institute of Mental Health. (2016). *Bipolar disorder in adults*. Retrieved from <http://www.nimh.nih.gov/health/publications/bipolar-disorder-in-adults>.
- Olfson, M., Das, A. M., Gameroff, M. J., Pilowsky, D., Feder, A., Gross, R., ... Weissman, M. M. (2005). Bipolar depression in a low-income primary care clinic. *American Journal of Psychiatry*, 162(11), 2146-2151.
- Olfson, M., Kroenke, K., Wang, S., & Blanco, C. (2014). Trends in office-based mental health care provided by psychiatrists and primary care physicians. *Journal of Clinical Psychiatry*, 75(3), 247-253.
- Oswald, P., Souery, D., Kasper, S., Lecrubier, Y., Montgomery, S., Wyckaert, ... Mendlewicz, J. (2007). Current issues in bipolar disorder: A critical review. *European Neuropsychopharmacology*, 17, 687-695.
- Pichot, P. (1995). The birth of the bipolar disorder. *European Psychiatry*, 10, 1-10.

- Rihmer, Z. & Angst, J. (2009). Mood disorders: Epidemiology. In B. J. Sadock, V. A. Sadock, & P. Ruiz (Eds.), *Kaplan & Sadock's comprehensive textbook of psychiatry* (9<sup>th</sup> ed.). Philadelphia: Lippincott Williams & Wilkins.
- Sackett, D. L., Rosenberg, W. M., Muir Gray, J. A., Haynes, R. B., & Richardson, W. S. (1996). Evidence-based medicine: What it is and what it isn't. *British Medical Journal*, *312*(7023), 71-72.
- Sasdelli, A., Lia, L., Luciano, C., Nespeca, C., Berardi, D., & Menchetti, M. (2013). Screening for bipolar disorder symptoms in depressed primary care attenders: Comparison between mood disorder questionnaire and hypomania checklist (HCL-32). *Psychiatry Journal*, *2013*, 1-9.
- Schaffer, M. A., Sandau, K. E., & Diedrick, L. (2012). Evidence-based practice models for organizational change: overview and practical applications. *Journal of Advanced Nursing*, *69*(5), 1197-1209.
- Stahl, S. (2016). *Mood disorders: A "spectrum" analysis*. PowerPoint Presentation at the 2016 Neuroscience Education Institute Congress.
- Stahl, S. (2013). *Stahl's essential psychopharmacology: Neuroscientific basis and practical applications* (4<sup>th</sup> ed.). Cambridge, United Kingdom: Cambridge University Press.
- Substance Abuse and Mental Health Services Administration. (2013). *Report to congress on the nation's substance abuse and mental health workforce issues*. Retrieved from <https://www.samhsa.gov/workforce/publications-resources>
- The Working Party Group on Integrated Behavioral Healthcare. (2014). Joint principles: Integrating behavioral health care into the patient-centered medical home. *Annals of Family Medicine*, *12*(2), 183-185.

- Thomas, A., Bissinger, R., Brackley, M., Buron, B., Davis, R., Delaney, K. R., ... Weber, M. (2013). *Population-focused nurse practitioner competencies*. Retrieved from <http://www.nonpf.org/?page=14>
- Titler, M. G., Kleiber, C., Steelman, V. J., Rakel, B. A., Budreau, G., Everett, L. Q., ... Goode, C. J. (2001). The Iowa model of evidence-based practice to promote quality care. *Critical Care Nursing Clinics of North America*, 13(4), 497-509.
- U.S. Census Bureau. (2016). Annual estimates of the resident population for selected age groups by sex for the United States, Counties and Puerto Rico Commonwealth and Municipalities: April 1, 2010 to July 1, 2015. Retrieved from <https://www.census.gov/popest/data/state/asrh/2015/index.html>
- U.S. Department of Health and Human Services. (2016). Health professional shortage areas. Retrieved from <http://bhpr.hrsa.gov/shortage/hpsas>
- U.S. Preventive Services Task Force. (2016). Depression in adults: Screening. Retrieved from <https://www.uspreventiveservicestaskforce.org/BrowseRec/search?s=depression>
- Wang, H. R., Woo, Y. S., Ahn, H. S., Ahn, I. M., Kim, H. J., & Bahk, W. M. (2015). The validity of the mood disorder questionnaire for screening bipolar disorder: A meta-analysis. *Depression and Anxiety*, 32(7), 527-538.
- Williams, J. W., Rost, K., Dietrich, A. J., & Ciotti, M. C. (1999). Primary care physicians' approach to depressive disorders: Effects of physician specialty and practice structure. *Archives of Family Medicine*, 8(1), 58-67,
- Wyoming Department of Health. (2014). Rural and frontier health. Retrieved from <http://www.health.wyo.gov/rfhd/index.html>

Zimmerman, M. & Galione, J. N. (2011). Screening for bipolar disorder with the mood disorder questionnaire: A review. *Harvard Review of Psychiatry*, 19(5), 219-228.

# APPENDIX A. MOOD DISORDER QUESTIONNAIRE

STABLE RESOURCE TOOLKIT

## Mood Disorder Questionnaire

Patient Name \_\_\_\_\_ Date of Visit \_\_\_\_\_

Please answer each question to the best of your ability

<b>1. Has there ever been a period of time when you were not your usual self and...</b>	<b>YES</b>	<b>NO</b>
...you felt so good or so hyper that other people thought you were not your normal self or you were so hyper that you got into trouble?	<input type="checkbox"/>	<input type="checkbox"/>
...you were so irritable that you shouted at people or started fights or arguments?	<input type="checkbox"/>	<input type="checkbox"/>
...you felt much more self-confident than usual?	<input type="checkbox"/>	<input type="checkbox"/>
...you got much less sleep than usual and found that you didn't really miss it?	<input type="checkbox"/>	<input type="checkbox"/>
...you were more talkative or spoke much faster than usual?	<input type="checkbox"/>	<input type="checkbox"/>
...thoughts raced through your head or you couldn't slow your mind down?	<input type="checkbox"/>	<input type="checkbox"/>
...you were so easily distracted by things around you that you had trouble concentrating or staying on track?	<input type="checkbox"/>	<input type="checkbox"/>
...you had more energy than usual?	<input type="checkbox"/>	<input type="checkbox"/>
...you were much more active or did many more things than usual?	<input type="checkbox"/>	<input type="checkbox"/>
...you were much more social or outgoing than usual, for example, you telephoned friends in the middle of the night?	<input type="checkbox"/>	<input type="checkbox"/>
...you were much more interested in sex than usual?	<input type="checkbox"/>	<input type="checkbox"/>
...you did things that were unusual for you or that other people might have thought were excessive, foolish, or risky?	<input type="checkbox"/>	<input type="checkbox"/>
...spending money got you or your family in trouble?	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. If you checked YES to more than one of the above, have several of these ever happened during the same period of time?</b>	<input type="checkbox"/>	<input type="checkbox"/>

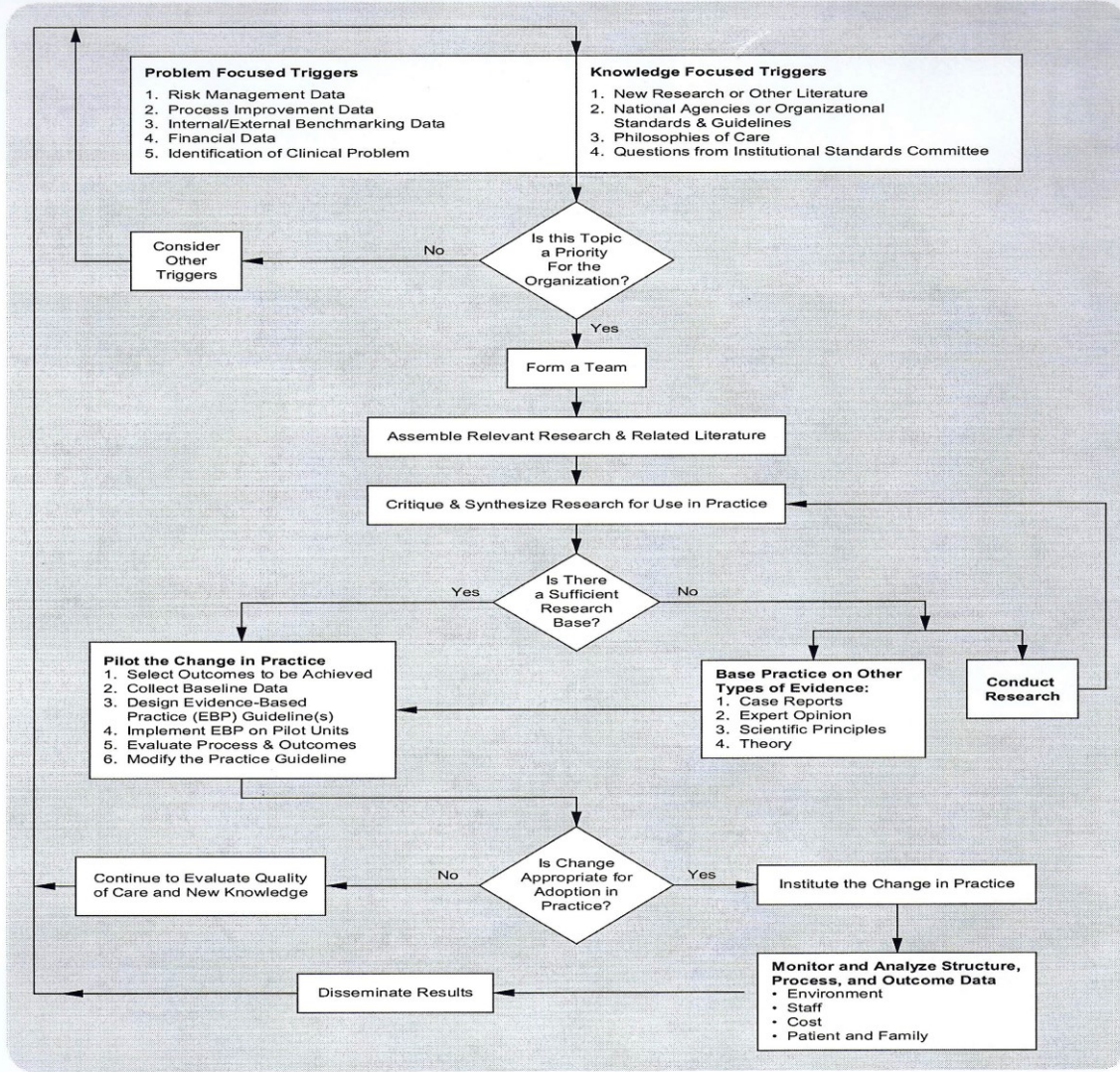
**3. How much of a problem did any of these cause you - like being unable to work; having family, money or legal troubles; getting into arguments or fights?**

No problems     Minor problem     Moderate problem     Serious problem

*This instrument is designed for screening purposes only and not to be used as a diagnostic tool.  
Permission for use granted by RMA Hirschfeld, MD*

# APPENDIX B. THE IOWA MODEL OF EVIDENCE-BASED PRACTICE TO PROMOTE QUALITY CARE

## The Iowa Model of Evidence-Based Practice to Promote Quality Care



◇ = a decision point

Titler, M.G., C., Steelman, V.J., Rakel, B. A., Budreau, G., Everett, L.Q., Buckwaller, K.C., Tripp-Reimer, T., & Goode C. (2001). The Iowa Model Of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4), 497-509.

**REQUESTS TO:**  
 Department of Nursing  
 University of Iowa Hospitals and Clinics  
 Iowa City, IA 52242-1009

DO NOT REPRODUCE WITHOUT PERMISSION

Revised April 1998 © UIHC

## APPENDIX C. PERMISSION TO USE THE IOWA MODEL

### Julian D Good

---

**From:** Kimberly Jordan - University of Iowa Hospitals and Clinics  
<noreply@qemailserver.com>  
**Sent:** Thursday, January 22, 2015 12:55 PM  
**To:** Julian D Good  
**Subject:** Permission to Use and/or Reproduce The Iowa Model


You have permission, as requested today, to review/use *The Iowa Model of Evidence-Based Practice to Promote Quality Care (Titler et al., 2001)*. Click the link below to open the model.


Copyright of the Iowa Model of Evidence-Based Practice to Promote Quality Care will be retained by The University of Iowa Hospitals and Clinics.

**Permission is not granted for placing the Iowa Model on the internet.**

#### The Iowa Model

In written material, please add the following statement:

- *Used/Reprinted with permission from the University of Iowa Hospitals and Clinics and Marita G. Titler, PhD, RN, FAAN. Copyright 1998. For permission to use or reproduce the model, please contact the University of Iowa Hospitals and Clinics at (319)384-9098* 

If you have questions, please contact Kimberly Jordan at 319-384-9098  for [kimberly-jordan@uiowa.edu](mailto:kimberly-jordan@uiowa.edu).

## APPENDIX D. PRE-EDUCATION SURVEY

**UWFM-Cheyenne Noon Conference Survey:  
Pre-Education Survey  
Interest in Behavioral Health Topics**

Date: \_\_\_\_\_

**On a scale of 1 to 4, with 1 being very confident and 4 being not confident, please answer the following statements.**

	Very Confident	Mostly Confident	Somewhat Confident	Not Confident
I can diagnose depression	1	2	3	4
I can treat depression with medications	1	2	3	4
Overall, I can manage depression	1	2	3	4
I can identify patients with possible bipolar disorder	1	2	3	4
I can diagnose bipolar disorder	1	2	3	4
I can treat bipolar disorder with medications	1	2	3	4
Overall, I can manage bipolar disorder	1	2	3	4

**I am interested in the following behavioral health topics (please circle all that apply).**

Anxiety Disorders

Smoking Cessation Medications

Major Depressive Disorder

Substance Abuse/Dependence

Schizophrenia

Eating Disorders

Personality Disorders

Sleep-Wake Disorders

ADHD

Bipolar Disorder

Post-Partum Depression

Other: \_\_\_\_\_

Community Behavioral Health Resources



## APPENDIX E. HEALTHCARE PROVIDER INFORMED CONSENT

**NDSU**

**North Dakota State University**

Department of Nursing  
Campus Address  
NDSU Dept. 2670  
PO Box 6050  
Fargo, ND 58108-6050  
701.231.7395

### **Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder Questionnaire**

Dear UWFM-Cheyenne Primary Care Provider:

My name is Julian Good. I am a graduate student in Nursing at North Dakota State University, and I am conducting a research project to improve the mental health care services provided at the University of Wyoming Family Medicine Residency Program-Cheyenne. It is our hope, that with this research, we will learn more about UWFM-Cheyenne Primary Care Providers' comfort level and confidence in treating patients who present with mental health problems.

Because you are a Primary Care Provider at UWFM-Cheyenne, you are invited to take part in this research project. Your participation is entirely voluntary, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, however we have taken reasonable safeguards to minimize any known risks. Reports from Centricity will identify how many Mood Disorder Questionnaire screens each provider has completed; the research project will be interested in the total number of Mood Disorder Questionnaire screens conducted as a baseline measurement and after project completion. There will be no negative consequences of providers choosing not to use the Mood Disorder Questionnaire screening tool or having conducted a low number of Mood Disorder Questionnaire screens. In no way will the research project results negatively affect job performance evaluations or resident education progress. Although unlikely, a possible risk is loss of confidentiality in completing pre-education, post-education, and noon conference evaluation surveys.

By participating in this research, you may benefit by increasing your confidence and comfort level in treating patients who present with mental health problems. However, you may not get any benefit from being in this study. Benefits to UWFM-Cheyenne clinic patients are likely to include identification of possible bipolar disorder through use of the Mood Disorder Questionnaire which would then result in appropriate referral for further evaluation and treatment.

It should take about two minutes to complete the pre-education and post-education survey questions concerning your interest in noon conference mental health topics and your confidence in identifying and treating depression and bipolar disorder. Additionally,

you are being asked to complete noon conference evaluations using New Innovations, which you have already used for previous noon conference evaluations.

This study is anonymous. That means that no one, not even members of the research team, will know that the information you give comes from you.

If you have any questions regarding this project, please contact me at 307-632-2434, ext. 212 or [julian.good@ndsu.edu](mailto:julian.good@ndsu.edu), or contact my advisor Dr. Tina Lundeen, DNP, FNP-BC at 701-231-7775 or [tina.lundeen@ndsu.edu](mailto:tina.lundeen@ndsu.edu).

As a research participant you have certain rights. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8908, toll-free at 1-855-800-6717, by email at [ndsu.ibr@ndsu.edu](mailto:ndsu.ibr@ndsu.edu), or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please email me at [julian.good@ndsu.edu](mailto:julian.good@ndsu.edu)

## APPENDIX F. MDQ COMPLETION WORKFLOW

### Mood Disorder Questionnaire Completion Workflow

Implementation: November 1, 2015 x 6 months

- 1) MDQ folders will be in each exam room.
- 2) Patients who are checked in with behavioral health chief complaints (e.g. depression, anxiety, bipolar disorder) will be asked by nursing staff to complete the MDQ.
- 3) If nursing staff do not administer the MDQ, providers will have the option of having patient complete the MDQ at anytime during the patient's appointment.
- 4) Nursing staff will enter the MDQ into a patient's chart under the vital sign section. Training will take place before November 1<sup>st</sup> and be ongoing.
- 5) Referral to mental health provider of patient's choice if indicated: Peak Wellness, CRMC BHS, UWFM, etc....

## APPENDIX G. PERMISSION TO USE THE MDQ

Re: MDQ permission - Julian D Good

Page 1 of 1

Re: MDQ permission

Robert M.A. Hirschfeld <roh9080@med.cornell.edu>

Tue 8/25/2015 7:15 AM

To: Julian D Good <jgood4@uwyo.edu>;

You have my permission to use the MDQ for this purpose

Robert Hirschfeld MD

On Aug 24, 2015, at 4:56 PM, Julian D Good <jgood4@uwyo.edu> wrote:

Dear Dr. Hirschfeld,

I am sending an email requesting permission to use the Mood Disorder Questionnaire. I am employed by the University of Wyoming Family Medicine Residency Program at Cheyenne and as part of my Doctorate of Nursing Practice completion program, am implementing a practice improvement project whereby the primary care providers/family medicine resident physicians would use the Mood Disorder Questionnaire with patients presenting with symptoms of depression to screen for bipolar disorder.

UWFM-Cheyenne's information technologist has transferred the paper MDQ to electronic health record format (we use a GE product: Centricity). The MDQ is unchanged and gives acknowledgement to the MDQ committee authors.

I have searched the Internet but have been unable to find information regarding the MDQ and any copyright protection, specifically if the MDQ is used within an electronic health record system.

Sincerely,

Julian Good, FNP, PMHNP  
Family Psychiatric Mental Health Nurse Practitioner  
UWFM Residency Program at Cheyenne  
820 East 17th Street  
Cheyenne, WY 82001-4797  
(307) 777-7911 ext. 212  
[jgood4@uwyo.edu](mailto:jgood4@uwyo.edu)

# APPENDIX H. EDUCATIONAL SESSIONS

## Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder Questionnaire

Julian Good, FNP, PMHNP & Dr. Cameron Grove, MD  
October 27<sup>th</sup>, 2015


No financial relationships to disclose.

## Learning Objectives

- Apply the Diagnostic and Statistical Manual of Mental Disorders (5<sup>th</sup> ed.) criteria to diagnose bipolar disorder
- Interpret the results of a completed Mood Disorder Questionnaire
- Identify medications used to treat bipolar depression


## Bipolar Disorder

-Right click to open hyperlink



## Facts & Figures

- 2012 National Survey on Drug Use and Health estimated:
  - 43.7 million adults in the United States with mental illness in the past year (18.6% of adult population)
  - Of the 43.7 million, only 41% received mental health services in 2011.



Bipolaroid

[Substance Abuse & Mental Health Services Administration, 2013]

## Results from Recent Pre-Education Survey



Item	Very Confident	Mostly Confident	Somewhat Confident	Not Confident	#
Know if bipolar depression	2	2	2	4	2
Know what depression with antidepressants	1	2	3	4	2,54
Know what bipolar depression	1	2	3	4	2,147
Know identify patients with possible bipolar disorder	1	2	3	4	3
Know bipolar depression with antidepressants	1	2	3	4	3,17
Know what bipolar depression with antidepressants	1	2	3	4	3,50
Know what bipolar depression with antidepressants	1	2	3	4	3,147


Know interested in the following behavioral health topics (please circle all that apply)

Anxiety Disorders	9	Insomnia/Obstructive Sleep Apnea	7
Major Depressive Disorder	10	Substance Abuse/Dependence	10
Schizophrenia	6	Eating Disorders	3
Personality Disorders	10	Stress-Related Disorders	7
ADHD	12	Bipolar Disorder	12
Post-Traumatic Stress Disorder	5	Other: <u>Anxiety, Abuse</u>	1
Community Behavioral Health Resources	3	<u>Yes</u> <u>No</u> <u>Maybe</u>	

**“While it has been well-known that primary care is the de facto treatment setting for patients with unipolar depression, there is increased awareness that many patients with bipolar disorder are seen exclusively in primary care, due to lack of access to specialty mental health care services and the stigma associated with receiving care in a mental health setting.”**

[Kilbourne, Goodrich, O'Donnell, and Miller, 2012, p. 687]

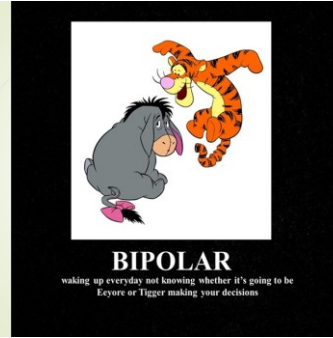
**Bipolar Disorder likely ranges from 3-9% in primary care patients presenting with depression or other psychiatric complaints.**



## Comorbidity of Bipolar Disorder With Other Disorders



Comorbid Condition	Mean Rate of Comorbidity (%)
Any Axis I Disorder	65
Substance use Disorder	56
Alcohol Abuse	49
Anxiety Disorder	71
Social Phobia	47
PTSD	39
Panic Disorder	11
Obsessive-Compulsive Disorder	10
Binge-eating Disorder	13
Personality Disorder	36
Migraine	28
Overweight	58
Obesity	21
Type 2 DM	10
Hypothyroidism	9



## DSM-5 Bipolar and Related Disorders

- Bipolar I Disorder
- Bipolar II Disorder
- Cyclothymic Disorder
- Substance/Medication-Induced Bipolar & Related Disorder
- Bipolar and Related Disorder Due to Another Medical Condition
- Other Specified Bipolar and Related Disorder
- Unspecified Bipolar and Related Disorder



## DSM-5 Criteria for Manic Episode

- A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased goal-directed activity or energy, lasting at least 1 week and present most of the day, nearly every day (or any duration if hospitalization is necessary).
- During the period of mood disturbance and increased energy or activity, three (or more) of the following symptoms (four if the mood is only irritable) are present to a significant degree and represent a noticeable change from usual behavior:
  - Inflated self-esteem or grandiosity
  - Decreased need for sleep
  - More talkative than usual or pressure to keep talking
  - Flight of ideas or subjective experience that thoughts are racing
  - Distractibility, as reported or observed
  - Increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation (i.e., purposeless non-goal-directed activity)
  - Excessive involvement in activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretion, or foolish business investments)

## DSM-5 Criteria for Manic Episode cont.



- The mood disturbance is sufficiently severe to cause marked impairment in social or occupational functioning or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.
- The episode is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication, other treatment) or to another medical condition.

**Note:** A full manic episode that emerges during antidepressant treatment (e.g., medication, electroconvulsive therapy) but persists at a fully syndromal level beyond the physiological effect of that treatment is sufficient evidence for a manic episode and, therefore, a bipolar I diagnosis.

**Note:** Criteria A-D constitute a manic episode. At least one lifetime manic episode is required for the diagnosis of bipolar I disorder.

(American Psychiatric Association, 2013, p. 124).

## DSM-5 Criteria for Hypomanic Episode

- Criteria A from manic episode with duration of at least 4 consecutive days.
- Criteria B from manic episode is essentially unchanged.
- The episode is associated with an unequivocal change in functioning that is uncharacteristic of the individual when not symptomatic.
- The disturbance in mood and the change in functioning are observable by others.
- The episode is not severe enough to cause marked impairment in social or occupational functioning or to necessitate hospitalization. If there are psychotic features, the episode is, by definition, manic.
- The episode is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication, other treatment).

**Note:** Criteria A-F constitute a hypomanic episode. Hypomanic episodes are common in bipolar I disorder but are not required for the diagnosis of bipolar I disorder.

(American Psychiatric Association, 2013, p. 124-125).



## Disorder: Diagnosis

- For a **Bipolar I** Diagnosis: must meet the criteria for a manic episode
- For a **Bipolar II** Diagnosis: must meet the criteria for a current or past hypomanic episode and criteria for a current or past major depressive episode

## Mood Disorder Questionnaire

- Developed in 2000
- Initial research study at five outpatient psychiatric clinics (n=198)
  - Sensitivity: 0.73
  - Specificity: 0.90
- Systematic review identified 20 research studies involving 5479 patients who were screened for bipolar disorder using the MDQ.
  - Sensitivity: 0.61
  - Specificity: 0.88

(Hirschfeld, et al, 2000)  
(Zimmerman & Galone, 2011)

If the patient answers:

**Yes to 7/13 items or more in part 1 AND Yes to part 2 AND "Moderate" or "Serious" to part 3**

**= POSITIVE SCREEN**

**Mood Disorder Questionnaire Example #1**

**Mood Disorder Questionnaire Example #2**

**MDQ Workflow at UWFM-Cheyenne**

Implementation of MDQ screening at UWFM-Cheyenne.  
Dr. Grove

**Mood Disorder Questionnaire Completion Workflow**

- Implementation: November 1, 2015 x 6 months
- MDQ folders will be in each exam room.
- Patients who are checked in with behavioral health chief complaints (e.g. depression, anxiety, bipolar disorder) will be asked by nursing staff to complete the MDQ.
- If nursing staff do not administer the MDQ, providers will have the option of having patient complete the MDQ at anytime during the patient's appointment.
- Nursing staff will enter the MDQ into a patient's chart under the vital sign section. Training will take place before November 1st and be ongoing.
- Referral to mental health provider of patient's choice if indicated: Peak Wellness, CRMC BHS, UWFM, etc....

**Unipolar or Bipolar Depression**

-Right click to open hyperlink

Generic name	Brand name(s)	Year approved	Generic available?
<b>Medications for acute bipolar depression</b>			
Olanzapine-Fluoxetine	Lumora	2003	Yes (combination)
Quetiapine XR	Seroquel XR	2006	Yes
Lurasidone*	Latuda	2013	Yes
<b>Medications for acute bipolar mania</b>			
Lithium	Lithobid	1970	Yes
Cariprazine	Trinipal	2017	Yes
Depot medroxyprogesterone acetate	Depo-Provera	1954	Yes
Quetiapine XR	Seroquel XR	2006	Yes
Olanzapine*	Lumora	2003	Yes
Risperidone*	Risperdal	2003	Yes
Quetiapine XR	Seroquel XR	2006	Yes
Aripiprazole*	Abilify	2004	Yes
Ziprasidone*	Geodon	2004	Yes
Cariprazine XR	Trinipal	2017	Yes
Lurasidone*	Latuda	2013	Yes
<b>Medications for bipolar maintenance</b>			
Lithium	Lithobid	1970	Yes
Lamotrigine	Lamictal	2003	Yes
Olanzapine	Lumora	2003	Yes
Aripiprazole*	Abilify	2004	Yes
Quetiapine	Seroquel	2006	Yes
Quetiapine XR	Seroquel XR	2006	Yes
Risperidone LAR*	Risperdal Contracept	2009	Yes
Ziprasidone*	Geodon	2004	Yes

\*Approved for maintenance use only  
 \*Approved as adjunctive therapy only in bipolar depression  
 \*Not FDA approved for bipolar depression or bipolar mania

Source: PCPE, November/December 2014, Vol. 12, Issue 11&12, Bipolar Disorder and Psychotherapy

**FDA Approved Medications for Bipolar Depression**

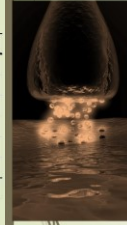
- Olanzapine-Fluoxetine combination
- Quetiapine, Quetiapine XR
- Lurasidone

## Monitoring Protocol for Patients on Second Generation Antipsychotics

	Baseline	4 weeks	8 weeks	12 weeks	Quarterly	Annually	Every 5 Years
Personal/Family Hx	x					x	
Weight (BMI)	x	x	x	x	x		
Waist Circ.	x					x	
Blood Pressure	x			x		x	
Fasting Glucose	x			x		x	
Fasting Lipids	x			x			x

American Diabetes Association, 2004

## Antidepressants in Bipolar Disorder



- 2013 International Society for Bipolar Disorders Task Force Report on Antidepressant Use in Bipolar Disorders
  - Antidepressant Monotherapy
  - Adjunctive antidepressant in acute depression: short term
  - Adjunctive antidepressant: long-term maintenance
  - Antidepressant use in mania & mixed states
  - Antidepressants and mood switching
  - Antidepressants and suicidal behavior

(Pacchiarotti et al., 2013)



## Summary

- **Bipolar I Disorder** diagnosis requires a current or past manic episode.
- **Bipolar II Disorder** diagnosis requires a current or past hypomanic episode and a current or past major depressive episode.
- **The Mood Disorder Questionnaire** can be used to screen patients presenting with symptoms of depression to aid in identifying possible bipolar disorder.
- There are three FDA approved medications for bipolar depression.

## Questions?



## References

- American Diabetes Association, American Psychiatric Association, American Association of Clinical Endocrinologists, & North American Association for the Study of Obesity. (2004). Consensus development conference on antipsychotic drugs and obesity and diabetes. *Diabetes Care*, 27(2), 596-601.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.
- Berlin, R. (2014). Pharmacologic treatment of bipolar depression. *The Carol Report Psychiatry*, 12(11/12), 1-3, 8.
- Cermele, J. M., Chwastak, L. A., Dodson, S., & Katon, W. J. (2013). The prevalence of bipolar disorder in primary care patients with depression or other psychiatric complaints: A systematic review. *Psychosomatics*, 54(6), 515-524.
- Hirschfeld, R. M., Williams, J. B., Spitzer, R. L., Calabrese, J. R., Flynn, L., Keck, P. E., ... Zigeck, J. (2000). Development and validation of a screening instrument for bipolar spectrum disorder: The mood disorder questionnaire. *American Journal of Psychiatry*, 157(11), 1873-1875.
- Kilbourne, A. M., Goodrich, D. E., O'Donnell, A. N., & Miller, C. J. (2012). Integrating bipolar disorder management in primary care. *Current Psychiatry Reports*, 14, 467-495.
- Kishnan, K. R. (2005). Psychiatric and medical comorbidities of bipolar disorder. *Psychosomatic Medicine*, 67, 1-8.
- Pacchiarotti, L., Bond, D. J., Baldessarini, R. J., Nolen, W. A., Grunze, H., Licht, R. W., ... Vieta, E. (2013). The international society for bipolar disorders (ISBD) task force report on antidepressant use in bipolar disorders. *American Journal of Psychiatry*, 170(11), 1249-1262.

## References

- Hirschfeld, R. M., Williams, J. B., Spitzer, R. L., Calabrese, J. R., Flynn, L., Keck, P. E., ... Zigeck, J. (2000). Development and validation of a screening instrument for bipolar spectrum disorder: The mood disorder questionnaire. *American Journal of Psychiatry*, 157(11), 1873-1875.
- Substance Abuse and Mental Health Services Administration. (2013). Results from the 2012 National Survey on Drug Use and Health: Mental Health Findings. NSDUH Series H-47, HHS Publication No. (SMA) 13-4805. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Zimmerman, M. & Giallone, J. N. (2011). Screening for bipolar disorder with the mood disorder questionnaire: A review. *Harvard Review of Psychiatry*, 19(5), 219-228.

## Attention Deficit Hyperactivity Disorder in Adults

Julian Good, FNP, PMHNP  
November 9th, 2015

No financial relationships to disclose.



## Learning Objectives

- Apply the Diagnostic and Statistical Manual of Mental Disorders (5<sup>th</sup> ed.) criteria to diagnose ADHD
- Interpret the results of a completed Adult ADHD Self-Report Scale
- Identify medications used to treat ADHD in Adults



# ADHD



## Adult ADHD Overview

- Mean heritability of ADHD exceeds 75%
- 30-45% of children with ADHD do not suffer ADHD-related impairments as adults.
- Adult ADHD has significant medical, economic, and social impacts
- Adult prevalence in the United States is 4.4%
  - "Epidemiological evidence suggests that prevalence rates of adult ADHD are among the highest of psychiatric disorders" (McGough, 2009, p. 3572)

## National Comorbidity Survey Replication

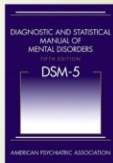
- Among respondents with ADHD (Adults age 18 or older)
  - 18.6% Major Depressive Disorder
  - 12.8% Dysthymia
  - 19.4% Bipolar Disorder
  - 38.3% Any Mood Disorder
  - 8.0% Generalized Anxiety Disorder
  - 47.1% Any Anxiety Disorder
  - 8.9% Panic Disorder
  - 11.9% PTSD
  - 15.2% Any Substance Use Disorder



(Kessler et al. 2006)

## DSM-5 Attention-Deficit Hyperactivity Disorder

- **F90.2 (314.01)** ADHD-Combined Presentation
- **F90.0 (314.00)** ADHD-Predominantly Inattentive Presentation
- **F90.1 (314.01)** ADHD-Predominantly Hyperactive/Impulsive Presentation
- **F90.8** Other Specified ADHD
- **F90.9** Unspecified ADHD



## DSM-5 Criteria for ADHD

**A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):**

**1) Inattention:** Six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

- Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or failure to understand tasks or instructions. For older adolescents and adults (age 17 or older), at least five symptoms are required.
- Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).
  - Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).
  - Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).

## DSM-5 Criteria for ADHD

**1) Inattention continued.....**

- Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).
- Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy, disorganized work; has poor time management; fails to meet deadlines).
- Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).
- Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).
- Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).
- Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).

## DSM-5 Criteria for ADHD

**A. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development, as characterized by (1) and/or (2):**

**2) Hyperactivity and impulsivity:** six (or more) of the following symptoms have persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities:

- Note:** The symptoms are not solely a manifestation of oppositional behavior, defiance, hostility, or a failure to understand tasks or instructions. For older adolescents and adults (age 17 or older), at least five symptoms are required.
- Often fidgets with or taps hands or feet or squirms in seat.
  - Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).
  - Often runs about or climbs in situations where it is inappropriate. (Note: In adolescents or adults, may be limited to feeling restless).

## DSM-5 Criteria for ADHD

- 2) **Hyperactivity and impulsivity continued**
- d) Often unable to play or engage in leisure activities quietly.
  - e) Is often "on the go", acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).
  - f) Often talks excessively.
  - g) Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).
  - g) Often has difficulty waiting his or her turn (e.g., while waiting in line).
  - h) Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).

## DSM-5 Criteria for ADHD

- B. Several inattentive or hyperactive-impulsive symptoms were present prior to age 12 years.
- C. Several inattentive or hyperactive-impulsive symptoms are present in two or more settings (e.g., at home, school, or work; with friends or relatives; in other activities).
- D. There is clear evidence that the symptoms interfere with, or reduce the quality of, social, academic, or occupational functioning.
- E. The symptoms do not occur exclusively during the course of schizophrenia or another psychotic disorder and are not better explained by another mental disorder (e.g., mood disorder, anxiety disorder, dissociative disorder, personality disorder, substance intoxication or withdrawal).



## ADHD Harlem Shake

## Differences in ADHD in Adults vs. Children/Adolescents

from Stahl's Essential Psychopharmacology (4th ed.) pg. 484

Children/Adolescents	Adults > 18
7-8% prevalence	4-5% prevalence
Easy to Diagnose	Hard to Diagnose
Diagnosed by pediatricians, child psychiatrists, child psychologists	Diagnosed by adult psychiatrists, adult mental/medical health professionals
High levels of identification & treatment: >50% treated	Low levels of identification & treatment: <20% treated
Stimulants prescribed first & second line	Nonstimulants often prescribed first line
2/3 of stimulant use is under age 18, most of this under age 13	1/3 of stimulant use is age 18 or over
1/3 of atomoxetine use is under age 18, most of this over age 12	2/3 of atomoxetine use is age 18 or over

## Changing ADHD Symptoms With Age

	Childhood	Adulthood
<b>Inattention</b>	Difficulty sustaining attention	Difficulty sustaining attention
	Fails to pay attention to details	Makes careless errors
	Appears not to listen	Easily distracted/forgetful
	Lacks follow-through	Poor concentration
	Cannot organize	Hard to finish tasks
	Loses Important Items	Disorganized/misplaces Items
<b>Hyperactivity</b>	Squirming, fidgeting	Inefficient at work
	Cannot stay seated	Internal restlessness
	Runs/climbs excessively	Works more than one job
	"on the go"/"driven by a motor"	Self-selects very active job
	Talks excessively	Overwhelmed/talks excessively
<b>Impulsivity</b>	Blurts out answers	Impulsive job changes
	Cannot wait in line	Drives too fast
	Intrudes/interrupts others	Interrupts others/easily frustrated

## Adult ADHD Self-Report Scale Symptom Checklist

- Developed by the World Health Organization in 2005
- Sample of 8 primary care practices in 2012 (inner city, suburban, and rural)
  - Adults, ages 18 to 65
  - 200 patients
  - Sensitivity of 0.92, Specificity of 0.69

Ask the patient to complete both Part A & Part B:

► If 4 or more marks in shaded boxes in Part A, symptoms are highly consistent with ADHD in adults

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Response Options:  Never  Rarely  Sometimes  Often  Very Often

Part A: 18 symptoms related to inattention and hyperactivity/impulsivity. Symptoms 1-10 are shaded.

Part B: 10 symptoms related to executive function and organizational skills.

## Neurobiology of ADHD



## FDA Approved Medications for Adults with ADHD

- 1) Atomoxetine (Strattera)
- 2) Dexamethylphenidate XR (Focalin XR)
- 3) Lisdexamfetamine (Vyvanse)
- 4) Mixed Amphetamine Salts XR (Adderall XR)
- 5) OROS Methylphenidate Extended Release (Concerta)



## Nonstimulant Medications

- Approved for children/adolescents
  - Guanfacine ER
  - Clonidine ER
- Off label:
  - Bupropion
  - Desipramine (Tricyclic Antidepressant)
  - Venlafaxine (SNRI)
  - Modafinil

## Treatment Options

- Stimulant Medications**
  - No substantial advantage in efficacy or side effects between amphetamine and methylphenidate
  - OROS methylphenidate and lisdexamfetamine may have less abuse or diversion potential
- Non-Stimulant Medications**
  - Meta-analysis by Faraone & Glatt (2010)
    - Identified double-blind, placebo-controlled studies of ADHD in adults published in English since 1979; 19 trials met inclusion criteria
    - Stimulant medications showed greater efficacy vs. non-stimulant medications
    - No significant difference between short and long acting stimulant medications


## Treatment Options continued

- Psychotherapy**
  - Medication rather than psychotherapy is recommended first-line
  - If there are deficits in executive function, consider augmentation of medication with Cognitive Behavioral Therapy (CBT)
    - Difficulty keeping track of tasks/activities
    - Difficulty with prioritizing
    - Poor short term and long term planning
    - Procrastination
    - Disorganization
  - If there are difficulties in emotional regulation, interpersonal functioning, or impulsivity, Dialectical Behavioral Therapy (DBT) can be considered.

(Solanto, 2015)


## Medications

- Bupropion**
  - Off-label use
  - Mechanism of Action
  - Dose Range
  - Dose Forms
  - Side Effects
- Atomoxetine**
  - Approved for children and adults with ADHD
  - Mechanism of Action
  - Dose Range
  - Dose Forms
  - Side Effects



## Medications continued

- Lisdexamfetamine**
- OROS Methylphenidate Extended Release**
- Mixed Amphetamine Salts Extended Release**
  - Approved for children and adults with ADHD
  - Mechanism of Action
  - Dose Range
  - Dose Forms
  - Side Effects



## **PRIORITY** ADHD & Comorbidities: What Should Be Treated First?

- Alcohol/Stimulant/Substance Abuse
- Mood Disorders
- Anxiety Disorders
- ADHD
- Nicotine Dependence

❖ Individualized treatment plan for each patient

## ADHD and Co-Occurring...

- Substance Use Disorder**
  - Higher risk of misuse, addiction, and diversion → absence of data supporting this
  - Consider using atomoxetine first-line
- Depression**
  - SSRI + stimulant medication, bupropion, or tricyclic antidepressant
- Anxiety**
  - SSRI + stimulant medication, tricyclic antidepressant, atomoxetine

Burkstein (2015)

### Case Study

- K. A. is a 31 YO female referred for further evaluation & treatment of depression, anxiety, & fatigue symptoms.
- Initial visit:
  - Complains of fatigue. Problems with concentration & focus. Is a worrier. Does not feel depressed, just tired. No mania/hypomania.
  - Recent labs were normal: cbc, cmp, tsh, & sed rate
  - Past Medications: Xanax, Provigil, Prozac, Zoloft, Lexapro, Wellbutrin, & Abilify
  - PHQ-9: score of 10 (mild or minimal depressive symptoms)

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name: \_\_\_\_\_

Directions: Please indicate how often you have experienced each symptom during the past 6 months. Do not include symptoms that you have never experienced. Please check the appropriate box for each symptom.

Symptom	Not at all	Some of the time	Most of the time	Very often
1. How often do you have difficulty organizing things when you have to do a lot of things?				
2. How often do you have problems remembering appointments or obligations?				
3. How often do you have a hard time getting a lot of things done when you need to do a lot of things?				
4. How often do you have trouble getting your hands or feet to do what you have to do when you have to do a lot of things?				
5. How often do you have trouble getting your work or school done when you have to do a lot of things?				
6. How often do you have trouble getting your work or school done when you have to do a lot of things?				
7. How often do you have trouble getting your work or school done when you have to do a lot of things?				
8. How often do you have trouble getting your work or school done when you have to do a lot of things?				
9. How often do you have trouble getting your work or school done when you have to do a lot of things?				
10. How often do you have trouble getting your work or school done when you have to do a lot of things?				
11. How often do you have trouble getting your work or school done when you have to do a lot of things?				
12. How often do you have trouble getting your work or school done when you have to do a lot of things?				
13. How often do you have trouble getting your work or school done when you have to do a lot of things?				
14. How often do you have trouble getting your work or school done when you have to do a lot of things?				
15. How often do you have trouble getting your work or school done when you have to do a lot of things?				
16. How often do you have trouble getting your work or school done when you have to do a lot of things?				
17. How often do you have trouble getting your work or school done when you have to do a lot of things?				
18. How often do you have trouble getting your work or school done when you have to do a lot of things?				

### Case Study

- Initial visit: Rx for Adderall XR 10mg daily & asked patient to consider referral for CBT. Follow-up in one month.
- 2<sup>nd</sup> visit: Adderall XR increased to 15mg/day and two weeks later 5mg Adderall immediate release was added.
- 3<sup>rd</sup> visit: 6 weeks after 2<sup>nd</sup> visit: Medications working well (more energy, concentration/focus much improved). Plans to start nursing school. Checked Wyoming Prescription Monitoring Database: no other controlled substances prescribed. Follow-up in two months.
- 4<sup>th</sup> visit: Lost insurance. Adderall immediate release 10mg in am & 5mg in pm.
- 5<sup>th</sup> visit: on Medicaid. Prior authorization for Adderall XR 15mg in am and 5mg immediate release in pm. Doing well in nursing school but requests long acting stimulant medication.

### Summary

- ADHD
- ADHD diagnosis requires....
- The Adult ADHD Self-Report Scale Symptom Checklist can be used....
- There are five FDA approved medications for ADHD in adults.

### Questions?



### References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). Washington, DC: Author.

Burkstein, O. (2015). Pharmacotherapy for adult attention deficit hyperactivity disorder. In D. Brent & R. Hermann (Eds.), *UpToDate*. Retrieved from <http://www.uptodateonline.com>

Foranore, S. V., & Glatt, S. J. (2010). A comparison of the efficacy of medications for adult attention-deficit/hyperactivity disorder using meta-analysis of effect sizes. *The Journal of Clinical Psychiatry*, 71(6), 754-763.

Hines, J. L., King, T. S., & Cury, W. J. (2012). The adult ADHD self-report scale for screening for adult attention deficit-hyperactivity disorder (ADHD). *The Journal of the American Board of Family Medicine*, 23(6), 847-853.

Kessler, R. C., Adler, L., Barkley, R., Biederman, J., Conners, C. K., Demler, O., ...Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey Replication. *American Journal of Psychiatry*, 163(4), 716-723.

McGough, J. (2009). Adult manifestations of attention-deficit/hyperactivity disorder. In B. J. Sadock, V. A. Sadock, & P. Ruiz (Eds.), *Kaplan & Sadock's comprehensive textbook of psychiatry* (9<sup>th</sup> ed., p. 3572-3579). Philadelphia: Lippincott Williams & Wilkins.

Solanto, M. V. (2015). Psychotherapy for adult ADHD. In D. Brent & R. Hermann (Eds.), *UpToDate*. Retrieved from <http://www.uptodateonline.com>

Stahl, S. M. (2013). *Stahl's essential psychopharmacology: Neuroscientific basis and practical applications* (4th ed.). New York: Cambridge University Press.

### Suicide Facts & SSRI Antidepressant Medications

Julian Good, FNP, PMHNP  
Dr. Cameron Grove, MD  
November 23rd, 2015

No financial relationships to disclose.

## Learning Objectives

- Describe the unique mechanisms of action, side effects, and dosing of the 6 FDA approved SSRI medications.
- Discuss results from STAR\*D trial.
- Identify populations at risk for suicide

## Suicide Facts & Figures

- 41,149 suicides were reported in the United States in 2013
  - 10<sup>th</sup> leading cause of death
  - Someone died from suicide every 12.8 minutes
- Suicide rate: number of suicide deaths/100,000 people
  - In 2013, U.S. rate was 12.6
  - Highest rate by age was for those age 45-64: 19.1
  - In 2013, suicide rate for males was about 4x higher than females (20.2 vs. 5.5)
  - White males accounted for 70% of all suicides in 2013

## Suicide Rate by State for 2013

- 1) Montana: 23.7
- 2) Alaska: 23.1
- 3) Utah: 21.4
- 3) Wyoming: 21.4
- 5) New Mexico: 20.3



## Primary Care Providers

- Trained primarily to detect & treat physical problems?
- Heavy patient loads
- Time constraints
- Increasing demand for PCPs to treat psychiatric conditions
  - Shortage of psychiatrists and psychiatric mental health nurse practitioners
  - Many patients feel more comfortable seeing their PCP for their mental health care

## Contact with Mental Health & Primary Care Providers Before Suicide



- A review of 40 studies was published in the American Journal of Psychiatry in 2002
  - Contact with Mental Health Services
    - Within 1 month before suicide: averaged 19%
    - Within 1 year before suicide: averaged 32%
  - Contact with Primary Care Provider
    - Within 1 month before suicide: averaged 45%
    - Within 1 year before suicide: averaged 77%

[Luoma, Martin, & Pearson, 2002]



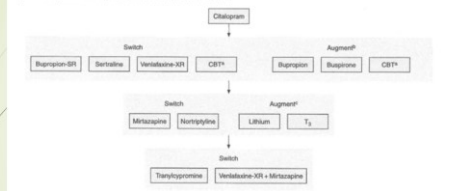
The Bridge Between Suicide and Life

## Sequenced Treatment Alternatives to Relieve Depression Trial (Star\*D)

- Largest & longest study ever done to evaluate depression treatment
  - Funded by NIH National Institute of Mental Health
- Enrolled 4,041 outpatients diagnosed with Major Depressive Disorder
  - Adults aged 18-75, average age 41, 64% female, 36% male
- 7 years, 41 clinical sites (both specialty care and primary care)
- Outcome measure was remission of depression.

Implications of STAR\*D Trial for Primary Care

Figure 1. Sequential Therapies Evaluated in the STAR\*D Trial



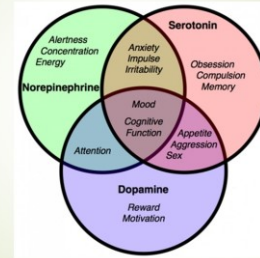
\*Individuals who received CBT at step 2 were advanced to step 2a (not shown) in which they received either venlafaxine-SR or bupropion to ensure that all participants who entered step 3 had unsatisfactory responses to 2 different antidepressants.  
 †These augmentation therapies (bupropion, bupropion, or CBT) were added to citalopram.  
 ‡The 2 medication augmentation options at level 2 (bupropion and bupropion) were discontinued without opening, while citalopram therapy was continued with the addition of lithium or T<sub>1</sub>. Step 2 medication switch options (bupropion-SR, sertraline, or venlafaxine-SR) were continued with the addition of lithium or T<sub>1</sub>.  
 Abbreviations: CBT = cognitive-behavioral therapy, SR = sustained release, STAR\*D = Sequenced Treatment Alternatives to Relieve Depression, T<sub>1</sub> = imipramine, SR = extended release.  
 [Kuyff & McInnes, 2008, p. 92]

## Star\*D Remission Rates

- Level 1: 36.8%
- Level 2: 30.6%
- Level 3: 13.7%
- Level 4: 13.0%

"When more treatment steps are required, lower acute remission rates (especially in the third and fourth treatment steps) and higher relapse rates during the follow-up phase are to be expected" (Rush et al., 2006, p. 1905).

## Neurotransmitters



## SSRI Antidepressants

- All six have the same major pharmacological action in common: selective inhibition of serotonin reuptake



## Serotonin: General Effects



### Excess

- Sedation
- Sexual Dysfunction
- Weight Gain
- Suppression of dopamine transmission: flat affect
- If greatly increased, may cause hallucinations.

### Deficit

- Irritability
- Depression
- Hostility
- Sleep Disturbance
- Obsessive-Compulsive Symptoms

## Serotonin Receptors

- 17 Known (5HT) Receptors in 7 Categories
  - 5HT1: 1A, 1B, 1D, 1E, 1F,
  - 5HT2: 2A, 2B, 2C
  - 5HT3: 3A, 3B, 3C, 3D, 3E
  - 5HT4: 4
  - 5HT5: 5A
  - 5HT6: 6
  - 5HT7: 7

(Muller, 2013)

## Considerations in Choosing SSRI

- Prior positive response
- Genetic response – or + in family member
- Short-term side effects
- Long-term side effects
- Drug-drug interactions
- Patient age
- Patient preference
- Cost
- Concurrent medical problems
- Concurrent psychiatric problems



## Fluoxetine (Prozac), 1988

- Approved for MDD, OCD, PMDD, Bulimia, Panic Disorder, Bipolar Disorder (Symbiax)
- Blocks serotonin reuptake pump
- 5HT2C antagonist-may increase DA & NE
- Minimal withdrawal problems due to long 1/2 life.
- Dose Range: 10-80mg
- Dose Forms:
  - 10mg, 20mg, 40mg capsules
  - 10mg tablet
  - Liquid
  - Weekly Capsule: 90mg
  - Cost: Walmart \$4

## Fluoxetine Side Effects

- Common:
  - Nausea
  - Headache
  - Nervousness
  - Insomnia
  - Sexual
  - Diarrhea
- 5HT2C properties may contribute to agitation, anxiety, & activation



## Sertraline (Zoloft), 1991

- Approved for MDD, Social Phobia, OCD, PMDD, Panic Disorders, PTSD
- Blocks serotonin reuptake pump
- Dopamine Reuptake Inhibitor-weak
- Sigma-1 receptor binding-not well understood, possible anxiolytic effects
- Wellbutrin & Zoloft = "Wellloft"
- Best documented cardiovascular safety of any antidepressant
- Usual Dose Range: 50mg-200mg
- Dosage Forms:
  - 25mg, 50mg, 100mg tablets
  - Liquid
  - Cost: \$5



## Sertraline Side Effects

- Common
  - Nausea
  - Headache
  - Diarrhea
  - Insomnia
  - Dry Mouth
  - Sexual
  - Dizziness
  - Tremor
  - Fatigue
  - Increased Sweating
- Occasional/Rare
  - Tingling sensation
  - Hyponatremia
  - Palpitations
  - Yawning
  - Tinnitus

## Fluvoxamine (Luvox), 1993

- Approval for Social Phobia, OCD
- Blocks serotonin reuptake pump
- Sigma 1 agonist = anxiolytic properties?
- Usual Dosage Range 100mg-300mg
- Dosage Forms:
  - 25, 50, 100mg tablets
  - 100mg, 150mg controlled release
  - Cost: ?
- Drug-Drug interactions, sedation, & short 1/2 life



## Paroxetine (Paxil), 1992

- Approved for MDD, Social Phobia, OCD, PMDD, Panic Disorder, PTSD, GAD
- Blocks serotonin reuptake pump
- Desensitizes serotonin receptors, especially 1A autoreceptors
- Norepinephrine-transporter Inhibitor-weak?
- Anticholinergic actions-mild
- Preferred SSRI by many clinicians for anxiety symptoms
- Notorious for causing withdrawal symptoms-slow taper over 6 weeks
- Pregnancy risk category D
- Dose Range: 10-60mg (75mg/day CR)
- Dose Forms:
  - 10mg, 20mg, 30mg, 40mg, 12.5mg, 25mg, 37.5mg CR
  - Liquid
  - \$4 Walmart

## Paroxetine Side Effects

- Common
  - Nausea
  - Sedation
  - Headache
  - Sweating
  - Sexual
  - Weight Gain
- Withdrawal Reactions
  - Akathisia
  - Restlessness
  - GI symptoms
  - Dizziness
  - Tingling

## Citalopram (Celexa), 1998

- Approved for MDD
- R&S molecule
- Blocks serotonin reuptake pump
- Desensitizes serotonin receptors, especially 1A autoreceptors
- Mild antihistaminic properties (may contribute to sedation/fatigue in some patients)
- Maybe more tolerable than some other antidepressants (elderly)
- Dosage 20mg-60mg
- Dosage Forms: 10mg, 20mg, 40mg tablets.
- Cost: \$4 Walmart

## Citalopram Warnings

- August 2011 FDA warning that Citalopram should not be prescribed at dosages above 40mg/day.
  - QT interval prolongation
  - Torsades de pointes
- March 2012 FDA warning that dosages >20mg/day should not be used in patients >60 years old.



## Citalopram Side Effects

- Common
  - Sexual
  - Fatigue
  - GI
  - CNS
  - Weight neutral?
- Rare
  - Flatulence
  - Rash, itching
  - Teeth grinding
  - Hiccups
  - Loss of Taste

## Escitalopram (Lexapro), 2002

- Approved for MDD and GAD
- Purest SSRI, removed R molecule of citalopram
- Blocks serotonin reuptake pump
- Desensitizes serotonin receptors, especially 1A autoreceptors
- Considered the best tolerated SSRI?
- May have less sexual dysfunction than other SSRIs
- The SSRI with the least interaction at CYP450 2D6 or 3A4 → commonly used with augmenting agents
- Dosage Range: 10mg-20mg/day
- Dosage Forms: 5mg, 10mg, 20mg tablets.
- Cost: \$10
- 10mg of escitalopram may be comparable to 40mg of citalopram

## Summary

- Those highest at risk for suicide: white males, age 45-64 living in the Rocky Mountain region.
- Star D trial found about 1/3 of patients had remission rates in the first and second level with lower remission rates in the third and fourth level.
- The six SSRI medications have unique mechanisms of action and some differences in their side effect profiles which should be taken into consideration when choosing an initial antidepressant medication.

## Questions?



## References

- Huynh, N. N., & McIntyre, R. S. (2008). What are the Implications of the STAR\*D trial for primary care? A review and synthesis. *The Primary Care Companion-Journal of Clinical Psychiatry*, 10, 91-96.
- Injury Prevention & Control: Division of Violence Prevention. Accessed November 22, 2015 from [www.cdc.gov/violenceprevention/suicide/statistics/index.html](http://www.cdc.gov/violenceprevention/suicide/statistics/index.html)
- Luoma, J. B., Martin, C. E., & Pearson, J. L. (2002). Contact with mental health and primary care providers before suicide: A review of the evidence. *American Journal of Psychiatry*, 159(6), 909-916.
- Moller, M. (2013). American Psychiatric Nurses Association 2013 Annual CPI Conference.
- Rush, J. A., Trivedi, M. H., Wisniewski, S. R., Nierenberg, A. A., Stewart, J. W., Warden, D., ... Fava, M. (2006). Acute and longer-term outcomes in depressed outpatients requiring one or several treatment steps: A STAR\*D Report. *American Journal of Psychiatry*, 163(11), 1905-1917.
- Stahl, S. M. (2011). *The prescriber's guide: Stahl's essential psychopharmacology* (4th ed.). New York: Cambridge University Press.
- Stahl, S. M. (2013). *Stahl's essential psychopharmacology: Neuroscientific basis and practical applications* (4th ed.). New York: Cambridge University Press.

## Newer Drugs of Abuse & Cheyenne Community Resources for Substance Abuse Treatment

Julian Good, FNP, PMHNP  
Natalie Milligan, LAT, LPC  
December 14th, 2015

No financial relationships to disclose.

## Learning Objectives

- Describe the mechanism of action for synthetic cathinones and synthetic cannabinoids
- List adverse effects of synthetic cathinones and synthetic cannabinoids
- Identify some community resources for substance abuse treatment

## Designer Drugs

- Legal substitutes for cocaine, ecstasy, amphetamines, & marijuana
  - Synthetic cathinones (Bath Salts)
  - Synthetic cannabinoids (Spice)



The Federal Analog Act, Title 21 United States Code Controlled Substances Act, Section 813

"A controlled substance analogue shall, to the extent intended for human consumption, be treated, for the purposes of any Federal law as a controlled substance in schedule I"

<http://www.deadiversion.usdoj.gov/21cfr/21usc/813.htm>

- July 2012 President Obama signed the Synthetic Drug Abuse Prevention Act of 2012
  - placed 26 substances in schedule I
- Designer drug active ingredients are a moving target
  - labeled "not for human consumption"

## Bath Salts



McGraw & McGraw, 2012

- Cathinone
  - Naturally occurring alkaloid found in the leaves of khat plant
  - Native shrub of the Arabian Peninsula
- Synthetic cathinones
  - Mephedrone → similar to methamphetamine
  - Methylenedioxypyrovalerone (MDPV) → similar to cocaine
  - Methylone → similar to MDMA (ecstasy)

## Mechanism of Action

- Synthetic cathinones increase extracellular dopamine, serotonin, and norepinephrine by facilitation of extracellular release and reuptake inhibition
- Sum of MDPV, methylone, & mephedrone may be greater than their parts.
- Effects vary depending on concentration, purity, filler compounds.

(Weaver, Hopper, & Gunderson, 2015)

## Components

	MDMA	Methylone
Serotonin Reuptake Transporter	**	**
Dopamine Reuptake Transporter	**	***
Norepinephrine Reuptake Transporter	**	**
	Meth	Mephedrone
Serotonin Reuptake Transporter	*	**
Dopamine Reuptake Transporter	***	***
Norepinephrine Reuptake Transporter	***	**
	Cocaine	MDPV
Serotonin Reuptake Transporter	****	***
Dopamine Reuptake Transporter	****	****
Norepinephrine Reuptake Transporter	***	****

2013 NEI Psychopharmacology: Congress, Silent Epidemic: Consequences of Synthetic Drug Use on Psychiatric Outcomes

## Desired Effects of Bath Salts

- Increased Energy
- Alertness
- Concentration
- Sexual Stimulation
- Empathy
- Mood Enhancement
- Increased Sociability

2013 NEI Psychopharmacology: Congress, Silent Epidemic: Consequences of Synthetic Drug Use on Psychiatric Outcomes

## Adverse Effects

- Tachycardia, Hypertension, Vasoconstriction, Arrhythmias, MI
- Hyperthermia
- Muscle tremor, Spasms
- Seizures, Stroke, Cerebral edema
- Respiratory distress
- Hyponatremia with mephedrone use (similar to MDMA)
  - Due to sweating, electrolyte loss, antidiuretic hormone secretion
- Death
- Panic attacks
- Anxiety
- Agitation
- Paranoia
- Hallucination
- Psychosis
- Aggression
- Self-mutilation
- Suicidal ideation
- Anorexia
- Depression

(McGraw & McGraw, 2012)

## Bath Salt Exposures Reported to Poison Control Centers

Year	Number of Cases
2011	6137
2012	2691
2013	995
2014	582
Through 10-31-2015	451

<http://www.asppcc.org/alerts/bath-salts/>  
Accessed 12-12-15

## Route of Administration

- Inhaled
  - Injected
  - Snorted
  - Swallowed
  - Inserted into rectum or vagina
- Onset of effects: 5-30 minutes depending on route
  - Desired effects last 2-4 hours
  - Adverse effects may last 8 hours or more



[McGraw & McGraw, 2012]

## Designer Brand Names for Bath Salts



4-MMC AKA Arctic Blast Aura Bliss Blizzard Bloom Blow Blue Light Blue Majoic Blue Silk Bolivian Bath Bonsai Green Bonsai Winter Boost Bounce Bubbles The Business C Original Cat Charge Charley Sheene Cleopatra's Exotic Bath Salts	Cloud Nine Cloud 10 Ultra Cosmic Blast Cotton Cloud Crack Crystal Bath Crush Dark Diablos XXX Dico Concentrate Bath Salt Dogs Bollox Doves Doves Ultra Drone Dynamite Dynamite Plus Energizing Aromatherapy Energy-1 Euphoria Explosion Fish Fishkrens	Flake Flower Magic Powder Flower Power Fly Gloom Gold Rush Goodfella Hurricane Charlie Insect Repellent Ivory Coast Ivory Fresh Ivory Gold Ivory Wave Ivory Wave Ultra Jeff Kapsula Kata Katerstoff Kati Ketones Kitty Krabba
---	---	--

[McGraw & McGraw, 2012]

## Designer Brand Names for Bath Salts continued

Krafta Lady Bubbles Lal Loney Dovey Lunar Wave M-Cat Magic Marijoan MCPK Mef Meffe Mefi Meow Meow Meow Mephato Meth's Cat Meth's Kitten Miaou Miaou Mint Mania MMC Hammer Moonshine Mr Nice Guy Myalic NRG-1 Ocean Burst Ocean Snow	Oceanic Deepen Piercing Pika Plant Food Pure Ivory Pure White Pure Rain Purple Tranquility Purple Wave Raka Rave On Raving Dragon Red Dove Rocky Fuel Ronzio Rouge 69 Rush Russian River Scarfaced Sextacy Silverback Bath Salts Snow Blow XXX Snow Day Snow Leopard Special Diamond Special Bold	Special Original Speed Freak Spice E Starburst Stroof Substance Summer Daze Sunshine Tork Tranquility Vanilla Sky Vob WannaBe-Speed Whack White Aroma Crystals White China White Dove White Girls White Horse White Knight White Lightning White Rush White Snow Wicked X Wicked XX Wild Cat Wild Cat Oceanic Charge	Xtacy Xtreme Zelus 2 Zoom Zoom 2 Zuu-Zu
--	--	--	--



[McGraw & McGraw, 2012]

## Treatment is Supportive

- Negative results on standard urine drug screen
- Rule out other medical and psychiatric conditions
- Sedatives for agitation, aggression, tremors, anxiety, seizures, & psychosis
- Antipsychotics as 2<sup>nd</sup> line
  - Potential of lowering seizure threshold
  - May worsen hyperthermia

## Synthetic Cannabinoids (Spice)

- Identified in the United States in 2008
- Frequently marketed as incense
  - "not for human consumption"
- As of February 2014, 22 synthetic cannabinoids have been placed under temporary or permanent Schedule 1 status.

[Rech et al., 2015]

## Mechanism of Action

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Marijuana                     <ul style="list-style-type: none"> <li>Partial agonist for CB1 cannabinoid receptor</li> <li>Contains cannabidiol (thought to have antipsychotic properties)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Synthetic Cannabinoids                     <ul style="list-style-type: none"> <li>Full agonist for CB1 cannabinoid receptor</li> <li>Binds to CB1 receptors with 100-800 times affinity of THC</li> <li>Does not contain cannabidiol</li> </ul> </li> </ul> |
|--|--|

2013 NEB Psychopharmacology Congress, Silent Epidemic: Consequences of Synthetic Drug Use on Psychiatric Outcomes

## Desired Effects of Synthetic Cannabinoids

- Relaxation
  - Calmness
  - Euphoria
  - Hilarity
  - Lowering of Inhibitions
  - Altered Perception
- Effects begin after a few minutes and last 2-6 hours

## Adverse Effects

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>Anxiety</li> <li>Paranoia</li> <li>Sedation</li> <li>Hallucinations</li> <li>Psychosis</li> <li>Seizures</li> <li>Agitation</li> <li>Suicidal Thoughts</li> <li>Tachycardia</li> </ul> | <ul style="list-style-type: none"> <li>Hypertension</li> <li>Nausea</li> <li>Vomiting</li> <li>Rarely arrhythmias &amp; MI</li> </ul> |
|---|---|



[Rech, et al., 2015]

## Synthetic Cannabinoid Exposures Reported to Poison Control Centers

Year	Number of Cases
2011	6968
2012	5230
2013	2668
2014	3682
Through 11-30-2015	7369

<http://www.aapcc.org/alerts/synthetic-cannabinoids/>  
Accessed 12-12-15

## Route of Administration



- Injected
- Snorted
- Swallowed
- Inhaled is the preferred and most common
  - Now cartridges filled with synthetic cannabinoid solution for use with e-cigarettes

(Kemp, et al., 2015)

## Common Street Names for Synthetic Cannabinoids

- Over 120 compounds exist
- Some common street names:
  - K2
  - Angry Birds
  - Shang
  - Bilss
  - Black Mamba
  - Bombay Blue
  - Dr. Feel Good
  - Fake Weed
  - Gansta
  - Mojo
  - Killia Gorilla

- Moon Rocks
- Ninja
- Mr. Nice Guy
- Outer Space
- Scooby Snax
- Sexy Monkey
- Skunk
- Smacked
- Smoking Santa
- Tomcat
- Wanted
- Yucatan



## Treatment is Supportive

- Negative results on standard urine drug screen
- Rule out other medical and psychiatric conditions
- Sedatives
- Antipsychotics as 2<sup>nd</sup> line
  - Potential of lowering seizure threshold
  - May worsen hyperthermia
- Case reports of heart block and prolonged QTc



(McGraw & McGraw, 2012; Von Der Haar, 2015)



## Summary

- Mechanism of action for synthetic cathinones and synthetic cannabinoids
- Adverse effects of synthetic cathinones and synthetic cannabinoids
- Services offered by Peak Wellness Center for substance abuse treatment



2526 Seymour Avenue  
Cheyenne, WY 82001  
T: 307.634.9653

## Questions?



## References

- Kemp, A. M., Clark, M. S., Dobbs, T., Sherman, J., & Cox, R. (2015). Top ten facts you need to know synthetic cannabinoids: Not so nice spice. *The American Journal of Medicine*. DOI: 10.1016/j.amjmed.2015.10.008
- McGraw, M., & McGraw, L. (2012). Bath salts: Not as harmless as they sound. *Journal of Emergency Nursing*, 38(6), 582-588.
- Rech, M. A., Donahey, E., Cappiello Dzielitz, J. M., Oh, L., & Greenhalgh, E. (2015). New drugs of abuse. *Pharmacotherapy*, 35(2), 189-197.
- Von Der Haar, J., Talebi, S., Ghobadi, F., Singh, S., Chirugi, R., Rajeswari, P., ...Hassen, G. W. (2015). Synthetic cannabinoids and their effects on the cardiovascular system. *The Journal of Emergency Medicine*. DOI: 10.1016/j.jemmed.2015.10.009
- Weaver, M. F., Hopper, J. A., & Gunderson, E. W. (2015). Designer drugs 2015: Assessment and management. *Addiction, Science, & Clinical Practice*. DOI: 10.1186/s13722-015-0024-7

## APPENDIX I. POST-EDUCATION SURVEY

### UWFM-Cheyenne Noon Conference Survey: Post-Education Survey

Date: \_\_\_\_\_

On a scale of 1 to 4, with 1 being very confident and 4 being not confident, please answer the following statements.

	Very Confident	Mostly Confident	Somewhat Confident	Not Confident
I can diagnose depression	1	2	3	4
I can treat depression with medications	1	2	3	4
Overall, I can manage depression	1	2	3	4
I can identify patients with possible bipolar disorder	1	2	3	4
I can diagnose bipolar disorder	1	2	3	4
I can treat bipolar disorder with medications	1	2	3	4
Overall, I can manage bipolar disorder	1	2	3	4

# APPENDIX J. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW

## BOARD APPROVAL



May 14, 2015

Dr. Tina Lundeen  
Nursing

Re: IRB Certification of Exempt Human Subjects Research:  
Protocol #PH15254 , "Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder  
Questionnaire"

Co-investigator(s) and research team: Julian Good

Certification Date: 5/14/15 Expiration Date: 5/13/18  
Study site(s): University of Wyoming Family Medicine Residency Program  
Sponsor: n/a

The above referenced human subjects research project has been certified as exempt (category # 2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the original protocol submission (received 5/12/15).

Please also note the following:

If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.

The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.

Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.

Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.

Sincerely,

**Kristy Shirley**  
Digitally signed by Kristy Shirley  
DN: cn=Kristy Shirley, o=NDSU,  
ou=Institutional Review Board,  
email=kristy.shirley@ndsu.edu, c=US  
Date: 2015.05.14 07:57:09 -0500

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult  
[http://www.ndsu.edu/research/integrity\\_compliance/irb/](http://www.ndsu.edu/research/integrity_compliance/irb/). This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

### INSTITUTIONAL REVIEW BOARD

NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | [ndsu.edu/irb](http://ndsu.edu/irb)

Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

NDSU is an EO/AA university

## **APPENDIX K. EXECUTIVE SUMMARY**

### **Project Summary**

The purpose of this project was to improve existing mental health care services offered at a family medicine residency clinic by screening for bipolar disorder using the Mood Disorder Questionnaire (MDQ). The project had two objectives. The first objective was to implement clinic wide use of the MDQ to assist primary care providers (PCPs) in the diagnosis of depression and identifying patients with possible bipolar disorder. The second objective was to improve PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder.

### **Background**

Many patients with mental health problems initially present to their PCP for treatment and over one-third of these patients receive care solely from their PCP. The Center for Behavioral Health Statistics and Quality found that in 2014 an estimated 6.6% of the adult population in the United States met diagnostic criteria for a major depressive disorder during the past year. However, not everyone presenting to their PCP with symptoms of depression has major depressive disorder. Some of these patients with symptoms of depression may have bipolar disorder. According to the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition, bipolar disorder is characterized by episodes of depression alternating with recurrent mania or hypomania. Mania involves a period of elevated or irritable mood accompanied by increased energy or goal directed activity that lasts at least one week and is present most of the day. Hypomania has similar features of mania but the duration is at least four days and of lesser severity than a manic episode. If the hypomania or mania symptoms go undiscovered, patients with bipolar disorder may be prescribed antidepressant medications that may not be effective or

result in increased mood cycling or a conversion from hypomania to mania. If clinical guidelines are followed, a patient diagnosed with bipolar disorder will be first treated with a mood stabilizing medication. Clinicians should consider the possibility of bipolar disorder in all patients who present with symptoms of depression. A valuable tool to help PCPs in identifying patients with possible bipolar disorder is use of the MDQ, which screens for a lifetime history of mania or hypomania.

The MDQ was developed by Dr. Robert Hirschfeld, M.D. and several others in 2000. The goal was to create a brief and easy to use screening tool for bipolar disorder. The MDQ is a single-page, self-report, questionnaire consisting of three parts and resulting in a positive or negative screen. Hirschfeld et al.'s initial study, done in 2000 at five outpatient psychiatric clinics involving one hundred ninety-eight subjects, found a MDQ sensitivity of 0.73 and specificity of 0.90.

### **Process**

Using The Iowa Model of Evidence-Based Practice to Promote Quality Care, this project was carried out over a seven-month time frame beginning in October 2015 and ending in April 2016. A multidisciplinary team was assembled at a family medicine residency clinic and a MDQ Completion Workflow was created to guide PCPs and nursing staff in the administration of the MDQ. At the beginning of project implementation, the PCPs were asked to complete a pre-education survey assessing their confidence in identifying, diagnosing, and managing depression and bipolar disorder. The pre-education survey consisted of seven statements with possible responses on a four-point Likert scale ranging from 1 (very confident) to 4 (not confident). The pre-education survey also asked PCPs to identify behavioral health topics of interest for four one-hour educational sessions that would be provided during the seven-month project

implementation period. Monthly reports from the electronic health record system, Centricity, were run identifying how many MDQs had been completed for the month and if the result was a positive screen or a negative screen. Towards the end of the seven-month project the PCPs were asked to complete a post-education survey with the same seven statements as the pre-education survey.

### **Findings**

For objective one, implement clinic wide use of the MDQ to assist PCPs in the diagnosis of depression and identify patients with possible bipolar disorder, MDQ screening began on October 28, 2015 and ended April 30, 2016. A total of 71 MDQs were completed with 23 screens being positive and 48 screens being negative.

For objective two, improve PCPs' confidence in treating patients with depression and identifying patients with possible bipolar disorder, four one-hour educational sessions were scheduled between October 27, 2015 and December 14, 2015. The first session on October 27, 2015 was titled, *Screening for Bipolar Disorder in the Primary Care Setting Using the Mood Disorder Questionnaire*. The second session on November 9, 2015 was titled, *Attention Deficit Hyperactivity Disorder in Adults*. The third session on November 23, 2015 was titled, *Suicide Facts and SSRI Antidepressant Medications*. The fourth session on December 14, 2015 was titled, *Newer Drugs of Abuse and Cheyenne Community Resources for Substance Abuse Treatment*. All four educational sessions were recorded using Polycom RealPresence Desktop. Educational session evaluations were completed using the on-line New Innovations Residency Management Suite.

Eighteen PCPs completed the pre-education survey and mean response scores for confidence ranged from 1.94 for *I can diagnose depression* to 3.50 for *I can treat bipolar*



*disorder with medications*. The statement, *Overall, I can manage depression* received a mean response score of 2.44 and the statement, *I can identify patients with possible bipolar disorder* received a mean response score of 3.00. With the four point Likert scale used in the pre and post surveys a lower mean response score indicated an increased confidence level by the PCP.

Fifteen PCPs completed the post-education survey and mean response scores for confidence ranged from 1.33 for *I can diagnose depression* to 2.73 for *I can treat bipolar disorder with medications*. The statement, *Overall, I can manage depression* received a mean response score of 1.6 and the statement, *I can identify patients with possible bipolar disorder* received a mean response score of 2.33. For all seven statements the mean response score improved from pre-education to post-education.

### **Conclusions**

The family medicine residency clinic used the MDQ 71 times over the identified time period and hopefully PCPs will continue to use the MDQ in the future as a tool to assist with the diagnosis of depression and to identify patients with possible bipolar disorder. Primary care providers' perceived confidence in diagnosing and overall management of depression increased during the project period as did perceived confidence in identifying patients with possible bipolar disorder.

There were several limitations for this project. The timing of this project implementation was difficult due to the residency program combining its Centricity database with another family medicine residency program within the state. The number of electronic health record system changes during this time could have led to some provider and nursing staff frustration with Centricity overall and MDQ implementation being one more piece of data entry to complete in an otherwise busy clinic day. The number of behavioral health patient referrals within Centricity

during the project period was low at 31. There were patients who were likely referred to the family medicine residency clinic's Psychiatric Mental Health Nurse Practitioner by contacting the Registered Nurse working in the mental health clinic directly instead of formally entering a referral request within Centricity. Patients may also have been provided with other community behavioral health providers' contact information and made appointments without assistance from the clinic's referral coordinator. The project included no patient demographic data for the completed MDQs. Information about patient age, sex, race, and payer status may have been useful and potentially could have been set up with the initial MDQ program prior to project implementation. The overall quality of the first educational session was poor. A demonstration and practice with the Polycom RealPresence Media Suite prior to the first educational session would have been beneficial. The number of completed educational session evaluations was low at eleven total for the four sessions. Completion of the educational session evaluations for the family medicine residency clinic has always been encouraged but not required.

### **Recommendations**

Despite project limitations, continued use of the MDQ for this family medicine residency clinic is recommended. Expanding screening for bipolar disorder with the MDQ to other primary care clinics is also recommended. Primary care has an important role to play in providing mental health care. With expanded United States Preventive Services Task Force recommendations for screening for depression in the general adult population, a national shortage of mental health clinicians, and PCPs already seeing the majority of patients with mental health needs, the need for PCPs to have confidence in managing patients with depression and identifying those patients with possible bipolar disorder will only increase. Continued use of the four recorded educational sessions by the family medicine residency clinic is recommended.

The recorded educational sessions were also provided to North Dakota State University School of Nursing and the University of Wyoming Fay W. Whitney School of Nursing in hopes of reaching an additional PCP audience of future Family Nurse Practitioners.