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Provider Satisfaction with an Integrative Adolescent Depression Program in a Pediatric Setting

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Provider Satisfaction with an Integrative Adolescent Depression Program in a Pediatric Setting

by

Aynsley Scheffert, B.A.

MSW Clinical Research Project

Presented to the Faculty of the

School of Social Work

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St. Paul, Minnesota

In Partial fulfillment of the Requirements for the Degree of

Master of Social Work

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Mark Williams, M.D.

The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

**Provider Satisfaction with an Integrative Adolescent Depression Program in a Pediatric
Setting**

By Aynsley Scheffert, B.A.

Research Committee: Chair: David Roseborough, Ph.D., LICSW, ACT

Members: Hannah Mulholland, LICSW and Mark Williams, M.D.

Abstract

Adolescent depression affects approximately 11% of adolescents by the age of eighteen. Depression in adolescents can lead to low school performance, strained interpersonal relationships, low self-esteem and may increase the likelihood of adolescents engaging in risky health behaviors and suicide. Primary care is the first stop for many adolescents seeking treatment for depression. However, primary care providers have expressed discomfort in diagnosing and treating adolescent depression. The EMERALD program is an integrative adolescent depression program within a pediatric primary care setting that provides specialty support to primary care providers in diagnosing and treating adolescent depression. This study sought to determine providers' opinions regarding the program through the use of four longitudinal quantitative and qualitative surveys conducted from July 2011 to January 2014 including an expanded current survey and in-person interviews. Results indicate a steady increase in respondents' reports of their comfort levels both diagnosing and treating adolescent depression over four years. Participants also expressed the value of the increased access to specialty support for both themselves and their patients. Furthermore, participants indicate the integrative model, especially as it relates to the value of the role of care coordinator, was very beneficial to their practices in diagnosing and treating adolescent depression.

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Provider Satisfaction with an Integrative Adolescent Depression Program in a Pediatric Setting

According to the World Health Organization, depression is the leading cause of disability among Americans age 15 to 44 (NIMH, Depression in Children and Adolescents Fact Sheet, 2013). Depression can be defined as: a disturbance in mood, thought, and body characterized by varying degrees of sadness, disappointment, loneliness, hopelessness, self-doubt, and guilt (George Mason University, Coping with Depression, 2007). Among the adolescent population, approximately 11% will experience a depressive disorder by the age of eighteen with 3.3% of adolescents between the ages of 13 to 18 experiencing a debilitating depressive episode (NIMH, Statistics: Major Depression, 2010). Adolescents for the purpose of this study are defined as persons from the ages of 13 to 18. The current study seeks to determine a specific clinic's success in improving access to the adolescent population seeking depression treatment as determined by referring provider satisfaction.

Multiple factors have been identified to increase an adolescent's risk of experiencing a major depressive episode. Adolescent girls are three times more likely to experience a depressive illness than boys and the likelihood of a child experiencing a depressive episode rises from ages 13 (4%) to 17 (11.6%) (NIMH, Statistics: Major Depression, 2010). Other risk factors for adolescent depression include: a parental history of depression, use of illegal substances, and loneliness as estimated by number of peer relationships and perception of popularity (Field, Miguel, & Sanders, 2001; Hamrin, Antenucci, & Magorno, 2012). Further studies have also identified risk factors such as childhood abuse and/or neglect, socioeconomic deprivation (low socioeconomic status), general stressors, loss of a loved one including parent or romantic relationship, and other comorbid disorders such as anxiety or attention-deficit (Hamrin et al., 2012).

Depression has a significant impact on adolescents' lives. Short-term correlates of depression in adolescents include low school performance, strained peer and parental interpersonal relationships, and low self-esteem (Burns et al., 2004; Field et al., 2001; Weber, Puskar, & Ren, 2010). Adolescents with depression may also be more likely to engage in risky health behaviors such as cigarette use, substance use, alcohol use, and non-suicidal self-injury (NSSI) (Audrain-McGovern, Rodriguez, Kassel, 2009; Burns, et al., 2004; Field et al., 2001; Prinstein & La Greca, 2009; Testa & Steinberg, 2010; Tuiska, Pelkonen, Kiviruusu, Karlsson, Ruutu & Marttunen, 2009).

Adolescent depression may also have long-term implications. A study by Naicker, Galambos, Zeng, and Senthilselvan (2013) followed 1027 participants, ages 12-17, being treated for depression in 1994, longitudinally for ten years. Ten years following enrollment in the study, participants showed higher rates of depression recurrence, cigarette use, alcohol abuse, severity of symptoms, migraine headaches and low self-reported health, and low social support (Naicker et al., 2013). The relationship between adolescent depression and alcohol abuse has been validated by multiple studies (Deykin, Levy & Wells, 1987; Ferguson & Woodward, 2002; Naicker et al., 2013). Recurrence of depression has also been well-established in the literature as an outcome of adolescent depression (Naicker et al., 2013; Pine, Cohen, Cohen & Brook, 1999). Further, adolescent depression has been shown to have a significant impact on adult employment and earnings, potentially reducing adult employment by 5% and earnings by 15% (Fletcher, 2013).

The most tragic of the negative outcomes of depression is suicide. Suicide is the third leading cause of death among Americans aged 15 to 24 years, accounting for 20% of deaths in this age group, in the United States according to the United States Center for Disease Control

(Center for Disease Control, Suicide, 2012). Depression is shown to be highly correlated with suicide and untreated depression carries an even greater risk of suicide (Gibbons, Hur, Bhaumik, & Mann, 2005; Grunebaum, Ellis, Li, Oquendo & Mann, 2004).

As the outcomes of untreated depression can be so significant, it is imperative that adolescents have access to depression treatment. However, adolescents, perhaps even more than other groups, experience significant barriers to receiving treatment for depression. Several studies have highlighted the finding that most adolescents never receive care for psychiatric concerns and those who do may wait for multiple years between symptom emergence and the initiation of psychiatric care (Meredith et al., 2009; Cheung & Dewa, 2007). Barriers identified by adolescents and their caregivers included, “other responsibilities at school, recreational activities, needing to baby-sit for other children or difficulty getting time off of work and perceived stigma and not being able to talk about their feelings” (Meredith et al., 2009). Furthermore, Meredith et al. (2009) also identified access as a significant barrier due to such factors as clinic hours, transportation, distance, and insurance coverage. These barriers create significant difficulties in receiving treatment for depression.

Perhaps due to the barriers adolescents experience to receiving mental health care, many adolescents present to their primary care providers (PCPs) or pediatricians for their depressive symptoms (Cheung & Dewa, 2007). Primary care practice is defined by the American Academy of Family Physicians (AAFP) as “the patient's first point of entry into the health care system and as the continuing focal point for all needed health care services. Primary care practices provide patients with ready access to their own personal physician, or to an established back-up physician when the primary physician is not available” (American Academy of Family Physicians, Primary Care, 2013). In a study of adolescents’ utilization of health care settings for

depressive symptoms Cheung and Dewa (2007) found 40% of adolescents with suicidality sought out treatment from their general practitioner or primary care provider rather than a mental health specialist.

Despite the tendency for adolescents to report to primary care first for depression symptoms, PCPs are often reluctant to treat adolescent depression. In 2004 the Food and Drug Administration (FDA) issued a "black box warning" for the use of selected serotonin reuptake inhibitor (SSRI) antidepressant medications in adolescents. The black box warning counsels providers to closely monitor pediatric and adolescent patients receiving SSRIs as they may increase suicidal behavior (Busch & Barry, 2009; Ho, 2012; Libby, Brent, Morrato, Orton, Allen & Valuck, 2007; Libby, Orton & Valuck, 2009). Following the warning PCPs have significantly decreased their identification and treatment of adolescent depression (Libby et al., 2007; Libby et al., 2009). This reduction in depression diagnosis and treatment was not without its own consequences as an increase in suicide rates in adolescents was associated with a decrease in treatment of adolescent depression (Bridge et al., 2007; Bridge, Greenhouse, Weldon, Campo, Kelleher, 2008).

Unfortunately, even following the publication of the NIH funded meta-analysis determining the benefits of antidepressants use in children and adolescents outweigh the risks (Bridge et al., 2007), PCPs identification, diagnosis and treatment of depression has not rebounded as expected; and they are still often reluctant to diagnose and treat adolescent depression (Libby et al., 2009). PCPs identify lack of expertise and support as major components in their reluctance to treat adolescent depression (Bridge et al, 2007; Bridge et al., 2008; Libby et al., 2007; Libby et al., 2009).

In response to PCP's stated discomfort with providing depression care to adolescents, in 2007 the *Guidelines for Adolescent Depression in Primary Care (GLAD-PC)* was developed to support primary care treatment of adolescent depression (Cheung, Kozloff & Sacks 2013). In March 2009 the U.S. Preventative Services Task Force with the American Academy of Family Physicians also urged adolescent depression screening in primary care practices (April, 2009). Although these guidelines provide an outline for the primary care provider's role in identifying depression in adolescents, it does not fully address the PCPs reluctance to diagnose and treat a disorder they do not feel competent in addressing.

Consequently, primary care practices are increasingly examining integrative care models relating to the treatment of depression within primary care. Integrative or collaborative care is a term used to describe a group of care models that seek to provide depression identification, diagnosis and treatment within the primary care setting by utilizing a case manager, a PCP, and a mental health specialist (Wren, Foy, & Ibeziako, 2012). Integrative care models provide support to a system for patient triage, specialized recommendations from an in-house mental health specialist, and a system for communication (Wren et al., 2012).

One such collaborative care model is the Early Management and Evidenced-Based Recognition of Adolescents Living with Depression (EMERALD) adolescent depression program which this study sought to examine. Specifically this study sought to determine whether access to evidence-based mental health care and depression treatment increased for adolescents in this setting from the perspective of primary care providers, if these providers felt more supported in their roles in treating adolescent depression as a result, and if they perceived having increased their expertise in treating adolescent depression following the implementation of this collaborative care model.

Review of the Literature

Depression

Diagnostic criteria. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Revised (DSM-IV-TR) a diagnosis of depression involves meeting multiple criteria. First, at least five mood related symptoms must have been present in the patient within the same two-week period and one of the symptoms must be either a depressed mood or a loss of interest or pleasure. The mood symptoms may include:

- 1) Depressed mood for most of a day nearly every day
- 2) diminished interest or pleasure in most activities for most of the day nearly every day,
- 3) significant weight change, either loss or gain, when not dieting or a reduction in appetite,
- 4) insomnia or hypersomnia nearly every day,
- 5) psychomotor agitation or retardation nearly every day,
- 6) fatigue or loss of energy nearly every day,
- 7) feelings of worthlessness or excessive or inappropriate guilt nearly every day,
- 8) diminished ability to think or concentrate, or indecisiveness, nearly every day,
- 9) recurrent thoughts of death, recent suicidal ideation without a specific plan, or a suicide attempt, or a specific plan for committing suicide.

(DSM-IV-TR)

According to the DSM-IV-TR these symptoms cannot be better accounted for by another mood disorder, substance use, or bereavement to qualify for a diagnosis of a Major Depression.

Adolescent depression. The presentation of adolescent depression can differ from that of adults. According to the DSM-IV-TR presentation of pediatric depression may differ from that of adults in several ways. In children and adolescent the depressive criteria of “depressed mood” can present as “irritable mood”. “Significant weight loss when not dieting and weight gain” in children can present as “failure to make expected weight gains”. In a study performed by Crowe,

Ward, Dunnachie, and Roberts (2006) of 121 adolescents receiving outpatient mental health treatment, the most prominent symptom of depression expressed was irritability, rather than depressed mood. Interpersonal and thought processing symptoms (such as distractibility) were also common characteristics (Crowe, et al., 2006). However, a contrasting study indicated irritable mood alone, rather than in conjunction with depressed mood was rare (Stringaras, Maughan, Copeland, Costello & Angold, 2013).

Adolescent Depression Treatment in Primary Care

Due to the prevalence of adolescent primary care utilization for treatment of depression and in response to the decline in adolescent depression screening, diagnosis and treatment within primary care, the U.S. Preventative Services Task Force in association with the American Academic of Family Physicians (AAFP) developed the *Guidelines for Adolescent Depression within Primary Care (GLAD-PC)* (Zuckerbrot, Cheung, Jenson, Stein, Laraque, 2007A). These guidelines outline the role of the primary care provider (PCP) in the screening, diagnosis and treatment of adolescent depression in their practices. Multiple articles have been written to various PCP groups such as the family physician, the nurse practitioner, and the pediatrician to synthesize available best-practice literature for the PCP population (Hamrin et al., 2012).

GLAD-PC outlines five distinct stages of PCP involvement with adolescent depression treatment: 1) identification, 2) assessment/diagnosis, 3) initial management of depression, 4) treatment and 5) ongoing management (Zuckerbrot et al., 2007A).

Identification. The first identification stage recommends PCPs identify patients who may be at risk for developing depression due to risk factors such as family history of mental health problems, previous personal history of a mental health diagnosis, or history of substance abuse (Zuckerbrot et al., 2007A).

Assessment and diagnosis. The second stage of PC practice with adolescent depression is assessment and diagnosis (Zuckerbrot et al., 2007A). These guidelines recommend screening adolescents who have been identified as at risk or who are presenting to their appointment in emotional distress. The American Academy of Family Practitioners (AAFP) and the U.S. Preventative Services Task Force recommend PCPs screen adolescents (ages 12-18 years) for depression during routine examinations on an annual basis (April, 2009). There are a variety of screening tools which have been modified for use with the adolescent population. Some of these tools are the Beck Depression Inventory-Primary Care (PC), the Patient Health Questionnaire-Adolescent Version (PHQ-9A), and the Children's Depression Inventory (Allgaier, Pietsch, Fruhe, Sigl-Glockner & Schulte-Korne, 2012; Dolle, Schulte-Korne, O'Leary, Von Hofacker, Izat, & Allgaier, 2012; Lewandowski et al., 2013; Williams, Connor, Eder & Whitlock, 2009). The PHQ-9A and the Beck Depression Inventory-PC have demonstrated high sensitivity and validity as screening tools for adolescent depression in a primary care setting (Allgaier, Pietsch, Fruhe, Sigl-Glockner & Schulte-Korne, 2012; Lewandowski et al., 2013; Williams, Connor, Eder & Whitlock, 2009). A recent study indicates that despite GLAD-PC and U.S. Preventative Services Task Force guidelines just over one third (34%) of adolescents are being screened for depression by their PCPs (Ozer, et al., 2009). However, studies of PCPs show satisfaction with short depression screeners (such as the PHQ-9A or Beck Depression Inventory-II mentioned previously) is high and PCPs report screening is feasible (Zuckerbrot, Maxon, Pagar, Davies, Fisher, & Shaffer, 2007B).

Initial management of depression. The third stage of adolescent depression practice within primary care according to the GLAD-PC (Zuckerbrot et al., 2007A) is initial management of depression. The role of the PCP during this stage is to educate the patient and family about

depression. The PCP should also inform the patient and family of their treatment options and develop a treatment plan. Suicide risk should also be assessed and a safety plan should be developed with the patient and family. Finally, the PCP should attempt to connect the patient and family with relevant mental health resources within the community.

Treatment. The GLAD-PC (Cheung, Zuckerbrot, Jensen, Ghalib, Laraque, & Stein, 2007B) recommend PCPs utilize evidence-based treatment following a period of active support and close monitoring of adolescents suffering from mild depression. The GLAD-PC also recommend referral to specialty care for adolescents with severe depression.

Evidence-based treatments for adolescents suffering from depression fall into three categories: 1) psychotherapy, 2) pharmacological treatment, and 3) a combination of psychotherapy and pharmacological treatment (Domino et al., 2009; Kennard et al., 2009A; Lewandowski, 2013; Hamrin et al., 2012; Williams et al., 2009). Among pharmacological treatments fluoxetine and citalopram display greater evidence for effectiveness for adolescents than others and fluoxetine is the only selective serotonin reuptake inhibitor (SSRI) approved for the treatment of adolescent depression by the FDA (Kennard et al., 2009A; Usala, Clavenna, Zuddas & Bonati, 2008; Williams et al., 2009). Psychotherapies such as Family-Based Therapy, Cognitive-Behavioral (CBT) and psychodynamic psychotherapy alone have been shown to also be effective for treating adolescent depression, especially CBT (Kennard et al., 2009A; Palmer, Nascimento, & Fonagy, 2013; Williams et al., 2009). A combination of psychotherapy and pharmacological treatments has been shown to be particularly effective for adolescents and combination therapy is especially helpful for adolescents who are treatment resistant (Domino et al., 2009; Kennard et al., 2009A; Kennard et al., 2009B; Lewandowski et al., 2013; Usala et al., 2008).

Ongoing management. The final stage of adolescent depression practice is ongoing management (Cheung et al., 2007B). During this stage active monitoring of adolescents with depression is highly recommended. Adolescents who are not showing improvement or are showing only partial improvement may need to be referred to a mental health specialist. However, even if a patient is referred GLAD-PC urges PCPs to remain in an active supporting role and maintain communication with the mental health specialty provider.

Primary Care Providers' Motivations and Attitudes toward Adolescent Depression.

PCPs may feel various motivations to treat adolescents with depression according to a study conducted by Richardson, Lewis, Casey-Goldstein, McCauley & Katon (2006). Providers identified their perception of their roles as PCPs as one motivator endorsing their roles as “the first step in treatment”, “a stop-gap measure”, or the “de facto mental health provider” for treating adolescent depression within their practices. Further motivations for treating adolescent depression within primary care are relationships developed with the patient or family, the patient or family’s reluctance to pursue specialty mental health care, and a perception of a lack of access to specialty mental health care (Richardson et al., 2006).

The PCPs’ reports of dissatisfaction with specialty mental health care are prevalent in the literature. PCPs identify a dissatisfaction with availability of specialty mental services (Kisely, Duerden, Shaddick, & Jayabarathan, 2006; Richardson et al, 2006; Vickers, Ridgeway, Hathaway, Egginton, Kaderlik & Katzelnick, 2013). More specific areas of dissatisfaction include perceiving patients as being uncomfortable with referrals to mental health specialists, being unaware of available services, being unsure how to refer patients to available services, and perceiving wait times for access to mental health specialty care as being too long (Kisely et al., 2006; Vickers et al., 2013).

Primary Care and Integrative Behavioral Health Models for Treatment of Depression

Adults. According to an analysis of primary care management of depression by Wren et al. (2012) adult collaborative care models seek to restructure care by providing evidence-based and planned care that responds to client needs through a progression of treatments from simple to complex. Wren et al. (2012) also stress the importance of three specific professionals: a case manager, a primary care provider, and a mental health specialist. Furthermore, the collaborative care models for adult depression treatment also showcase the following elements: “provider roles; decision support for clinicians; procedures for screening, continuity of care, and case tracking; support and resources for active patient self-management; resources for collaboration, communication and coordination; and tailored use of information technology” (Wren et al., 2012). Two models of note which follow these guidelines for collaborative care in practice are the Improving Mood- Promoting Access to Collaborative Treatment (IMPACT) model and the Depression Improvement Across Minnesota, Offering a New Direction (DIAMOND) model which served as a model for EMERALD (Medicine and Law Weekly, 2005; Williams, Jaeckels, Rummans, Somers, Nesse, & Gorman, 2010).

Integrative behavioral health models have been tested both in randomized controlled trials (RCTs) and in primary care practice. RCTs report success rates of 45% for integrative behavioral health programs with collaborative care participants showing greater than 50% reduction in depression symptoms in six months as compared to control groups reporting 19% of usual care participants showing 50% reduction in depression symptoms in the same time period (Unutzer et al., 2002). In non-controlled primary care settings which implemented an IMPACT model of integrative behavioral health, the IMPACT model was also shown to have better clinical outcomes. In one study, 53.8% of IMPACT patients experienced improvement in

depression symptoms compared with 33.8% of usual care patients at 6 months and 51.8% of IMPACT patients vs. 24.5% of usual care patients at 12 months (Grympma, Haverkamp, Little, Unutzer, 2006).

Further research has delved into the efficacy of collaborative care or integrative behavioral health programs across settings and populations. Collaborative care has been shown to also be more effective than usual care for minority populations, even more than Caucasian populations (Areans et al., 2005; Davis, Deen, Bryant-Bedell, Tate & Fortney, 2011). Late-life depression is another area where collaborative care for depression has been shown to be effective (Levine et al, 2005; Unutzer et al., 2002). Collaborative care has also been shown to be effective in various settings, such as Veterans Affairs outpatient clinic settings, rural primary care settings, and low-income urban primary care settings (Fortney et al., 2012; Thota et al., 2012).

Integrative behavioral health programs also offer significant cost reduction benefits for health care costs associated with treating patients with depression. Cost reduction associated with integrative behavioral medicine includes both reduced health care costs and increased productivity (Community Preventative Services Task Force, 2012; Jacobs, Chattopadhyay, Sipe, Thota, Byard & Chapman, 2012).

Provider satisfaction with integrative behavioral health programs has been high. Many primary care providers report dissatisfaction with the resources available to treat adult depression (Kisely et al., 2006; Levine et al., 2005; Younes et al., 2005). Following implementation of an integrative behavioral health program 90% of physicians reported finding the programs to be helpful in treating adult depression (Levine et al., 2005). Further, 82% of physicians felt implementation of the models had improved their patients' outcomes (Levine et al., 2005). PCPs who have access to collaborative care have also reported a greater comfort levels, as well as

greater skill and knowledge with treating mental health disorders (Kisely et al., 2006).

Adolescents. Several studies have explored pilot or clinical trials of collaborative care treatment for adolescent depression. Of note, two studies have examined outcomes of implemented adolescent depression treatment programs housed in primary care; the first is a randomized controlled trial performed by Asarnow and colleagues (2005) and the second a pilot study by Richardson, McCauley, and Katon (2009). Both studies found the integrative behavioral health programs to show significant improvements for patients at six months. In the randomized controlled trial intervention participants showed a significant reduction in severe depression as compared to usual care participants (CES-D= 11.9 vs CES-D= 13.1, $p=.02$) (Asarnow et al., 2005). The adolescent behavioral health pilot study reported 74% of participants experiencing a greater than 50% reduction in their depressive symptoms (Richardson et al., 2009). Richardson and colleagues (2009) also gathered patient and parent satisfaction data to assess the families' attitudes toward the integrative behavioral medicine program. Of the participants and parents who completed the survey, 81% of both participants and parents reported high levels of satisfaction with the intervention (Richardson et al., 2009). Participants especially endorsed the helpfulness of the Depression Case Manager's role in providing follow-up services (Richardson et al., 2009).

The Early Management and Evidenced-Based Recognition of Adolescents Living with Depression (EMERALD) program is one such adolescent Integrative Behavioral Health program. EMERALD is currently operating within a pediatric department at a large Midwestern medical center. It utilizes the services of a behavioral health manager, a registered nurse (RN), a licensed social worker, a child psychologist, and a child psychiatrist. Adolescents are referred to EMERALD after determining eligibility using the PHQ-9M depression screening tool and being

referred by their pediatric primary care provider. Adolescents enrolled in EMERALD are evaluated within one week through data gathering performed by the behavioral health manager and relayed to the psychiatrist who provides recommendations for depression management to the behavioral health manager and the adolescent's pediatric primary care provider. The behavioral health manager checks in with the adolescent on a weekly basis and routine monitoring using the PHQ-9M and interviews are completed to track the adolescent's progress. If the behavioral health manager feels progress is not being made or further recommendations are warranted, she will alert a mental health specialist who can give further recommendations at that time. This model differs significantly from treatment as usual. In most pediatric primary care settings a physician has a very limited amount of time and resources and a referral to psychiatry for adolescent mental health needs is necessary.

The current study sought to address a gap in the literature surrounding provider experiences with adolescent depression integrative behavioral health programs. The current study assessed pediatric providers' attitudes and opinions concerning EMERALD's ability to increase access for their adolescent patients to specialty mental health care, increase PCPs comfort and skill levels with diagnosing and treating adolescent depression, and reduce the need for specialty mental health support for primary care physicians.

Conceptual Framework

This study will examine the data with the Collaborative Care framework as described by Wren, Foy and Ibeziako (2012). This framework describes Collaborative Care models used in integrative behavioral health programs for depression. This framework is utilized as this study is examining one such integrative behavioral health program.

According to Wren et al. (2010) collaborative care is "an umbrella term for a family of

models that comprise a multisystem strategy to reorganize treatment for depression” (p. 405).

This collaborative care framework is based on chronic illness management models and involves a restructuring of health care services to provide specialty mental health support within the primary care setting.

Collaborative care models use a stepped care approach (Wren et al, 2012). Evidence-based treatments are offered and tailored to the severity of depression experienced by the patient and the patient’s needs. More simplified treatments are offered first and if sufficient progress is not made more complex interventions and more specialty care is offered.

Collaborative care involves utilizing a group of professionals: a case manager, a primary care provider, and a mental health specialist (social worker, psychiatrist or psychologist) housed within a primary care setting. These professionals have distinct roles. The case manager seeks to provide continuity of care and case tracking services through the use of information technology. The case manager also provides both patient and physician support and offers resources for patient self-management. The mental health specialist supports the decision-making process for the primary care provider by providing clinical recommendations and collaborating with the primary care provider to offer evidenced-based treatment.

Collaborative care has shown great success in adult populations and recent research, though limited, has found success in adolescent populations as well (Wren et al., 2012). EMERALD has already demonstrated its adherence to the collaborative care model in its utilization of personnel such as the behavioral health manager, RN, mental health specialists (child psychiatrist, child and social worker) and primary care provider involvement. It also adheres to the model in its stepped-care approach and provider support functions. However, the number of adolescent depressed patients far exceeds the number of integrated collaborative care

programs for these patients in primary care practice. Why is this model not spread? Certainly it is not due to high confidence in the care of these patients in most primary care practices. The Black Box warning for antidepressants has been shown to increase hesitation on the part of primary care providers in treating these patients, leading to either poorly treated adolescent patients, or a referral to psychiatry where access to child psychiatry is very poor. There is significant need to explore the attitudes and opinions of primary care providers about treating this significant public health issues in regard to programs like EMERALD so as to tailor these programs effectively and to spread the word.

Methods

Research Design

The purpose of this study was to evaluate provider opinions and attitudes concerning EMERALD, an integrated behavioral health program for adolescent depression in a pediatric primary care setting. Provider assessment of the program's ability to 1) minimize barriers to adolescent depression treatment; 2) reduce the need for mental health specialist support, and 3) maximize provider confidence in treating adolescent depression were the central concerns of this study.

This investigation used a variety of measures to ascertain EMERALD's impact on barriers, specialist support and provider confidence in relation to their ability to treat adolescent depression.

1. **Early Provider Survey Results on EMERALD Implementation.** A series of three surveys were sent to pediatric providers with contact with the EMERALD program to assess the program's influence on pediatric primary care providers' practice involving

adolescents with depression. Nineteen surveys were sent in July 2011, March 2012, and January 2013 to providers first implementing EMERALD in the community pediatric department at a large Midwestern medical center. Nine surveys were returned for a response rate of 47% in July 2011. The survey asked respondents to describe their practice with adolescent depression in terms of the number of adolescents with depression they typically saw, how comfortable with treating adolescent depression they were, and their practice habits such as referrals and prescribing antidepressant medications (see Appendix A). A second survey was distributed eight months later with expanded questions concerning providers' experiences with EMERALD (see Appendix B). The second survey was sent in March 2012. Fifteen responses were received for a response rate of 79%. The final survey was distributed in January 2013. Nine surveys were returned for a response rate of 47%.

2. **A Novel Questionnaire to Develop and Implement.** Based on A and B above, as well as a refreshed literature and environmental scan, a novel question set was developed (see Appendix C). The questionnaire comprised some original content for longitudinal purposes, as well as novel items elicited from earlier efforts. The new questionnaire was distributed in paper form during a meeting among EMERALD oriented staff. This questionnaire also acted as a recruitment tool for a convenience sample of short, confirmatory interviews. Broadly, I asked providers about their practice habits concerning adolescent depression and the impact the EMERALD program may have had on these practice habits with the goal of better understanding the functions an integrative behavioral health program serves.
3. **Confirmatory Interviews.** Participants who completed the above survey C were invited

to speak more in depth about their experiences. Two half-hour interviews were conducted. I asked these providers about: 1) their utilization of the EMERALD program 2) their opinion of the program, 3) what impact EMERALD has had on their practice, and 4) what impact they perceive EMERALD as having on their patients.

Population and Sample

The population this sample was drawn from includes pediatric or primary care providers currently involved with adolescent depression integrative medicine programs. The particular sample was drawn from the pediatric department participating in the EMERLAD adolescent depression program at a large Midwestern medical center. The sample consisted of pediatricians and nurse practitioners. Participants were invited to participate based exclusively on their membership in this department.

The responses to an initial largely quantitative pre and post survey (n = 33) were examined. The respondents to this original survey have been members of the pediatric department between July 2011 and January 2013. Current providers in this same department were invited to participate in a follow up survey, following a similar format. This survey was brief and consisted of quantitative items consistent with the original measure (see Appendix A) and ended with two qualitative questions which asked each respondent about his/her opinions on the strengths and weaknesses of the EMERALD program. This follow up survey also provided a check box where respondents could note if they were interested in a brief, in person interview to ask about their experiences and level of satisfaction with the EMERALD program. Those primary care providers who responded to the follow up survey and/or offered an in-person interview have been members of the department prior to EMERALD's implementation in July of 2011 and still remained current members from 2013-2014.

The participants for the qualitative interviews were selected using a purposive sampling method (i.e. a sample with a purpose) based on membership in the pediatric department both prior to the implementation of the EMERALD program and currently. The participants were invited to participate via a question in the mixed methods survey which asked for volunteers to participate in the qualitative interviews with the goal of gaining more detailed information about providers' experiences with the program.

Data Collection

Pre and posttest survey. Existing pre and posttest data gleaned from the original quantitative surveys were analyzed. These original surveys were given at three separate intervals to 19 pediatricians participating in the EMERALD adolescent depression program at a large Midwestern medical center for a total of 57 surveys over the course of a year and a half. The survey was distributed to the entirety of the pediatric department participating in the EMERALD program in July 2011 and again in March 2012 and January 2013. The original survey consisted of 11 questions (see Appendix A) with ten questions added for later surveys (see Appendix B). The survey was developed by Ms. Kaderlik in collaboration with Dr. Huxdahl, Dr. Billings and colleagues. The surveys were administered through the use of Redcap survey software. Responses were anonymous and data were compiled within the Redcap database.

Novel questionnaire. Informed by the questions asked in the original pretest and posttest, this researcher created a follow up survey to be administered in the same pediatric department (see Appendix C). This mixed method survey was introduced to the current staff as part of a pediatric department meeting. The researcher introduced herself, explained the purpose of the study, and provided a reading of an oral consent which served as the informed consent for those who choose to participate. Following this, time was allowed for questions related to the

study and to informed consent. Instructions for completing the survey were given including instructions related to volunteering for the follow-up interviews. Participants were asked to include contact information for reaching them if they chose to participate in a brief follow up interview. The oral consent script reminded them that including this contact information on the survey would identify them. A pre-addressed envelope was left with the department administrative secretary for collection of the surveys.

The follow up survey consisted of 27 Likert-scale questions relating to provider confidence treating adolescents with depression and the ease of working with the EMERALD program (See Appendix B). Two questions concerning provider demographics were asked along with two qualitative questions: (1) What are the strengths of the EMERALD program and (2) what are the weaknesses of the EMERALD program from their perspective. The questions asked focused broadly on the three primary areas identified above: the status of adolescent patients' access to mental health care, the impact they may perceive EMERALD has had on their need for mental health specialist support, and their sense of competence and comfort in better serving adolescent patients as a result of EMERALD.

Qualitative interviews. Finally, those survey respondents who identified themselves as interested in and available to participate in an interview were interviewed in person. Interviews took place in participants' workplace offices in the pediatric department or another available space within the department and took approximately 15 minutes to complete during providers' work hours. Qualitative interviews consisted of open-ended questions relating to provider satisfaction with their practices and with the EMERALD program (see Appendix D). Interviews were conducted in semi-structured interview format with participants. Interviews included an introduction of the researcher, an explanation of the purpose of the research and an in-person

review of the oral consent, a time for the participant to ask any questions related to the research study and informed consent, and a description of both the nature of the study and the interview process.

Data Analysis

Pre and posttest survey. Data analysis consisted of measures of central tendency including mean, median and modal responses to Likert scale items across the respondents. Data from each survey set and the novel questionnaire were examined for change over time through the use of Excel. Pre and posttest surveys asked identical questions and pretest versus posttest responses were compared for change. Questions in the follow up survey sought to emulate original pre and posttest questions for further comparison of change over time.

Novel follow-up questionnaire. Data analysis for the quantitative portions of the novel questionnaire consisted of measures of central tendency (providing mean, median, and modes for each of the 31 items). These responses were compared with existing survey data from the original pre and posttest. The qualitative responses from this original measure, which asked two qualitative questions (1) what are the strengths of EMERALD? and 2) What are the weaknesses of EMERALD?), were analyzed using a line-by-line open coding strategy. This coding drew codes directly from the raw data. Codes were combined to form themes and potential sub-themes. A partner coding strategy was utilized to test for coding reliability. Partner coding involves two coders examining the data and developing codes independently. Once initial independent coding was completed, the coders assessed codes to check for variance. When variance was observed, coders worked collaboratively to decide how to address the coding disparity. Following finalization of codes, the coders collaboratively decided on themes and potential sub-themes. Mr. Jason Egginton served as coding partner for this exercise.

Qualitative interview data analysis. The researcher audio taped the interviews and transcribed them for the purpose of coding. The interviews were coded using a partner coding strategy to test for reliability as described above. Methods of content analysis were utilized to determine coding schemes based on key informant interview and survey data.

Protection of Human Participants

The minimization of risk to human participants was ensured for the purpose of this study through review by the Institutional Review Boards of Mayo Clinic and the University of St. Thomas.

Secondary data analysis participants. The original surveys were completed anonymously through the use of the Redcap survey program. This study was initially given IRB approval by its host hospital and was approved at an exempt level potential for risk for the participants. No identifying information was collected nor was identifying information given to the researcher with the existing data beyond these respondents being primary providers in a pediatric setting affiliated with the EMERALD program.

Follow up survey participants. To protect participants and minimize risk, an oral consent script was reviewed in person with participants as part of my introduction of the survey to potential respondents. I introduced the study in person to this group at a team meeting, with the permission of Debra McWilliams, M.D. Pediatric Division Chair. I also included a business card which detailed the contact information for me and the University of St. Thomas and St. Catherine's University. The anonymity of participants was assured as the researcher was not aware of the participants' identities unless participants volunteered for further participation in qualitative interviews. Participants were informed of the loss of anonymity in this circumstance. The researcher left the area after surveys were distributed. Completed surveys were placed in a

pre-addressed inter-clinic envelope which was to be mailed immediately following the departments' meeting by the department secretary. Completed surveys were only examined by the researcher and were kept in a locked file in the researcher's personal office. Survey responses were collated by the researcher prior to partner coding. The researcher collated data into a Word document which was kept on the researcher's password protected personal computer. Collated data responses were printed for coding and/or coding comparisons.

Qualitative interview participants. In an effort to protect human participants, several processes were implemented. Interviews were only conducted on a voluntary basis. Interviews were conducted during the participants' work days and in participants' work offices in the Pediatric Department. When scheduling interviews the time was noted only as, "Research Meeting." Prior to the initiation of the interview, participants were consented with oral consent and time to ask any questions regarding the research and the consent was allowed. The participant was informed of the voluntary nature of the study and assured he/she was allowed to skip questions and that he/she could withdraw from the study and not have his/her data used, up to one week after the interview. This could have been done by contacting the researcher by phone or email and making this request. The participant was informed of the expected duration of the interview, about 15 minutes. The questions were relatively low risk by the nature of their asking about participants' professional roles and opinions in relation to their practice (versus personal experience). Participants were also informed the results of the study were presented to the public as part of the University of St. Thomas/St. Catherine University MSW clinical research paper presentations and the final paper is available in electronic form through the University of St. Thomas/St. Catherine's University's electronic repository. The identities of respondents will remain confidential and respondents' identifying information was removed

from all documentation. The original transcripts of interviews were destroyed following transcription and interview transcripts were kept in a locked file in the researcher's personal office.

Results

Time Point 1

This survey was completed prior to the implementation of the EMERALD program in the Pediatric Department in July of 2011. This sample had a response rate of 47% and consisted of nine respondents. Respondents rated the number of adolescents with depression they see per month. Possible responses were 0, 1-5, 6-10, or more than 10. These possible responses were assigned numbers from 1-4 for analysis. The indicate somewhere between 1-10 adolescents with depression were seen by providers in the Pediatric Department per month but closer to 1-5 as indicated by both a mode and medium of 2.

Respondents were asked to rate their comfort levels with diagnosing depression in adolescents. Providers rated their comfort levels as 1=not at all comfortable, 2=somewhat comfortable, 3=comfortable, or 4=very comfortable. The mean of respondents self-rated comfort level with diagnosing adolescent depression was 2.55 (SD=.72). The median and mode were both 2 indicating the majority of respondents rated themselves as somewhat comfortable diagnosing adolescent depression.

Respondents were then asked to rate their comfort levels with treating adolescent depression. Respondents rated their comfort levels as 1=not at all comfortable, 2=somewhat comfortable, 3=comfortable, or 4=very comfortable. The mean of all respondents was 2.33 (SD = .86). The median and mode were both 2 indicating the majority of respondents rated themselves as somewhat comfortable treating adolescent depression.

The second section of this pre-implementation survey concerned respondents'

perceptions of obstacles within their practices to managing adolescent depression. The obstacles in question were 1) resources, 2) lack of training, 3) identified black box warning/difficulty providing recommended follow-up, 4) parent/patient reluctance, 5) cost/reimbursement, and 6) difficulties with referrals. These items were originally coded on a 1-4 scale ranging from 1= very difficult, 2=somewhat difficult, 3=difficult, 4= not at all difficult but, due to concerns identified by respondents as uncertainty as to whether the codes were ranked in the correct order, the codes were assigned new values to combine values 2 and 3. The new coding strategy assigned the following values: 1=very difficult, 2=somewhat difficult or difficult, and 3=not at all difficult. This coding concern was evident in surveys 1, 3, and 4 and values were reassigned accordingly.

Respondents identified lack of training as an obstacle to managing adolescent depression in their practices with a mean score of 1.77 (SD =.44) and a median and mode of 2, meaning the majority of participants identified this as a difficult to somewhat difficult obstacle to navigate in their practices. Next, respondents reported identified black box warning/difficulty providing recommended follow-up as somewhat difficult or difficult with a mean score of 2.44 (SD=.52) and median and mode of 2.

In this survey respondents were also asked what they would view as important to consider if a DIAMOND-like program for adolescent depression screening and management were developed. Responses were coded into prevalent themes especially as they related to quantitative survey questions. Responses concerning provider comfort and confidence with treating adolescent depression as well as perceptions of difficulty with referrals, difficulty related to medication management and following recommended follow-up guidelines, and lack of training were given the code “provider access to specialty support and recommendations”. Statements given this code are listed in the table bellows as examples.

Provider Access to Specialty Support and Recommendations
Adequate resources of counseling and psychiatry expertise
Systems by which to have regular follow-up (not necessarily in the office) would be very helpful.
I look forward to having [a psychiatrist] working more closely with us to better medically manage our patients...
Quick access and weekly follow-up.

In terms of obstacles respondents identified as most challenging in their practice the majority of respondents identified “referrals” as being particularly difficult with a mean score of 1.22 (SD= .44) and a median and mode of 1. Another obstacle to practice respondents rated were “resources” which were identified as somewhat difficult or difficult with a mean score of 2 (SD=.70) and a median and mode of 2.

In response to the open-ended survey question regarding what participants would consider important to consider for an integrative adolescent depression program, responses concerning patient access to psychiatry services or resources were given the code, or label, “Patient access to specialty care support”. Responses concerned increasing access to these services through the proposed program and providing resources for specialty support for patients and families. Examples of participant responses given this code are provided in the following table:

Patient Access to Specialty Support
Adequate resources for counseling and psychiatry expertise
Increase access to psychology/psychiatry for further evaluation when needed and for

behavioral therapy/counseling.
Access to counseling/therapy and psychiatry is poor.
Family support resources about adolescent depression.

Therapy integration. A separate finding from the qualitative survey responses indicates the provider group’s interest in the integration of therapy within the practice with adolescents with depression. Survey responses pertaining to the desire for integrated psychotherapy were given the code “Therapy Integration”. The label of Therapy Integration occurred in the data six times, the most prevalent of any code. One participant’s statement exemplified this code,

“We need therapists trained in cognitive behavioral therapy who see patients on our floor or at least meet with us in a care conference on a routine basis. I am a firm believer that family counseling and therapy to teach coping skills is as important if not more important than medication management and would like to see that aspect of care integrated into the mode/program.”

Time Point 2

This second survey was conducted approximately eight months after the implementation of the EMERALD program. The sample consisted of fifteen respondents with a response rate of 79%. Respondents reported seeing between 1-5 adolescents with depression per month with possible responses being from 0 to 10 or more adolescents per month on a four point scale as described above.

Provider access to specialty support and recommendations. Respondents were asked again to rate their comfort level with diagnosing depression. In this version of the survey respondents were asked to rate their comfort level on a five point scale from 1= not at all

comfortable to 5= very comfortable. The mean of scores for respondents was 3.26 (SD=1.09) and a median and mode of 4 indicating participants felt somewhat comfortable diagnosing adolescent depression.

On rating their comfort level with treating adolescent depression the majority of respondents indicated they were somewhat comfortable treating adolescent depression. The mean of participant responses on this rating scale was 3 (SD=1.13). The mode of this sample was 4 while the median was 3.

This survey also included a section on barriers respondents may have identified in treating adolescent depression. In this survey barriers were rated on a 1-5 rating scale with 1=very difficult and 5=not at all difficult. When asked to rate their perception of the difficulty a lack of training respondents mean score was 2.8 (SD=1.14). The mode was 2 while the median was 3. These results indicate respondents felt their lack of training made practicing with adolescents with depression difficult to somewhat difficult.

Difficulties related to treating adolescents with depression with medications due to the black box warning and the following the guidelines for recommended follow-up were also rated as somewhat difficult by respondents. Mean score of respondents was 3.00 (SD=1.36). The median and mode was 3.

This survey also included several open-ended questions. In response to the question, “What is most valuable about EMERALD?” responses related to increasing providers’ comfort levels with treating and diagnosing depression through recommendations and support from specialty psychiatric resources were given the code “Provider access to specialty support and recommendations”. This code was used when responses related to provider support, specialty care review, use of the nurse care coordinator for follow-ups, and recommendations from the

psychiatrist. The following table details the range of responses within this category.

Provider Access to Specialty Support and Recommendations
Care coordination and easy availability of [psychiatrist]
Support and timely evaluation
Curbside psychiatrist consult and medication recommendations
Support in expanding my knowledge and comfort in treating adolescent depression, ongoing connection of patient and care coordinator (as I really don't have time to do that).

One participant describes the value of specialty support and recommendations as,

” I hope we will always have care management for adolescent depression as I feel I have a partner in my efforts [care coordinator] who is easily accessible, communicates well and helps me access psychiatry for these patients urgently if needed.”

Increasing patient access to specialty support. Participants were also asked to rate the difficulty resources and referrals pose to their practices with adolescents with depression using the five point Likert scale described above.. The mean score of participants in terms of difficulty due to resources was 3.06 (SD=1.09). The mode was 4 while the median was 3. The mean score of participants in evaluating the difficulty of referrals was 3 (SD=1.25). The median and mode were also 3. These results indicate participants felt resources and referrals were neither difficult nor without difficulty in their practice.

A separate section of the survey asked participants to rate how helpful the program was to their patients on a scale of 1-5, with potential responses ranging from 1=not helpful to 5=very helpful. The mean score of participants on this item was 4.13 (SD=.83). The median was 4 while the mode was 5. This indicates the majority of respondents felt the program was helpful to very

helpful to their patients.

Another theme which was found in the survey responses to the question, “What is most valuable about EMERALD?” was increasing patient access to specialty care support. This code was applied to responses related to the care coordinator’s ability to connect with patients and provide a consistent contact, the increased availability of mental health providers, and providers’ perceptions of patients’ care in the program. Examples of participant responses are provided in the table below.

Increased Patient Access to Specialty Care Support
[Care Coordinator] can connect more frequently with patients than I can
The near immediate availability of mental health providers. Known contact person (care coordinator) for the patient when they leave the office that day.
I love that [Care Coordinator] and our social workers connect so well in caring for these teens.

Time point 3

The third survey was conducted approximately ten months after the previous survey and one and a half years after the implementation of the EMERALD program. The sample consisted of nine respondents with a response rate for 45%. Respondents were asked to identify the number of adolescents with depression they see in their practices per month with possible responses being from 0 to 10 or more adolescents per month on a four point scale as described previously. The results indicate the majority of participants identified seeing between 1-10 adolescents with depression per month.

Provider access to specialty care support and recommendations. Once again respondents were asked to rate their comfort levels with diagnosing depression in adolescents. The rating scale for responses was modified back to a four point scale for this survey and the

subsequent survey. Providers rated their comfort levels as 1=not at all comfortable, 2=somewhat comfortable, 3=comfortable, or 4=very comfortable. The mean of participants' responses was 3 (SD=1.00). The median and mode of responses were both 3. These responses indicate the majority of participants identify themselves as comfortable.

Respondents were also asked to rate their comfort levels with treating adolescent depression on the same four point scale. The participants' responses had a mean of 2.55 (SD=1.13). The median and mode of responses were 2 indicating the majority of respondents identified themselves as somewhat comfortable treating adolescent depression during this time point.

On this survey respondents were once again asked to rate the difficulties they experience with specific barriers identified in the literature as contributing to providers' experiences with diagnosing and treating adolescent depression. The scales for these items were also modified back to a 4 point scale. However, due to participant concerns identified with the rating scale the primary investigator chose to combine the scale point 2 and 3 to one point making the range for the scale 3 points with 1=very difficult to 3=not difficult at all.

Barriers related to difficulties with diagnosing and treating adolescent depression due to a lack of training were rated by respondents as somewhat difficult. The mean of response was 2.44 (SD=.52) and a median and mode of 2. Another identified barrier, difficulties due to the black box warning and adherence to recommended follow-up guidelines was rated was given similar ratings with a mean of 2.44 (SD=.52). The median and mode were also 2.

Respondents were asked for additional feedback in the form of open-ended free text entry question, "What is most valuable about EMERALD?" Responses to the question related to increasing provider support from psychiatry in diagnosing and treating adolescent depression

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were grouped in the theme “Provider access to specialty support and recommendations”.

Responses in this category are associated with the value of care coordination, medication management recommendations, and availability of specialty staff for support. Examples of the range of participant responses are highlighted in the below table.

Provider Access to Specialty Support and Recommendations
Psychiatry involvement without needing separate appointment
The help they provide managing the patients
Having [Care Coordinator] available while the patient is in my office. Also, I value [Care Coordinator’s] phone follow-ups and more consistent care of my patients.

One participant expressed the value he/she found in the EMERALD program:

“Feeling that I can focus on my role as primary care pediatrician with regard to depression and differential diagnosis vs. having to ‘manage’ and coordinate the connections between family between visits”.

Increased patient access to specialty care support. Another barrier identified as causing difficulty in diagnosing and treating adolescent depression is resources. When asked to rate the difficulty resources caused to their practices with adolescent depression on a scale adjusted to 1 to 3, as described in the section above, the mean score of participants’ responses was 2.22 (SD=.44) and a median and mode of 2. This indicates the majority of respondents felt resources caused some difficulty in their practices with adolescent depression.

Difficulties with referrals were also identified as a barrier to adolescents receiving depression treatment. However, on the 3 point rating scale the mean of participants’ responses is 2.33 (SD=.70). The mode of responses was 3 with a median of 2. These responses may indicate

participants do not feel difficulties with referrals are a barrier causing much difficulty is their practices with adolescents with depression.

Participants were also asked to identify how helpful they felt the EMERALD program was for their patients. On a 5 point scale with 1=not helpful and 5=very helpful participants' mean score was 4.44 (SD=.88). The median and mode of responses were both 5. These results indicate the majority of participants felt the EMERALD program was very helpful to their patients.

A second theme from participants' responses to the question, "What is most valuable about EMERALD?" was a theme again identified as "Increased Patient Access to Specialty Care Support". This theme concerned responses centered on topics such as frequent follow-up through care coordination, increased access, and maintaining consistent contacts. Examples of participant responses are outlined in the table below:

Increased Patient Access to Specialty Care Support
Frequent contact by care manager to assess adolescent well-being on multiple levels
Much better access and their ability to follow and problem shoot.
Sustained patient follow-up

Time point 4

The most recent survey was administered on January 15, 2014 by the primary investigator. The sample consisted of fourteen participants for a response rate of 64%. Approximately 50% of participants identified having previously taken a survey regarding the EMERALD adolescent depression program. Participants identified themselves as having between 1 and 23 years of experience working with the adolescent depression population. The mean of years of experience of participants is 10.03 with a standard deviation of 7.72. The

median of years of experience is 7.5 and the mode is 4. Participants report seeing between 1 and 10 adolescent with depression per month on a scale of 1-4 with 1=0, 2=1-5, 3=5-10, and 4=10+.

Provider access to specialty care support and recommendations. On this most recent survey, participants were again asked to rate their comfort levels diagnosing and treating adolescent depression on a 4 point scale as described previously. The mean score of participants in diagnosing adolescent depression was 2.92 (SD=.73). The mean and mode were both 3. In regards to treating adolescent depression the mean score of participants was 2.71 (SD=.72) and a mean and mode of 3. These results indicate the majority of participants feel somewhat comfortable to comfortable diagnosing and treating adolescent depression.

The barriers to treating adolescent depression in a primary care practice discussed previously were again assessed in terms of the difficulties these barriers presented in the participants practices. Specifically, barriers related to a lack of training and the black box warning and difficulty following guidelines for recommended follow-ups were assessed. On the difficulty lack of training poses to participants' practices on a modified 3 point scale as described previously, participants' mean response was 2.07 (SD=.26). The median and mode was 2. On rating the difficulty the black box warning and following recommended guidelines for follow-ups, participants' mean rating score was 2.35 (SD=.63) and a median and mode of 2. These results indicated the majority of participants felt a lack of training and the black box warning and difficulties providing the recommendation follow-ups posed some difficulty in their practices.

In this most recent survey, several questions pertaining to provider opinions concerning their comfort levels diagnosing and treating adolescent depression and their opinions on the benefit the EMERALD program provides their practices were added. The first additional question pertaining to participants' practices evaluated how supported participants feel in their

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practices with EMERALD available on a 5 point scale with 1=not at all supported and 5=completely supported. The mean response of participants rating was 4.38 (SD=.65). The median of responses was 4 and the mode of responses was 5. These results indicate the majority of respondents feel very supported in their practices with adolescent depression by the EMERALD program.

Table 1 outlines the additional added questions along with the mean, standard deviation, median and mode of participant responses. All response are on a five point scale with 1=not at all true to 5=very true.

Table 1

Means of Provider Ratings of EMERALD Oriented Variables

Question	Mean	St. Dev.	Median	Mode
EMERALD allows me to more effectively treat my adolescent patients with depression	4.71	5	5	.46
EMERALD is a waste of resources	1.21	.42	1	1
Through interactions with EMERALD I feel more confident treating adolescent depression	4.42	.64	4.5	5
The black box warning makes me reluctant to prescribe antidepressants to adolescents.	1.85	.86	2	2
I have difficulty subscribing to recommended FDA follow-up guidelines for adolescents with depression.	3.53	.92	3.73	4
I am comfortable treating adolescent depression.	3.71	.82	4	4

Responses from the open-ended survey question, “what are the strengths of

EMERALD?” were analyzed using the coding developed for all the surveys administered in this data set. In addition to qualitative survey responses, responses from participants who volunteered for an additional in-person interview were added to the data set. Participant responses concerning the impact of EMERALD on participants’ practice habits were categorized into the theme, “Provider access to specialty care support and recommendations”. Codes classified into this theme concerned recommendations for treatment, access to a psychiatrist, care coordination for follow-ups, and availability of specialty care support. Some examples of statements present in this theme can be found in the table below:

Provider Access to Specialty Care Support and Recommendations
[Care Coordinator]!!, phone follow-up, recommendations for treatment
Accessibility at point of care, available, visible resource support
Expertise of Care Coordinator, frequent face-to-face discussion with Care Coordinator, easy access to psychiatry if referral needed, psychiatry overview/input post EMERALD enrollment, non-visit ‘touches’ by Care Coordinator, more extensive mental health assessment than I have time/experience to do

Increased patient access to specialty care support. Barriers related to patient access to resources and referrals were again assessed for the difficulty these barriers posed to participants’ practices. Participants were asked to determine the level of difficulty resources posed to their practice on a 1 to 3 scale described above. The mean score was 2.14 (SD=.53). The median and mode were both 2. The mean score on the rating scale for difficulty referrals posed to participants’ practices was 2.14 (SD=.66) and a median and mode of 2. This may indicate participants still feel resources and referrals do cause some difficulty in their practices with

adolescents with depression.

Participants were also asked questions related to the benefits they feel EMERALD provided their patients. These questions were rated on 5 point scales with 1=not at all to 5=completely/very.

Table 2

Provider Perceptions of EMERALD for Patients

Question	Mean	St. Dev.	Median	Mode
How helpful was EMERALD to your patients?	4.71	.46	5	5
Do you feel EMERALD meets your patients' needs?	4.57	.51	5	5
EMERALD has made it easier for my patients to be seen for their depression.	4.28	.46	4	4
My patients are more willing to be seen for their depression through EMERALD than specialty mental health clinics?	4.14	.77	4	4

These results indicate the majority of providers felt the EMERALD was helpful in meeting their patients' needs and may have made it easier for them to be seen for their depression, and in a venue they are more willing to be seen within than an outside location.

Responses to the question, "What are the strengths of EMERALD" related to increasing patient access and support were categorized into the theme, "Increased patient access to specialty care support". Response codes which fell into this theme pertained to support for patients, easy access, and a regular resource or contact for patients. The following table provides examples of participant responses within this theme:

Increased patient access to specialty care support

A person/people that are a regular resource for patients that has expertise
Fantastic support for patients, easy access
Regular contact with patient/family
Accessibility at point of care

Change Over Time

Every year for the past four years a survey has been administered to the sample group to assess participant identified needs and program success. Surveys were first administered prior to the implementation of the EMERALD program and as a method of needs assessment in July 2011. Following the implementation of the EMERALD program in 2011, surveys were again administered in March of 2012. During this time point, survey rating scales were changed from the four point scale used for all other time points to a five point rating scale. Data reported for Time point 2 (March 2012) has been recalculated to be on an equivalent four point scale for questions related to comfort levels diagnosing and treating adolescent depression and a three point scale for questions related to barriers causing difficulty in participants’ practices involving adolescent depression. The following table compiles the mean scores data from all four surveys.

Table 3

Means of participant ratings of comfort levels diagnosing and treating adolescent depression

Time point	2011	2012	2013	2014
Comfort level diagnosing	2.56	2.61	3	2.91
Comfort level Treating	2.33	2.4	2.56	2.71

As can be seen in the table, the values for each time point seem to indicate there may be

some increase in comfort levels diagnosing and treating adolescent depression since the implementation of the EMERALD program. However, the sample is too small to check for statistical significance and results are not generalizable beyond this sample.

The difficulty specific issues pose to practice with adolescent depression were also assessed at each time point. The following tables provide the mean responses for each time point. As with the analysis of the identified comfort levels of participants in diagnosing and treating adolescent depression, the following results cannot be compared for statistical significance due to the small sample size.

Table 4

Mean of participant ratings of difficulty specific barriers pose to practice

Time point	2011	2012	2013	2014
Lack of training	1.77	1.84	2.44	2.07
Black warning/following guidelines for recommended follow-up	2.44	1.98	2.44	2.35
Resources	2	2.01	2.22	2.14
Referrals	1.22	1.98	2.33	2.14

Finally, participants were asked to rate how helpful they felt EMERALD was in treating their adolescent patients for depression. This was assessed in all three of the post-implementation time points. Each survey asked participants to rate how helpful they felt the EMERALD program was to their patients on a 5 point Likert scale with 1=not helpful to 5=very helpful. Visually, it appears that scores are increasing indicating participants may feel that the program is continuing to be very helpful to their adolescent patients in helping to manage and treat their depression. However, as with the other quantitative data, the sample size is too small to be able to check for

statistical significance. The mean scores for each time point are displayed in the table below:

Table 5

Provider Ratings of EMERALD Helpfulness

Time Point	2012	2013	2014
Mean score	4.13	4.44	4.71

The qualitative data from the three post-implementation surveys (2012, 2013, and 2014) were coded and analyzed as a whole and compared to the pre-implementation needs assessment survey performed in 2011. The identified themes from the pre-implementation needs assessment survey were therapy integration, increased patient access to specialty care, and provider access to specialty care support and recommendations.

Each subsequent time point was analyzed to determine whether participants were identifying these themes as a benefit of the EMERALD program. The following table shows whether or not the themes therapy integration, increased patient access to specialty care and provider access to specialty care support and recommendations were present at each subsequent time point. In order to be labeled as being present as a theme, a code had to be present within the data a minimum of 3 times in order to be classified within the theme.

Table 6

Evidence of Major Codes per Time Point

Time Point	2012	2013	2014
Therapy integration			

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Increased Patient Access to Specialty Care	X	X	X
Provider Access to Specialty Care Support and Recommendations	X	X	X

As can be seen from the above table, the themes increased patient access to specialty care and provider access to specialty care support and recommendations was present in all time points.

However, the theme therapy integration was not. The following quote shows the multiple benefits participants identified EMERALD as providing,

“Timely availability of Care Coordinator and access to MD psych. support in expanding my knowledge and comfort in treating adolescent with depression. Ongoing connection of patient and Care Coordinator (as I really don’t have time to do that). I know my patients with depression better in the new system with care coordination, they are getting better, more consistent care and I am seeing them perhaps less due to the partnership with EMERALD—excellent.”

Recommendations for Future Expansion. The therapy integration theme as a benefit of the EMERALD program in the three post-implementation surveys lead to the development of a separate theme for the overall coding. This theme was found in the sections of the three post-implementation surveys which asked the questions, “What is least valuable about EMERALD?”, “What problems, if any, have you experienced with EMERALD?” and “What are EMERALD’s weaknesses?” The theme recommendations for future expansion relates to aspects of the EMERALD program responses indicated participants would like to see integrated or aspects of the program participants felt were lacking. This theme included three major sub-themes which were seen in all three post-implementation surveys: understaffed specialty support, limited qualifiers, and integration of therapy/counseling.

Increased specialty support coverage. The sub-theme understaffed specialty support was prevalent in all three post-implementation surveys. This sub-theme relates to statements from participants indicating they feel the program would run more smoothly if more staff were available within the EMERALD program. Codes classified into this theme included not well-staffed, difficulty getting a response from someone, not enough care coordinators, and staffing coverage. Of the 30 occurrences of the codes related to understaffed specialty support, 66% of codes included specific references to the understaffing of the care coordinator role.

Increased Specialty Support Coverage
Consistent availability of a care manager. If someone is not available or does not respond in a timely manner, the service is not as helpful for the patient or the PCP.
Getting patients to connect at time of visit; teens are often so busy if they can't connect immediately it doesn't happen.
We don't have enough staff to be able to help all of the patients who need help.

One statement that exemplifies the overall theme of responses in this category states,

“I think that we actually could use, the times when I know [Care Coordinator] was busy, we could've used, we could've like cloned her, you know?”

Expanded qualifiers. The sub-theme expanded qualifiers was also evident in time point 2 and time point 4 post-implementation time points. This sub-theme represents participants' responses related to the desire for services to be expanded to more populations such as adolescents with anxiety, ADHD or comorbid disorders, more locations, and more age ranges. Codes that were classified into the expanded qualifiers sub-theme included: “does not cover anxiety, does not cover comorbid disorders, not available at other sites, not available to borderline PHQ-9M scores, and limited capacity.” The following table illustrates the range of statements in this theme:

Expanded Qualifiers
One challenge has been that if a teen declines EMERALD but then later wants care management but PHQ-9A is already better then they're not eligible (and it's a hard message to give the family).
I still need more help with anxiety patients and children under 13. 11 year old with depression-psych appointment 3 months out- we need more help than that.
EMERALD cannot be used with more complex psychiatric diagnoses, but depression is often a comorbid issue.
Not distributed to other sites.

Integration of therapy/counseling. Integration of therapy/counseling was the third sub-theme of recommendations for future expansion present in time points 2 and 4 of the post-implementation surveys. This sub-theme addresses participants' continued desire for integrated therapy within the EMERALD program based on survey and interview responses. Examples of participant comments regarding the need for therapy within the program are in the table below:

Integration of Therapy/Counseling
Partner with social work for therapy (need easy access).
I think we have to find a way to get consistent long-term therapy.
Importance of counseling that is not technically included within EMERALD.

Discussion

This study sought to assess the EMERALD integrative adolescent depression program's impact on pediatric and adolescent primary care providers' practices in a primary care setting. Specifically, this study examined the impact the EMERALD program had on: increasing the

access of adolescents with depression to specialty care, increasing the comfort levels of primary care providers in diagnosing and treating adolescent depression, and reducing the need for specialty care support for primary care providers in diagnosing and treating adolescent depression. This study employed a mixed method design and analyzed three previously administered surveys gathered in 2011, 2012 and 2013 and conducted a fourth survey in January 2014 and two additional in-person interviews in February 2014. The surveys contained both quantitative and qualitative data. Participants were members of the pediatric department of a large Midwestern health care organization currently utilizing the EMERALD program. . Participants identified themselves as having between 1 and 23 years of experience working with the adolescent depression population with a mean of 10.03 years of experience.

The first major finding of this study relates to the preliminary analysis of comfort levels of providers in diagnosing and treating adolescent depression and the benefits of specialty support identified by participants. Preliminary results indicate further exploration may be promising as a steady increase was noted over the four years examined based on Likert scale survey responses. These results were also confirmed in qualitative participant responses which indicated strong feelings of increased confidence in diagnosing and treating adolescent depression as noted in the following quote:

"I feel like I can pretty much manage [adolescent depression] in primary care since working with the EMERALD program."

In addition participant responses relating to the specialty care support they have received from the EMERALD program are positive. Qualitative analysis of providers responses to open-ended questions related to the benefits of EMERALD revealed a theme of provider access to specialty care support and recommendations for all three post-implementation time points. Several responses also spoke to the improvement in participants' comfort levels in

diagnosing and treating adolescent depression which participants felt was a result of access to the specialty support available through the EMERALD program. An example of participants' responses,

"I was so uncomfortable actually with treating adolescent depression and I did not feel comfortable starting medications on teens. And probably was referring to psych when I first started if that was the thought. And I found that with EMERALD I was actually able to screen, diagnose, and actually treat and initiate antidepressants and now I actually feel very comfortable with it."

This finding correlates with existing literature on the impact of integrative depression programs on primary care providers' increased comfort levels working with patients with depression (Wren et al., 2012), and also highlights desired outcomes of integrative programs as being helpful in increasing primary care provider competence through interaction with the integrative program (Wren et al., 2012).

Although participants self-rated comfort levels diagnosing and treating adolescent depression increased over time, ratings at the pre-implementation time point were fairly low. This is mirrored in the existing literature concerning primary care providers' self-rated competence diagnosing and treating adolescent depression (Libby et al., 2009). Specific obstacles creating difficulty for primary care providers to diagnose and treat adolescent depression have been identified, including lack of time, referrals and resources (Bridge et al, 2007; Bridge et al., 2008; Libby et al., 2007; Libby et al., 2009; Wren et al, 2012). Although differing from some of the existing literature indicating that a lack of time was the primary reason for primary care providers' hesitance to treat adolescent depression (Wren et al, 2012), findings from the current study indicate referrals and resources posed the most difficulty to participants' practices with adolescent depression.

Another major finding of the current study is providers' perception of the helpfulness of

patients' access to specialty care through enrollment in the EMERALD program. Participants reported perceptions of the EMERALD program as being very helpful for their patients at all three post-implementation time points, although findings related to providers' high ratings of the helpfulness of the program to their patients is subject to the same limitations due to a small sample size as the findings relayed increased comfort levels diagnosing and treating depression. This tentative finding was further supported in the qualitative analysis of responses to open-ended questions in the three post-implementation surveys. These qualitative data also revealed a theme of increased patient access to specialty care support through enrollment in the EMERALD program. This can be seen in the following response, "My patients love it, I believe we have been able to treat more effectively, identify sub-optimal treatment response with losing as many to lack of follow-up. The program is invaluable to our adolescent population!"

This finding is also supported in the literature and the conceptual framework of integrative medicine. According to the integrative medicine framework outlined by Wren, Foy, and Ibeziako (2012) one of the main goals of integrative or collaborative care is to increase access to mental health care for youth. A similar recent study on the impact of an integrative depression program for adults on provider satisfaction found the program increased access as well (Vickers et al., 2013). The findings of the current study indicate this goal is being addressed through the EMERALD program for adolescents.

A third major finding of this study outside of the original research questions relates to the importance of care management within this integrative care model for managing adolescent depression within a primary care setting. Qualitative analysis of participants' responses discerned a theme of the benefit of primary care providers' access to specialty care support and recommendations. Noteworthy within this theme is the importance of the care manager

specifically to primary care providers' practice with this program. Although the benefit of the child psychiatrist medication recommendations was present in all three post-implementation time points, the benefit of the care manager accounted for 50% of appearance of this code. Also worth noting is the varied aspects of care the care manager provides that were noted as helpful to primary care providers. The specific activities that were noted as being beneficial were the follow-up communication with the patients the care coordinator provides, the ongoing communication the care coordinator has with the primary care providers to keep them up to date on patients' progress, and the psycho-education the care coordinator provides to patients and their families. The following quote from a participant provides a description of the value of the role of the care coordinator participants identified,

"It was so amazing to have. You know when these teens come in pretty distressed that we can actually catch them in that state, [Care Coordinator] could go in and meet with them right away, give the warm hand-off to [Care Coordinator] where they could meet her in person, talk with her, even, do a little bit of counseling, trouble-shooting right there on the spot with the family was fantastic. Education at the follow-up visits was amazing that she could do with the families, the phone calls. I think with some of these teens that you're so worried about, knowing that, you know [Care Coordinator] was going to call and follow-up with things in a few days was huge."

This is in keeping with previous research emphasizing the importance of the care manager role within an integrative adolescent depression model (Wren et al., 2012).

Finally this study explored participants' responses concerning aspects of the program they would like to see expanded. The theme "recommendations for future expansion" was drawn from data elicited from questions related to the perceived weaknesses of the program, problems experienced within the program, and the least valuable aspects of the program from respondents' perspectives. Expansions identified within this data as being particularly requested were expansions related to expanded inclusion criteria such as also being available for patients with

anxiety diagnoses, for younger patients and in more sites. Another expansion participants indicated would be needed was the expansion of specialty support, particularly the care coordinator role. Finally, participants indicated the integration of therapy into the EMERALD program would be helpful to the program by increasing patient access to therapy and supporting better communication between all providers involved in a patient's mental health care.

Implications for Social Work practice

This study does offer implications for practice in both the field of Social Work and practice across professions. Based on recommendations of participants, social workers should take into account the value placed on communication and an integrated system. The integration of therapy into a primary care setting was requested in both the pre-implementation needs assessment for the EMERALD program and in subsequent post-implementation responses. Social work should assess the implications of other disciplines' request for an increased presence within the primary care setting.

Another implication to social work practice that should be examined further is the desire for increased patient access to specialty care through an integrative system and the wish for increased communication and collaboration between professionals through an integrative system. The concept of more integrative systems with specific roles assigned to individual professionals to aid in communication and reduce duplication of work may be helpful, especially in complex government-based settings.

This study also has implications for adolescent practices in general. Leadership groups and administrators of primary care practices for children and adolescents could take into account the feedback provided within this study when considering implementing a similar program. This study outlines the benefits and potential limitations of such a program and details to take into

account for the implementation of such a program. The benefits participants identified were the increased access to specialty support their patients experienced and the benefits of access to specialty care support providers expressed, both to care management/coordination and to medication recommendations. In addition, the benefits provider interactions with the program may indirectly provide, such as the potential for increased comfort and confidence in treating adolescent depression by primary care providers, are promising for increasing access to treatment for adolescents with depression. Other considerations to take into account when developing a similar program include the staff necessary to provide coverage for the program's needs, especially care coordinators, what diagnoses, scores, ages and other qualifiers will be necessary for program enrollment, and whether or not therapy will be integrated into the program as well.

Strengths and limitations

This study has multiple strengths. First, the EMERALD program is a novel program as yet unstudied. This is the first study to examine the impact of an integrative adolescent depression program based in a primary care setting on providers' practices and EMERALD in particular. As such, it adds an additional perspective to the growing body of knowledge surrounding the implications of integrative medicine programs for this population and adds research concerning an integrative adolescent depression program in a "real-world" setting.

A second strength to this study is the mixed method and longitudinal research design which allows a broader scope of data to be gathered and integrated. The addition of qualitative data to the quantitative gathered at each time point and the addition of participant interviews at the last time point allowed for both breadth and depth of information to be gathered and analyzed. Additionally, the longitudinal nature of the study design strengthened the study. This

longitudinal design allowed for time point comparisons to explore the effects of the program in more depth from pre-implementation through the initial implementation to post implementation. This comparison was able to show the continued impact of the program, not just initial responses.

Although this study offered a great amount of new information, as with every study, it has its weaknesses. Foremost among them was the small sample sizes. However, in spite of the size of the samples, the study did have high response rates and the sample size was related to the available participants as only 22 providers worked within the Pediatric Department where EMERALD available. As such, this is a pilot study and results will not necessarily be generalizable to other settings. However, this study also serves as a form of program evaluation and therefore generalizability is not necessary and its findings are congruent with existing literature. Another limit of this study is the population of participants is restricted to primary care providers of adolescents and does not include any patient data. A further limit of this study relates to the flawed scale design on some questions in three of the surveys and the differing scales on for time point two which required recoding of responses. Finally, this study is subject to response bias related to being unable to accurately remember experiences of practices of diagnosing and treating adolescent depression prior to the implementation of the program. A further response bias may be present influencing participants to report more positive responses to the program as they want it to continue and succeed.

Implications for future research

This study adds to the available knowledge concerning integrative adolescent depression programs within primary care and the impact integrative medicine programs have on providers and offers insights for future research. Although this study could not verify the statistical

significance of its initial findings due to small sample size, future research could focus on the impact of an integrative adolescent depression program on the comfort levels and confidence of primary care providers in diagnosing and treating adolescent depression with a larger sample and potentially across settings.

Future research should also explore patient outcomes of receiving treatment in this setting, especially when compared to treatment as usual. This study did provide some indirect evidence supporting the helpfulness of such programs to patients, however no original patient outcome data were available. Data of this nature does exist. Research on patient outcome data within an integrative adolescent depression program would be especially valuable when considering the efficacy of this model of treatment and would be a logical next step. Based on these findings and on the literature supporting such efforts, programs' with treatment models like this appear to hold promise and may become even more central in other settings. Further, this model follows the guidelines of the Affordable Care Act and its recommendations for "health care homes".

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Appendix A

Pre-EMERALD Primary Care Provider Survey

Please respond to each question using the provided rating scales. Your comments are welcomed, and all responses are anonymous.

How many depressed adolescents have you seen in the past month?

0 1-5 6-10 >10

Rate your level of comfort with diagnosing depression in adolescents.

Not at all comfortable Somewhat comfortable Comfortable Very comfortable

Rate your level of comfort with treating depression in adolescents.

Not at all comfortable Somewhat comfortable Comfortable Very comfortable

Providers have identified resources as an obstacle to managing adolescent depression. Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Providers have identified lack of training as an obstacle to managing adolescent depression.

Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Providers have identified black box warning/difficulty providing recommended followup as an obstacle to managing adolescent depression. Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Providers have identified patient/parent reluctance as an obstacle to managing adolescent depression. Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Providers have identified cost/reimbursement as an obstacle to managing adolescent depression.

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Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Providers have identified difficulties with referral as an obstacle to managing adolescent depression. Rate this in terms of the difficulty it presents in your practice.

Very difficult Somewhat difficult Difficult Not at all difficult

Rate how confident you are that a DIAMOND-type program for depression screening and management for adolescents would be worthwhile in your practice.

Not at all confident Somewhat confident Confident Very confident

What would be important to consider if a DIAMOND-type program for depression screening and management for adolescents were developed in your practice area?

Appendix B

Post-EMERALD Primary Care Provider Survey

Please respond to each question using the provided rating scales. Your comments are welcomed, and all responses are anonymous. Thank you!

How many depressed adolescents have you seen in the past month?
 0 1-5 6-10 More than 10

Please rate your level of comfort for the following:

Diagnosing depression in adolescents	Not at all comfortable	Somewhat comfortable	Comfortable	Very Comfortable
Treating depression in adolescents	Not at all comfortable	Somewhat comfortable	Comfortable	Very Comfortable

Providers have identified the following factors as obstacles to managing adolescent depression. Please rate each in terms of the difficulty they present in your practice.

Resources	Very difficult	Somewhat difficult	Difficult	Not at all difficult
Lack of training	Very difficult	Somewhat difficult	Difficult	Not at all difficult
Black box warning/difficulty providing recommended follow-up	Very difficult	Somewhat difficult	Difficult	Not at all difficult
Patient/parent reluctance	Very difficult	Somewhat difficult	Difficult	Not at all difficult
Cost/reimbursement	Very difficult	Somewhat difficult	Difficult	Not at all difficult
Difficulties with referral	Very difficult	Somewhat difficult	Difficult	Not at all difficult

Please answer the following questions in regards to care coordination for depression in adolescent patients.

I value care coordination for depression in adolescent patients
 (1 = Strongly disagree; 5 = Strongly agree)
 1 2 3 4 5

If one of your patients was eligible for care coordination, which of the below statements would you prefer?
 One care coordinator to address both mental health and medical concerns

 One care coordinator to address mental health concerns and one care coordinator to address medical concerns

Please answer the following question(s) in regards to the provider meetings offered by Dr. John Huxsahl.

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Have you previously attended one of the above provider meetings?

Yes No

The provider meetings are beneficial to expand my knowledge and comfort regarding the treatment of adolescents with depression

(1 = Strongly disagree; 5 = Strongly agree)

1 2 3 4 5

Please answer the following questions in terms of how the EMERALD pilot has worked for your practice.

How many patients have you recommended the EMERALD program to?

None 1-5 6-10 More than 10

How helpful was EMERALD to your patients?

(1 = Not helpful; 5 = Very helpful)

1 2 3 4 5

I am likely to refer patients to EMERALD in the future.

(1 =Definitely No; 5 = Definitely Yes)

1 2 3 4 5

With EMERALD available, I am less likely to refer patients to providers in the community.

(1 = Strongly disagree; 5 = Strongly agree)

1 2 3 4 5

What is most valuable about EMERALD?

(Free text field)

What is least valuable about EMERALD?

(Free text field)

What problems, if any, have you experienced with EMERALD?

(Free text field)

Additional comments?

(Free text field)

Appendix C

EMERALD Program Expansion: Provider Response Survey

Please respond to each question using the provided rating scales. Your comments are welcomed, and all responses are anonymous. Thank you!

Have you previously completed a survey about EMERALD?

How many years have you been practicing primary care medicine with the adolescent population?

How many depressed adolescents have you seen in the past month?

0 1-5 6-10 More than 10

Please rate your level of comfort for the following:

Diagnosing depression in adolescents

Not at all comfortable Somewhat comfortable Comfortable Very Comfortable

Treating depression in adolescents

Not at all comfortable Somewhat comfortable Comfortable Very Comfortable

Providers have identified the following factors as obstacles to managing adolescent depression. Please rate each in terms of the difficulty they present in your practice.

Resources

Very difficult Somewhat difficult Difficult Not at all difficult

Lack of training

Very difficult Somewhat difficult Difficult Not at all difficult

Black box warning/difficulty providing recommended follow-up

Very difficult Somewhat difficult Difficult Not at all difficult

Patient/parent reluctance

Very difficult Somewhat difficult Difficult Not at all difficult

Cost/reimbursement

Very difficult Somewhat difficult Difficult Not at all difficult

Difficulties with referral

Very difficult Somewhat difficult Difficult Not at all difficult

Please answer the following questions in terms of how the EMERALD pilot has worked for your practice.

How many patients have you recommended the EMERALD program to?

None 1-5 6-10 More than 10

How helpful was EMERALD to your patients?

(1 = Not helpful; 5 = Very helpful)

1 2 3 4 5

Do you feel EMERALD is meeting your patients needs?

(1=Not at all; 5= Completely)

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1 2 3 4 5

How supported in adolescent depression management do you feel with EMERALD available?

(1= Not at all supported; 5= Completely supported)

1 2 3 4 5

Please identify how true the following are for you in your practice:

(1=Not at all true; 5= Very true)

EMERALD allows me to more effectively treat adolescent depression

1 2 3 4 5

EMERALD is a waste of resources. I can treat my own patients

1 2 3 4 5

Through my interactions with EMERALD I have become more confident in treating adolescent depression

1 2 3 4 5

I have learned more by interacting with EMERALD than I would from any class or seminar on treating adolescent depression.

1 2 3 4 5

The black box warning makes me reluctant to prescribe antidepressants to adolescents

1 2 3 4 5

It is very difficult for me follow-up with my adolescent patients with depression who are being treated with antidepressants as often as the FDA recommends

1 2 3 4 5

My calendar is too full to see my adolescent patients with depression back on a regular basis.

1 2 3 4 5

My adolescent patients with depression come in for their regular follow-ups

1 2 3 4 5

I feel comfortable treating adolescent depression

1 2 3 4 5

EMERALD has made it easier for my patients to be seen for their depression.

1 2 3 4 5

My patients are more willing to be seen for depression through EMERALD than specialty mental health clinics.

1 2 3 4 5

When I refer my patients to a psychiatrist or psychiatrist nurse practitioner or physicians assistant they are seen by that provider:

1 within a week 2 within a month 3 within three months 4 within a year 5 never

My patients are willing to see a mental health provider (social worker, psychologist, psychiatrist).

1= always; 5 = never

1 2 3 4 5

What does EMERALD offer providers?:

1 access to psychiatric recommendations

2 support

3 patient follow-up

4 patient education

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___5 I don't use emerald

What are EMERALD's strengths?
(Free text field)

What are EMERALD's weaknesses?
(Free text field)

Please indicate below by providing your email address if you are willing to participate in a short interview to further explore your opinions concerning barriers to adolescent depression treatment and EMERALD.

Appendix D

Interview Guide

1. Describe your experience with emerald program?
2. What is your opinion of the program?
3. What impact this program had on you?
4. What impact has this program had on your patients?

Follow-up questions if indicated:

What barriers have you observed to adolescents receiving depression treatment?

What specific needs to you see in the adolescent with depression population?

How are these needs being met by EMERALD?

How are these needs failing to be met by EMERALD?

How could Emerald program serve adolescents better?

How do you prefer to handle requests to treat adolescents with depression?

How has EMERALD impacted your practice habits (i.e. in terms of your comfort and confidence in treating adolescents with depression)?

What support does Emerald provide you in your practice?

How does Emerald support your practice with adolescents with depression?

How could Emerald provide better support to you on treating adolescents with depression (i.e. a question re: strengths/weaknesses)?