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Evaluating the Feasibility of a Collaborative Care Clinical Pathway for the Treatment of Adolescent Depression and Anxiety in Rural Pediatric Primary Care

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ABSTRACT

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Background: Due to a national shortage of Child and Adolescent Psychiatrists (CAP), Primary Care Providers (PCP) are often required to manage patients with mental health disorders despite a lack of focused training and lower self-efficacy or confidence in the management of these disorders. Referral to CAPs for management following the diagnosis of adolescent depression and anxiety is a common practice. The integration of mental health services within the primary care setting can overcome many of these barriers and have been shown to improve patient outcomes. This model involves PCPs prescribing psychotherapeutic drugs while the patient receives evidence-based psychotherapies provided by community Behavioral Health Clinicians (BHC).

Purpose: The purpose of this quality improvement (QI) project is to incorporate evidenced-based practice recommendations and select components from integrated care models (ICM) to design a collaborative care, decision making pathway for PCPs to utilize in the management of adolescent depression and anxiety and to evaluate the feasibility of the intervention within the primary care practice setting.

Methods: A literature review and synthesis was completed to gather current recommendations and determine the most effective components of ICMs. A collaborative clinical decision-making pathway was designed and presented to the project participants in the form of a PCP packet containing a medication guide, a treatment algorithm, a BHC provider directory, and a list of built in EMR visit and patient handout templates for clinical use. A focus group was held with project participants following a 12- week implementation period to determine the feasibility of the project. Focus group data were evaluated by coding responses and identifying common themes relating to feasibility. Future directions of the project were also discussed. Pre-implementation and post self-efficacy mean scores on a modified version of the Mental Illness Management (MIM) questionnaire were calculated as a secondary outcome measure.

Results: The clinical decision-making pathway was determined to be feasible within the intended practice setting based on the feasibility areas of emphasis: acceptability and demand. Mean scores of the MIM questionnaire showed a positive trend for each of the survey items suggesting the intended effect on care delivery.

Discussion: This QI initiative met each project aim through successful implementation and by an increase in provided collaborative care, an increase in the level of integration within the practice setting, a positive trend in PCP self-efficacy following implementation, and a decrease in the time from diagnosis- to- treatment of adolescent depression and anxiety. Following the determination of intervention feasibility, further testing within the organization is recommended and warranted.

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Acknowledgments

I have noticed an alarming increase in young people experiencing mental health struggles in practice as a Pediatric Primary Care Nurse Practitioner. I would give my time and my support as much as I could, but always wished I could do more. The COVID-19 pandemic began, and mental health issues became even more prevalent. I saw my patients struggle to cope, especially those that already had a mental or behavioral health diagnosis. I have referred many patients to receive mental health treatment only to sit on a long waitlist while they continued to worsen. So many parents or caregivers would ask "isn't there anything you can do?" My thought was always maybe, but I did not know where to start. Selecting my project topic was the easiest part. I knew I had to do more to help my patients and I knew my colleagues felt the same.

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Introduction and Background

Problem Description

Despite a growing mental health crisis, there is a severe shortage of practicing Child and Adolescent Psychiatrists (CAP) in the United States (American Academy of Child & Adolescent Psychiatry, 2022). CAPs have specialized training to deliver both psychotherapies, medications, or a combination of both, to children and adolescents with a variety of mental health diagnoses. Due to this shortage, Primary Care Providers (PCP) must often assume the responsibility for management of child and adolescent mental health disorders. However, approximately two thirds of PCPs practicing in pediatric primary care feel inadequately trained in mental health care treatment (Center for Disease Control and Prevention, 2021). Decreased PCP self-efficacy or confidence in the management of mental health illnesses, is associated with a higher likelihood of referral to psychiatry, increasing the time between diagnosis and treatment initiation due to the shortage of CAPs (Peterson et al., 2018). Common reasons that PCPs transfer care to a CAP or a BHC rather than assuming management or co-management of behavioral health disorders include; lack of formal training, decreased confidence, time constraints, and reimbursement challenges (Walter et al., 2021).

When primary care providers report lower confidence or self-efficacy in treatment of a behavioral health disorder, they are less likely to assume management of the condition. This leads to referral to a specialist (Peterson et al., 2018; Walter et al., 2019, 2021). Patients are often placed on waitlists and receive no care between the time of referral and when services with the CAP or BHC begin. Additionally, patient engagement and follow through is often an issue after referrals to CAPs and BHCs. According to Petts & Shahidullah (2020), patients face structural

and perceptual barriers to seeking and receiving mental health services. Cited barriers include stigma, insurance coverage, geographic distances, attitudes about services, and discomfort receiving mental health services. When untreated, behavioral health disorders result in negative health outcomes including a higher incidence of suicide, accidental injuries, risky sexual behaviors, and unplanned pregnancy (Richardson, et al., 2017). Incorporation of mental health services into pediatric primary care has the potential to mitigate these secondary risks.

Data from the National Institute of Mental Health (NIMH) indicate that the prevalence of at least one depressive episode is 13.3% in adolescents aged 12-17 years. Additionally, 71 % of those adolescents experienced severe impairment and roughly 60% received no treatment. Additionally, 2.4% received medication only, without a CAP or other behavioral health clinician (BHC) involvement in the patient's care plan (National Institute of Mental Health, 2019). Data from The National Comorbidity Survey–Adolescent Supplement (NCS-A) suggest that the lifetime prevalence of anxiety is estimated to be 20-30% of the population (Merikangas et al., 2010). The prevalence of mental health disorders is compounded by the coronavirus-19 pandemic presumably due to increased fear associated with the disease and social mitigation strategies (Czeisler, 2020).

The Treatment for Adolescents with Depression Study (TADS), funded by NIMH and described in the publication by March, et al. (2007), concluded that combination therapy, with medication and psychotherapy, is about twice as effective in the treatment of adolescent mental health disorders as those interventions alone. The possible increase in suicidal ideation and suicidal events in adolescents is a major barrier to provider confidence in choosing SSRIs to treat adolescents with both depression and anxiety. The TADS study data suggest that combination

therapy with a SSRI and cognitive behavioral therapy (CBT), may be protective against suicidal events in adolescents with depression (March et al., 2007).

According to published practice guidelines, combination therapy is considered the gold standard treatment for pediatric anxiety and depression (Cheung et al., 2018; Walter et al., 2019). Collaboration between PCPs and BHCs is an alternative way to deliver combination therapy to patients with mild to moderate anxiety and/or depression when there is not an available CAP. This format involves the PCP making regular contact with the patient and prescribing psychopharmacology when appropriate. Concurrently, the BHC provides evidence- based psychotherapy. Ideally, the PCP also has a relationship with a CAP that assures availability for consultation and referral should initial primary care management fail. The term integrated care model (ICM) refers to the delivery of behavioral and mental healthcare within the primary care setting (Asarnow, et al. 2015).

In 2019, the ratio of CAPs to the number of children <18 in West Virginia (WV) was 10:100,000 (as cited in American Academy of Child & Adolescent Psychiatry, 2022). Further contributing to this deficit is that not all CAPs practicing in the state accept Medicaid or Children's Health Insurance Program (CHIP) insurance which are the insurance carriers that cover approximately 50% of WV children.

The PCPs participating in this Doctor of Nursing Practice (DNP) project use referral, with the intention to transfer care for anxiety and depression, as a common practice. The referral-to- service time with a CAP in this project's setting, is approximately six to eight months. Consequently, waitlists to receive evidence-based psychotherapies by BHCs have increased to around three to four months. In response, some of the PCPs proceed to prescribe psychopharmacotherapy for certain patients, while others are uncomfortable starting medications

without the evaluation of a psychiatrist. Even when pharmacotherapeutic treatment for depression and anxiety is initiated, there is no routine protocol for mental health follow up appointments with the PCP. Across the three affiliated pediatric practices included in this project, there is no consistent practice protocol for managing adolescent anxiety and depression. This leads to inconsistent treatment regimens, fragmented care, poor communication between PCPs and community BHC referral sites, and lack of treatment for the pediatric patients diagnosed with anxiety, depression, or both.

Use of integrated care models (ICM), to incorporate mental healthcare within primary care settings, is a proposed solution to this practice problem. It is also theorized that practice tools such as algorithms or clinical pathways can increase PCP likelihood to manage mental health disorders (Peterson et al., 2018). The pediatric-specific clinical practice guideline by Zuckerbrot, et. al (2018), contains a recommendation for the use of decision-making tools for PCPs to aid in providing standardized care, as well as improved coordination of care across health providers in the treatment of adolescent depression.

Project Aims

The purpose of this quality improvement (QI) project is to incorporate evidence-based practice recommendations and components of integrated care models to develop and evaluate the feasibility of a collaborative care clinical pathway. The pathway will aid in PCP clinical decision making, for the treatment of adolescent depression and anxiety, in the pediatric primary care setting. The project aims are as follows:

1. Implement the use of a designed clinical pathway in the pediatric primary care setting.

2. Increase collaboration between participating PCPs and the community BHCs with shared patients.
3. Improve provider self-efficacy in the treatment of adolescent depression and anxiety using the clinical pathway.
4. Reduce the time from diagnosis- to- treatment of adolescent depression and anxiety.

Literature Review and Synthesis

Search Strategy

To explore the existence, effectiveness, and components of integrated care models in the treatment of pediatric depression and/or anxiety and to develop a clinical practice pathway for treatment decision making, the following PICO(T) question was developed: In adolescents with diagnosed depression, anxiety, or both (P), will the utilization of components of integrated or collaborative care models in pediatric primary care (I), compared to usual care or waitlisted status after referral, improve mental health care delivered by pediatric primary care providers(O)?

A comprehensive search of CINAHL with full text, PUBMED, Ebscohost, Medline, and Google Scholar was conducted from January to July 2021 guided by the PICO(T) question. Searches were limited to publication in the last 10 years and to the English language. Examples of keywords include “integrated mental health care”, “pediatrics”, “primary care”, “adolescent”, “behavioral health”, “integrated behavioral health care models”, “treatment models”, “protocol”, “anxiety”, and “depression”. A total of 156 abstracts were screened for inclusion/ exclusion criteria (See Appendix A for literature search matrix).

Articles were retained for review if the study population included pediatric patients aged 10-18; a collaborative or co-located behavioral health professional was utilized; the study took place in the primary care setting; and if an integrated care model was used in the treatment of depression, anxiety, or other mental health disorder. After the application of inclusion and exclusion criteria, four articles were selected for review and full text manuscripts were obtained. An additional manuscript was found through the snowballing method as it was cited in several retained articles. Relevant clinical practice guidelines were reviewed for both adolescent anxiety and depression to compare current recommendations to the strength of evidence in the literature. The pediatric primary care- specific anxiety guideline is described in the publication by Walter, et al. (2020). The two- part clinical practice guideline for the management of depression in pediatric primary care is described in the publications by Cheung et al., (2018) and Zuckerbrot et al. (2018).

Available Knowledge

This literature review encompasses two clinical practice guidelines, two systematic reviews, one metanalysis, and one implementation study. The Agree II tool was used to critically appraise the clinical practice guidelines (Brouwers et al., 2010). The rapid critical appraisal tool published by Fineout-Overholt & Melnyk (2005) was utilized to explore the rigor of the systematic reviews and the metanalysis. A synthesis table was created for ease of comparison across studies (see Appendix B).

Clinical Practice Guidelines

Clinical practice guidelines by Cheung et al. (2018), Zuckerbrot et al. (2018), and Walter et al. (2020) unanimously emphasize the pediatric primary care clinician's role as the first line provider in the diagnosis and management of adolescent depression and anxiety. These

publications suggest that integrated care has no standard definition and that the level of integration depends on multiple factors such as office space, resources, and personnel. Walter et al. (2020) acknowledges that collaborative care would conserve CAPs and psychiatric mental health nurse practitioners for severe presentations, thereby decreasing the referral-to-service gap. A suggested model would involve PCPs initiating and managing psychopharmacology while remaining active in care delivery via scheduled follow up appointments and BHCs administering adjunct psychotherapy for those with mild or moderate presentations (Walter et al., 2020).

The clinical practice guidelines for pediatric anxiety and depression acknowledge the shortage of CAPs as an urgent health care problem. Additionally, these publications suggest that use of ICMs has the potential to shorten the time between diagnoses and treatment. The guidelines by Zuckerbrot et al. (2018) and Walter et al. (2020) have recommendations and dosages for medications to treat these conditions and recommend that the patient receive some type of evidence-based psychotherapy administered by a BHC if possible. These guidelines also acknowledge that there is growing evidence that collaborative care improves patient symptomology and functionality (Walter et al., 2020; Zuckerbrot et al., 2018).

Evidence Supporting Integrated Care Models

Asarnow et al. (2015) completed a systematic meta-analysis with the purpose of determining if the use of ICMs leads to improvement of patient access to behavioral health care, enhances patient outcomes, and increases cost effectiveness of care compared to standard or enhanced primary care. The authors claim to be the first to cross-study the effectiveness of ICMs in the pediatric population and is cited in all articles selected in this literature synthesis. The authors broadly defined integrated behavioral healthcare as the inclusion of mental healthcare within the primary care setting. Enhanced usual care, a commonly used control condition,

involved use of an educational program for providers, without any components of integrated or collaborative care. Integrated care can be further classified as being collaborative, co-located, or fully integrated (The Center for Integrated Health Solutions, n.d).

It was concluded in this meta-analysis that ICMs with collaborative care had the most positive impact on patient outcomes including symptoms and functionality. Those studies with the most statistically significant results involved collaborative care using evidence-based medication algorithms and other clinical decision-making tools, adjunct psychotherapy, and a shared care plan with a mental health specialist. The recommendation of this meta-analysis calls for an increase in research on the effectiveness of ICMs especially as it pertains to treatment of targeted patient populations (Asarnow et al., 2015).

A systematic review by Burkhart, et al. (2020) explored the application of various types of ICMs and the associated increase in access to mental healthcare, patient satisfaction, and symptom improvement. Type of study, number and characteristics of study participants, assessment tools used to measure outcomes, ICM type, and care team participants were compared across studies. All studies reported a positive correlation between intervention (ICM or collaborative protocols) and measured outcomes. These models of care were compared to usual or enhanced usual care. The author emphasizes that use of ICMs provides the benefits of increased treatment initiation and completion suggesting an increase access to mental healthcare. (Burkhart et al., 2020).

A longitudinal, 5- year study on the development and implementation of the Behavioral Health Integration Program (BHIP), a type of ICM, was conducted by Walter et al. (2019). The program was implemented across 71 practices within a single healthcare system. Components of the program included a behavioral health training program for a PCP selected as the practice

champion, consultation via telephone for those with mild to moderate presentations, and an in-network referral system for those with severe presentations. The Behavioral Health Integration Readiness Assessment (BHIRA), which assigns a score based on the level of behavioral health integration, was used to collect data prior to implementation of the program and was repeated following program completion for comparison. The researchers also evaluated patient symptomology, patient access and experiences with the care provided, health care provider satisfaction and self-efficacy, and patient visit costs across the organization (Walter et al., 2019).

At the conclusion of the 5-year project described in Walter et al. (2019), behavioral health visits increased in primary care settings, but not in the specialty care settings. This suggests that access to mental health care increased during that time. Patients' visit costs in the outpatient setting increased by 8%, but emergency behavioral visit costs decreased by 19%. Additionally, over 90% of PCP survey responses indicated satisfaction with self-efficacy in the treatment of mild and moderate anxiety, depression, and other behavioral health disorders. The study concluded that the BHIP, even in the practices with lower BHIRA scores upon program completion, increased access to care and provision of services, and had the potential to decrease stigma, enhance patient outcomes, and decrease overall healthcare costs (Walter et al., 2019).

The systematic review by Yonek et al. (2020) selected 11 randomized control trials and compared key components across existing pediatric integrated models to identify which portions are associated with statistically significant, positive correlations between ICM components and patient outcomes. Improvement in clinical symptomology, using various measurement-based tools, was the primary outcome evaluated in each study. Examples of secondary outcomes evaluated were patient functionality, internalization of symptoms, patient satisfaction, and completion of the patient's therapy course.

The analysis by Yonek et al. (2020) demonstrated that components embedded in the ICMs that were concluded to have the most supportive evidence were population-based care, measurement-based care, and evidence-based mental health services. Population-based care involves initiatives to identify all patients with a disease, initiate management, and track outcomes. Measurement-based care involves using validated tools to identify patients with mental health conditions and to monitor treatment response. Evidence-based mental health services involve referral to BHCs for psychotherapy and PCP managed pharmacotherapy. All three of these components were present in seven randomized controlled trials with statistically significant positive correlations between intervention and symptom improvement (Yonek et al., 2020).

Other components that have shown efficacy include psychiatric consultation, team-based care using a care manager to assist with care coordination between health professionals, and shared treatment plans between PCPs and BHCs. This review by Yonek et al., (2020) is unique in nature as the authors studied individual ICM components while previous publications only evaluated ICMs as a "packaged" practice model. The results of this systematic review would allow individual organizations or practices to build a custom ICM using the individual elements that best fit their specific patient population and may prove useful in rural settings where resources are less readily available.

Literature Synthesis

General findings across studies suggest that the implementation of an ICM is associated with an increase in access to care, cost-effectiveness and reduction, provider self-efficacy and satisfaction, improvement in patient symptoms and functionality and enhanced patient satisfaction. The ability to implement existing ICMs or components of ICMs varies by patient

population and clinical site. CCMs are defined as a type of ICM in the literature primarily in cases where PCPs and BHCs practice is separate facilities.

Currently, many PCPs are tasked with the responsibility of treating mental health disorders despite feeling inadequately prepared. Evidence suggests that an integrated or collaborative approach to treating mental health conditions in pediatric primary care would improve access to evidence-based treatments for adolescent depression and anxiety. Multiple studies included in this review recommend the adoption of educational sessions for PCPs, the use of clinical decision-making tools, and collaboration with community BHCs to facilitate mental health care integration into primary care.

Theoretical Framework

The Model for Improvement, developed by Associates in Process Improvement, is the framework that will be used to guide this quality improvement (QI) project. Setting aims, establishing measures, selecting changes, and testing changes with the Plan, Do, Study, Act (PDSA) cycle are major components of the model. The Institute for Healthcare Improvement (n.d.), describes the PDSA as a resource for developing, implementing, studying, and improving processes. The Plan phase of the PDSA process involves identifying the problem, designing a change to implement, and determining what outcome or outcomes are desired and how they will be collected (Institute for Healthcare Improvement, n.d.).

Next in the PDSA cycle is the Do phase. Issues or unanticipated outcomes will be monitored during this phase and will be addressed when the process recycles. Project challenges are formally documented for review during the next plan phase of the project. (Institute for Healthcare Improvement, n.d.)

During the Study phase, the correlation between the intervention and the desired outcomes will be analyzed. The significance of the results will be calculated. The data will be compared to the expected outcomes, critical reflection will take place, and a summary of the initiative will be reviewed (Institute for Healthcare Improvement, n.d.).

The Act phase of the PDSA process involves adjusting the initiative as needed (CCM, 2021). This is an opportunity to adjust what portions of the practice change did not work well or as expected and address barriers to full implementation. Once adjustments are made and the process is improved, the cycle can repeat until the process results in the desired outcomes.

Methods

Context

The setting of this DNP project serves pediatric patients primarily from the underserved, rural WV counties of Harrison, Ritchie, Marion, Taylor, Lewis, Preston, and Doddridge. One PCP participant practices in an affiliated clinic located in Monongalia County which serves a mix of metropolitan and non -metropolitan residents. The rest of the project participants practice in Harrison County. According to data from the 2019 US Census, as cited by the American Academy of Child & Adolescent Psychiatry (n.d.), most of these counties have no practicing CAPs. Harrison county currently has two practicing CAPs, associated with an outside facility, with a current waitlist time of over one year.

Table 1

WV County data: CAP Practicing in the Project Setting

County	CAPs	Number of Children <18	Shortage Classification
Monongalia	12	17,286	Mostly Sufficient Supply
Harrison	2	14,546	Severe Shortage

Taylor	0	3,424	No CAPs
Marion	0	11,289	No CAPs
Lewis	0	3,428	No CAPs
Doddridge	0	1,342	No CAPs
Ritchie	0	1,954	No CAPs
Preston	0	6,510	No CAPs

Note. Adapted from "*Workforce maps by state"* by the American Academy of Child & Adolescent Psychiatry. Copyright 2022 by the American Academy of Child & Adolescent Psychiatry.

Not all of the CAPs practicing in the area of this project's setting accept Medicaid and/or CHIP leading to a significant health disparity for this rural WV pediatric population. In- network CAPS are available through the West Virginia University Hospital (WVU Medicine) health system located in Monongalia County, WV for psychiatric consultation and referral.

Referral-to-service time with a CAP in the project's clinical settings is approximately 6 to 8 months. The PCPs that participated in this DNP project include three Pediatric Nurse Practitioners and four Pediatricians across three pediatric practices. The QI plan for this project involves developing and exploring the feasibility of an evidence-based, clinical pathway to be used as a decision-making tool for PCPs managing adolescent depression and anxiety in the rural WV, pediatric primary care setting.

Intervention

Plan Phase

A clinical pathway for the treatment of adolescent depression and anxiety, designed to guide PCP clinical decision making, was developed by the project champion using the

combination of the clinical practice guidelines by Cheung et al., (2018), Walter et, al. (2020) and Zuckerbrot et al., (2018) and select components of ICMs.

The ICM components incorporated into this clinical pathway included psychiatric consultation, measurement-based care, evidence-based mental health services, shared planned communications/ shared treatment plans, and health information technology as cited in Asarnow, et al. (2015), Burkhart, et al. (2020), Walter et al. (2019), and Yonek, et al. (2020). Table 2 of this paper contains definitions of each of the components (Yonek, et al., 2020). Components were selected based on resources that are available to the practice sites but are not formally or consistently used in the treatment of adolescent depression and anxiety.

Table 2

Integrated Mental Health Care Model Components

Collaborative Care Model Component	Definition
Psychiatric Consultation	A consultation comprises the following: • Provides guidance directly to the PCP or a care manager regarding initial treatment plan or patients who are not adequately responding to treatment, especially medication therapy • Conducts occasional in-person or remote video sessions with selected patients; and • Provide referrals to specialty care for patients with complex situations
Measurement-based care	Use of validated tools to identify patients with a particular mental health condition and assess treatment response.
Evidence- based mental health services	Services include the following: • Brief psychological interventions (eg. Cognitive-behavioral therapy, motivational interviewing, behavioral activation, or problem-solving treatment) • Psychotropic prescribing (by the PCP); • Patient self-management/psychoeducation; and • Referrals to specialty care (CAPs or BHCs) for patients with complex situations
Planned communications/ shared treatment plans	• Behavioral health care professionals and PCPs worked collaboratively in fully or partly integrated system

	• Care plans developed jointly by behavioral health clinicians and PCP and accessible to both professionals
Health Information Technology	• Electronic exchange of protected health information

Note. Adapted from "*Key Components of Effective Pediatric Integrated Mental Health Care Models"* by J. Yonek, 2020, *Jama Pediatrics, 174(5), p.487-498*. Copyright 2020 by the American Medical Association.

A benchmark for improving this practice problem involves incorporating the highest level of integrated care according to the framework created by the Center for Health Integration Solutions (CHIS) (n.d.). However, the baseline state of practice would only allow for an improvement from level 1 to a level 2 of integrated services. This is because a level 2 is the highest level that can be achieved in offices without on-site BHCs. Thus, an aim for the first cycle of the continual quality improvement initiative was to meet the level 2 criteria designated by the SAMSHA/ HRSA framework. Consideration of these integration levels was utilized in the design of the intervention (See Appendix C).

A BHC directory was developed to provide a resource of consultants to guide clinicians in the decision-making process and was provided within the PCP Packet provided to the project participants. A list of community BHCs with contact information and physical office address was created and imbedded in the EMR so it could be auto populated by the PCP and printed for the patients as needed. To compose the BHC directory, a preliminary list of area BHCs was provided by a nurse practitioner colleague practicing within the Behavioral Health Department affiliated with the larger hospital system, WVU Medicine. This directory delineates BHCs by service type, office location, and insurances accepted to aid the PCPs in the referral process.

Alignment with the WVU Medicine Mission and Vision

Mission: To improve the health of West Virginians and all we serve through excellence in patient care, research, and education.

Vision: To transform lives and eliminate health disparities through a nationally recognized patient-centered system of care that includes:

- An expanded regional healthcare delivery system
- Consistent, integrated patient care recognized for delivering the right care in the right place at the right time at all sites
- Development of new approaches to improve healthcare, including team-based models of care, expanding WVU clinical and translational research
- Educational programs throughout the network recognized for training uniquely qualified healthcare team members and leaders
- A culture of performance and excellence throughout the network

The mission and vision of the organization aligns with the project purpose to improve the care of West Virginians, eliminate health disparities, and to improve team-based models of care. Care integration is specifically mentioned in the mission statement (WVU Medicine, n.d.).

Do Phase

Prior to implementation, an introduction and presentation of the clinical pathway was delivered to the PCP participants. Baseline data were collected on provider self-efficacy, via the MIM questionnaire, in the treatment of mental health disorders (see project evaluation). Use of the clinical pathway was at the discretion of the provider based on individual patient cases, following the diagnosis of adolescent anxiety and/or depression. Elements of the clinical pathway were built into smart phrases within the Electronic Health Record (EHR). Smart

phrases allow the providers to auto populate certain documentation and patient education materials to aid in following the pathway.

The clinical decision-making pathway consists of a decision-making algorithm, a directory of community BHCs that administer psychotherapy, a list of designed visit templates and patient handouts embedded in the electronic health record (EHR) and a psychotherapeutic medication guide. Additionally, recommended patient follow-up visits with the PCP were incorporated into the decision-making algorithm of the clinical pathway to encourage adherence to the treatment plan. The algorithm is based on disease severity and the chosen treatment course (See Appendix D for the contents of the clinical pathway).

An overarching goal for this project was to begin a continual quality improvement initiative, including a plan to recycle the process after an initial 12-week implementation period. A feasibility study was designed to determine if the intervention is relevant and worth further evaluation within the organizational context. According to the publication by Bowen, et al. (2009), feasibility studies are useful in determining if a program or intervention is worth more comprehensive testing to determine efficacy.

Budget

The financial burden of this project was minimal. Extra personnel were not required, and billing practices did not change. The project formalized and improved existing processes with the intention to facilitate collaboration with community resources. The DNP candidate served as the project champion free of cost during the project timeframe.

Project Evaluation Plan

Project Objectives

This QI project has two main objectives:

1. Examine the feasibility, specifically the acceptability and the demand, of the designed clinical pathway.
2. Improve the participating PCP's perceived self-efficacy in the treatment of adolescent depression and anxiety with the use of the developed clinical pathway.

Study Phase

During the study phase of the PDSA process, a focus group was held to gather qualitative data on the feasibility of the project. The focus group session was led by the project champion and guided by ten open-ended questions based on the acceptability and demand areas of focus. Acceptability explores how the project participants reacted to the intervention. The demand was evaluated by obtaining data on the estimated or actual use of the intervention in the project setting. (See Appendix E for the questions used to guide the focus group). Specific outcomes of interest that were explored during the focus group session are actual use, relevance to practice, impact on practice, encountered barriers, intent to continue use. (Bowen et al, 2009). Six project participants attended the focus group and were given the opportunity to discuss the use of the clinical pathway and determine if the pathway had the intended effect on care delivery. The focus group session was recorded and transcribed using word processing software.

Analysis of the focus group data was performed with Microsoft Excel. Responses were labeled by participant and focus group question. Categories and corresponding codes were assigned to each response. Categories were selected based on the sample outcomes of interest under the acceptability and demand areas of focus outlined in the publication by (Bowen et al., 2009). The sorting function was utilized to explore for common themes among the identified categories. Additionally, possible future directions of the pathway were discussed. Data were

then synthesized based on the identified themes and a synthesis table was created to report specific highlights from the focus group.

To measure PCP self-efficacy, a questionnaire was adapted from a validated tool published by Loeb et al. (2017) on mental illness management. Cronbach's alpha coefficient for reliability of the MIM was $\alpha = 0.88$ and interpreted as "good" reliability. Construct validity of the MIM was calculated using a Pearson correlation coefficient and was found to have a statistically significant positive correlation ($P < 0.05$). The MIM self-efficacy scale was specifically designed for measuring PCP self-efficacy in the management of mental illnesses (Loeb et al., 2017).

The modified MIM questionnaire used to assess PCP self-efficacy in the diagnosis and treatment of adolescent depression and anxiety contains ten structured-response items and was administered to the participating PCPs pre- and post-intervention. The PCP rated his or her confidence in the ability to perform each task on a 10- point scale. The surveys were administered electronically using the Qualtrics XM software. Changes from the pre- test and post- test scores were recorded and mean scores for each survey item were calculated to assess trends in PCP self- efficacy. (See Appendix F for the sample MIM questionnaire). Statistical significance of the results was unable to be determined based on the small sample size ($n = 7$).

Ethical Considerations

Patient data were not collected as part of this study. To assure congruence with West Virginia University's research and ethical policies, a formal proposal was submitted to and approved by the University's Internal Review Board (IRB). Institutional support and approval were also obtained through WVU Medicine's Nursing Research Council internal review process. Participation and use of the pathway by PCPs in the project was voluntary and as a quality

improvement initiative, consent was assumed upon completion of the questionnaires and participation in the focus group. No conflicts of interest have been identified and no vulnerable populations were utilized in the study methods.

Results

After collecting the pre-intervention MIM questionnaire, the participating PCPs were presented with the intervention and feasibility study process. The PCP Packet containing the medication guide, the treatment algorithm, the BHC directory, and the EMR template list were then provided to the participants. Data were not formally gathered over the course of the project implementation period, but participants were asked to keep track of their own use of the pathway by making note of their experiences and reactions to the intervention. Participants were also asked to contact the project champion if any technical difficulties were experienced. Shortly after implementation, several participants were unable to auto populate the BHC provider list patient handout within the EMR. This was quickly corrected but decreased the timeframe that the providers could use this function and may have altered its perceived usefulness.

Focus Group Results

Actual Use

Data collected from the focus group revealed frequent use of the pathway by all PCP participants during the project timeframe. Most indicated that the pathway was referred to at least weekly, but usually during daily practice. One participant indicated that not all components of the pathway were used in the treatment of each patient and that certain components of the pathway could be used independently. PCP participant responses included “I referred to the

pathway usually daily, sometimes multiple times per day" and "I did not always have patients fit all of the scenarios so I may have referred to different components of the pathway on a case-to-case basis."

Varying numbers of adolescents presented with anxiety and depression during the project implementation timeframe. Some PCP participants indicated that there were periods of time where use of the pathway was not warranted. It was discussed that the duration of the intervention may have been too short to see all the intended effects on care delivery.

Relevance to Practice

The focus group participants reached a consensus that use of the pathway is relevant to the practice setting and useful in the management of adolescent depression and anxiety. The lack of available and timely resources in the communities served was stated to be the primary reason the pathway was considered relevant. Participants were most satisfied with the application of the medication guide and the EMR visit templates. Additionally, the participants indicated that they were also satisfied with the management algorithm and that specific types of therapies provided was included in the BHC directory. All participants expressed that the pathway was relevant to their respective practices.

The pathway was perceived to be the most useful when applied to straightforward patients. The pathway was less useful for those with comorbidities or complex situations. One participant stated, "The pathway was most useful when patients were more straightforward and less useful when complex. Patients with comorbidities such as ADHD made the pathway harder to follow."

Participants indicated that use of the pathway both increased the number of patients they treated instead of referring to BHCs and increased comfortability in the management of adolescent depression and anxiety. During the focus group, one PCP participant stated, “The amount of patients I have seen, especially after COVID and even before COVID and with the resources we do not have. It’s been helpful as I use it more and become more efficient. A lot of my patients were stuck on waiting lists for psychiatry.” Another PCP participant replied, “Patient parents were very thankful because normally I would just refer these patient's out, but this allowed me to do a lot of management in office which was nice for them as they were already comfortable and familiar with us.” The PCP participants indicated that use of the pathway resulted in a shorter amount of time between diagnosis and treatment for many patients diagnosed with depression and anxiety.

Impact on Practice

Participants expressed that the initial stages of the intervention period resulted in lower productivity while acclimating to the pathway’s use. The pathway did not help with clinical efficiency regarding visit length. However, most participants agreed that once acclimated to the pathway there was no negative impact on visit length or clinical efficiency. Participants also indicated that continued use of the pathway resulted in more ease of use. One participant stated, “As with anything it slowed me down at first. I am not sure it has helped me manage these patients more quickly, but it has made me feel more comfortable.”

Encountered Barriers

Participants indicated dissatisfaction with the changing nature of the BHC directory. Waiting list times vary naturally and were not periodically updated during the project period. Despite only 12 weeks of the intervention timeframe, several other components of the BHC directory changed including services offered, insurances accepted, and providers no longer serving the area. These changes were especially challenging to determine for out of network BHCs. Furthermore, waitlists for CAPs also increased to 8-12 months during the project as well, forcing PCPs to manage more severe or complex presentations than they were comfortable with in the interim. Additionally, the two CAPs in Harrison County quit accepting referrals due to the abundance of waitlisted patients. The pathway was perceived as less useful to the participants for patients with complex or severe presentations and for those with comorbid conditions.

Although the pathway was designed to increase collaboration with community BHCs, especially those out of network, participants did not feel that the pathway guaranteed collaboration. The main barrier to collaboration is time constraints for both PCPs and BHCs. The directory did provide a more direct route of making contact or referrals to the BHCs but may not have had the intended effect on PCP and BHC collaboration.

An unanticipated issue faced by several participants involved referring patients to receive a certain type of evidence-based psychotherapy such as cognitive behavioral therapy, but later learning that patients were receiving more traditional talk therapy. Patients often did not contact the PCP participant between appointments to inform them of this issue, leading to a delay in initiation of the intended treatment regimen.

Intent to Continue Use

Most PCP participants recommended use of the pathway for a longer period, followed by another focus group session, before making any changes. Several participants expressed the desire to use the pathway for a longer period of time to determine what changes may be needed. All participants indicated the intention to continue using the pathway to guide applicable treatment regimens. The determination was made to recycle the PDSA process and approach organizational leadership for approval to expand the project to other practices and complete further study of the intervention. (See Appendix G for the focus group response synthesis table).

MIM Questionnaire Results

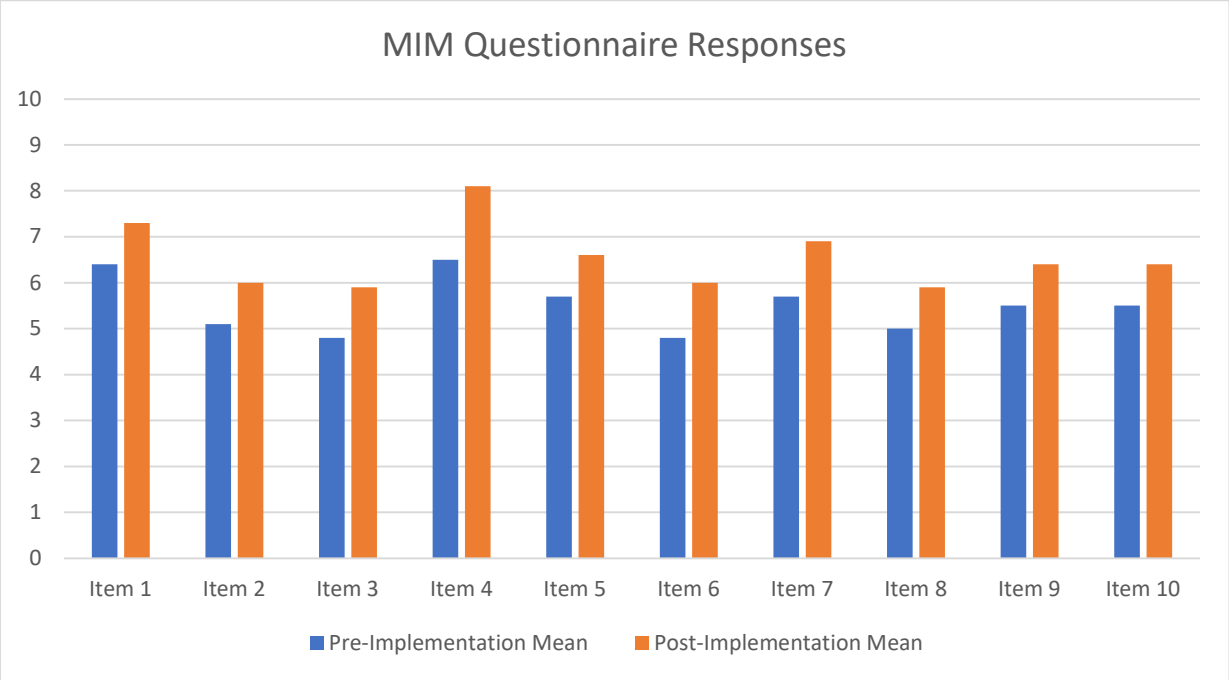
Pre-intervention responses on the MIM questionnaire showed varying baseline levels of self-efficacy in the treatment of adolescent depression and anxiety among the PCP participants. The pre-intervention MIM scores indicated that participants were most comfortable with diagnosing depression and anxiety in adolescents, classifying the severity of those diseases, and having productive conversations about patients with psychologists and psychiatrists prior to the intervention. The lowest pre-intervention scores were on the items related to treatment of depression and anxiety in adolescents and in the treatment of patients who have both chronic medical and mental diseases.

Post-intervention MIM scores indicate that the PCP participants experienced the most improvement of self-efficacy in the treatment of adolescent depression and anxiety, the diagnosis of adolescent anxiety, the classification of severity of adolescent anxiety, and the recommendation of community resources for mental health disorders.

Despite an increase in the mean scores of all survey items of the MIM questionnaire; two participants scored their self-efficacy higher on several survey items on the pre-implementation questionnaire compared to their post-implementation scores. Causes of these two outliers would be worth exploring in a future study of this pathway.

Although statistical significance cannot be determined due to sample size ($n = 7$), the mean scores of the MIM questionnaire items increased by an average of 1.05 points following project implementation suggesting an improvement in PCP self-efficacy (Figure 1); thus, meeting one of the project's major aims.

Figure 1



Missing Data

One participant that used the pathway was unavailable at the time of the focus group session but completed the pre-intervention and post-intervention MIM questionnaire resulting in some missing focus group data.

Summary

Feasibility of the project was determined based on the examined areas of acceptability and demand (Bowen, et. al, 2009). Analysis of the focus group data revealed several common themes. Based upon these themes and the overall discussion with the PCP participants, the decision was made to continue use of the pathway, as written, for another 12-week period. Determination to use the pathway as written was made because the PCP participants did not feel that the project timeframe was long enough to recommend needed changes.

The initial PDSA cycle of the QI project met three of the project's aims based on the data collected. The aim to increase collaboration between the PCP participants and community BHCs with shared patients was not achieved. Use of the pathway was favorable among PCP participants and had the intended effect within the project context.

The pathway was successfully implemented into each PCP participant's practice. Use was reported from daily to weekly and was perceived as relevant to the intended pediatric primary care setting. Participants were most satisfied with the medication guide, the treatment algorithm, and the EMR visit templates provided within the PCP packet. The perceived impact on practice involved initial slowing of clinical efficiency that resolved with persistent use.

Care delivery was perceived to be improved and increased for most participants evidenced by the focus group discussion. Use of the pathway was determined to increase the

number of adolescents with depression and anxiety managed by the participating PCPs. Prior to project implementation, most patients with these conditions were referred, waitlisted to see a CAP, or received no mental health care. This suggests that the time from diagnosis-to-treatment decreased for adolescents with depression and anxiety during the project implementation period. Number of patients reached pre-intervention and post-intervention was not measured during this PDSA cycle.

Participants encountered barriers to collaboration with out of network community BHCs mainly due to time constraints and changes to services provided by the BHCs during the project implementation period. The BHC directory information changed during the project period further contributing to underachievement of the project aim to increase collaboration with community BHCs. Despite this, several participants reported satisfaction with using some portions of the BHC directory. MIM questionnaire mean scores on items 9 and 10, relating to collaboration with BHCs and CAPs, increased from pre-implementation to post-implementation.

MIM questionnaire results showed a positive trend in the means of each survey item suggesting some improvement in provider self-efficacy. Some participants also indicated that use of the pathway reduced their anxiety, decreased the amount of time spent looking up information contained in the pathway, and increased provider comfort in the treatment of adolescent anxiety and depression during the focus group session.

Interpretation

The determination of feasibility increases the likelihood that an intervention will be effective on a larger scale (Bowen, et. al 2009). Further study of the intervention within the project setting is rationalized based on the post-implementation findings of this QI initiative.

The number of adolescents with depression and anxiety managed by the participating PCPs was reported to have increased during the project implementation period. Although statistical significance cannot be determined with such a small study cohort, the positive themes and trends in study data and the determination of feasibility within the context of practice suggests that the project had the intended effect on the identified practice problem and is clinically significant. Additionally, the intervention was found to be relevant to the patient population of interest according to the PCP participants.

Several components of ICMs/ CCMs determined to be effective in the publication by Yonek et al. (2020) were incorporated into the clinical pathway and were implemented during the project implementation period including measurement- based care, evidence-based mental health services, psychiatric consultation, planned communication/ shared treatment plans, and health information technology. PCP participants encountered the most barriers when utilizing the BHC directory intended to increase collaboration with community BHCs and the utilization of community resources. However, MIM questionnaire mean scores for items 7, 9, and 10 increased following the intervention indicating some increase in PCP confidence with recommending community resources for mental health disorders.

The findings of the MIM questionnaire are consistent with those found in the publication by Asarnow et al. (2015) which concluded that provider decision making tools and formal management protocols result in higher levels of PCP self-efficacy in the treatment of mental health disorders. The MIM questionnaire items with the most increase in pre-intervention to post-intervention self-efficacy scores were in the areas of the treatment of adolescent depression, the diagnosis of adolescent anxiety, the treatment of adolescent anxiety, and the recommendation

of community resources for mental health disorders. The larger increase from pre-intervention to post-intervention scores on items 3 and 6 on the MIM questionnaire is a positive finding considering that the clinical pathway was designed to aid in the treatment of adolescent depression and anxiety.

Several themes emerged during the focus group leading to a discussion on future directions of the project following another cycle of the PDSA quality improvement process. Possible changes that will be revisited and considered include more formal networking with community BHCs, determining a point person to regularly update the BHC directory, and expanding the treatment algorithm to include specific measurement-based tools for diagnosis and for follow up severity classification. Expansion of the project to include more PCPs and further study of the intervention is warranted.

Limitations

This QI project has several limitations including a small sample size and a short implementation timeframe. Feasibility studies have inherent limits on generalizability as they are designed to be tested within specific contextual settings. Due to the feasibility study design, control for external variables is not comprehensive. Confounding variables may include PCP provider type, years in practice and in the current practice setting, variation in individual PCP patient population demographics, experience in the management of mental health illness prior to project implementation, provider personality and care delivery styles, and an inconsistent number of patients presenting with anxiety and depression between participants during the implementation period. The results of this study are limited to the determination that the

intervention was successfully implemented and is relevant to and feasible within the project setting.

Conclusions

The intervention was determined to be feasible within the practice setting which warrants further testing within the organization to evaluate the effectiveness and to justify expanded implementation in other primary care offices across the health system. Following another 12-week cycle of the intervention, all participants have agreed to complete a second focus group to determine formal recommendations on the future directions of the project. Institutional approval to expand the project and complete further study of the intervention will then be sought by presenting the findings to institutional leadership.

In future iterations, emphasis should be placed on the barriers encountered while using the BHC directory within the clinical decision-making pathway to increase collaborative care with community BHCs. Mitigation of these barriers may be possible through more frequent directory updates and more frequent contact between the PCPs and BHCs. Collaboration may still be hindered by provider time constraints**.** Further integration of care in this healthcare setting should be considered within the organization. The primary barrier to further integration includes costs associated with reallocating or expanding current resources or hiring more personnel which may be dependent on organizational and departmental budget and leadership approval. Available funding through state and federal grants may also be explored for expansion of the project in the future.

Two PCP participants had lower post-intervention scores than pre-intervention scores on many MIM questionnaire items which was an interesting finding. In future PDSA cycles, post-implementation MIM scores should be collected and analyzed before the focus group session allowing for further explanation of the responses. Focus group questions should also include discussion of perceived provider self-efficacy, which could be compared to MIM questionnaire data.

The clinical decision-making pathway could be utilized in other primary care practice settings including family and internal medicine practices that care for pediatric patients assuming customization of the BHC directory to the practice community setting. The project may also be expanded to include management of depression and anxiety in younger pediatric patients if adjustments are made to the medication guide to include age of approvals for the included psychotherapeutic drugs.

In conclusion, incorporating elements of ICMs/CCMs in primary care can help decrease diagnosis-to-service gaps in adolescents with depression and anxiety. With the ongoing shortage of CAPs and the increasing mental health crisis, the medical community must become creative in care delivery. CCMs and related interventions have the potential to facilitate interprofessional collaboration and improve the likelihood that affected adolescents will receive evidence- based mental health services. Utilization of this collaborative care, decision making pathway in the primary care setting has the potential to improve and expand mental health services provided to adolescents with anxiety and depression.

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Appendix A

Literature Search Matrix with PICO(T) Question

PICO(T)

Population: adolescents with diagnosed depression, anxiety, or both

Intervention: development and implementation of a clinical pathway involving a collaborative care model

Comparison: usual care

Outcome: increase provider self-efficacy in treatment

Date	Database	Search Term	Hits	limits	Notes
2/27/21	CINHAL with full text	Treatment Models adolescent depression	283	2015-2021	32 abstracts reviewed. 2 critically appraised, but need to broaden terms, not many relevant articles for treatment. Add protocols.
2/28/21	CINHAL	Depression treatment adolescent OR teenager protocol primary care	1197	2016-2021	Mind-Body Skills Groups for Adolescents with Depression in Primary Care: A Pilot Study. (n=43) (reviewed reference list) The natural course of depression treatment of adolescent depression: issue with adherence to treatment Article from the American journal of Child and Adolescent Psychiatry cites the relevance of my topic. Website redirected to the Center for Integrated Health Solutions
3/1/2021	Pubmed	(((((((((adolescent) OR (teen)) AND (primary care)) OR (pediatric)) AND (depression)) OR (dysthymia)) OR	99,626	2016-2021 RCT	Many are not specific to adolescent population. Narrow terms

		(mood)) AND (treatment)) OR (intervention)) OR (medication)			
3/5/2021	Pubmed	((((((((((((adolescent) OR (teen)) OR (adolescence)) OR (teenager)) AND (Pediatric)) AND (Depression)) OR (dysthymia)) OR (mood)) AND (treatment)) OR (intervention)) OR (protocol)) OR (model)) AND (brief behavioral therapy)) OR (modification)	3656	Same as above adding systematic reviews	50 abstracts reviewed: 5 articles critically appraised. Need to narrow down terms
3/7/21	Pubmed	brief behavioral therapy for pediatric OR adolescent OR teen AND depression	1986	2016-2021	Reviewed 26 abstracts, no articles met inclusion due to lower levels of evidence
3/9/21	Search all in libraries	Zukerbrot et al	58	Last 10 years	Used to find publications mentioned in guideline of lead author/ referenced in the guideline 1 article for critical appraisal relevant to focus in addition to article in search. Saved to Zotero
3/9/21	CINHAL with Full text	Adolescent OR teen OR youth OR teenager AND Depression OR Major Depressive Disorder OR MDD OR	87	2016-2021	Duplicates excluded. Modify terms. 5 articles saved to Zotero for later abstract review.

		Depressive AND Integrated Care			
3/10/21		adolescents or teenagers or young adults or teen or youth AND depression or depressive disorder or depressive symptoms or major depressive disorder AND integrated care or integrated approach or integrated model AND primary care	47	none	10 abstracts reviewed: (including the 5 from the previous search) Utilization of integrated and collocated BHC models in peds primary care: critically appraised
3/11/21	Google scholar	integrated mental health care pediatrics	16,7000	2017-2021	Key Components of Effective Pediatric Integrated Mental Health Care Models: A systematic review (2020) Five-year outcomes of behavioral health integration in pediatric primary care (study through Boston children's). Both studies met inclusion: critically appraised using tools in Melnyk-Overholt & Fineout text.
3/18/21	All databases	Used cited sources to find a mentioned SR		2015-2021	Found article: cited by many of sources found so far. Arsanow et al. (2015). Saved to Zotero for consideration of inclusion
3/19/21	Google scholar	Pediatric behavioral health integrated model		2015-2021	Found a SR from 2019 comparing outcomes/ symptom improvement with use of a BHIP

4/10/21	Cross search on Ebscohost: APA psychline, APA Psych info and Psych articles, Medline, CINHAL with full text	Pediatric depression in primary care	1940	none	Brief report on likelihood to refer to psych (discusses provider's feeling poorly prepared to treat pediatric depression, but higher comfort with ADHD)
4/15/21	NIH search	Prevalence of adolescent depression and access to care	Several, selected data reports only	none	(National Institute of Mental Health, 2019) (Ghandour et al., 2019) Use for intro/ problem statement (data from 2016-2017 most recent reported according to sources)
5/25/21	Cross search APA psychline, APA Psych info and Psych articles, Medline, CINHAL with full text	Prevalence of adolescent depression and anxiety		Last 5 years, US, English	20 abstracts reviewed 6/3 23 abstracts reviewed (total 156)
5/26/21	CINHAL with Full text	Clinical practice guidelines anxiety			

6/9/21	Google	Implementing Integrated Care in a hospital system	Over 32 million	None	SAMHSA website referred to Center for Excellence in Integrated Health Solutions: Level of Integration Framework Readiness questionnaire: lead to Satcher & Rachel, 2016: Increasing health equity using integrated care (vulnerable populations, underserved areas) CDC data retrieved for problem statement
6/24/21	Academic Search Complete	combination therapy for anxiety in adolescents	164	none	Brown University publication *Child & **Adolescent** Psychopharmacology Update* noted findings from largest RCT comparing treatment modalities called Child-Adolescent Anxiety Multimodal Study (search for and possibly use) reviewed abstract
7/6/21	Google	Validated tool provider self-efficacy		None	Use and modify Mental Illness Management (MIM) to use to evaluate provider self-efficacy at baseline and following the project timeframe.

Appendix B

Literature Review Synthesis

	Design	Sample	Intervention (Integrated model type)/Controls	Outcome	Conclusions
A	CPG	Children aged 10-21	-	Recommendations include integrated care for assistance with diagnosing and education programs/ practice readiness for treating adolescents with depression	Provider training and either independent management by the PCP or integrated model. No standard definition of ICMs. Recommended collaborative care/ establishing relationships with community BHCs
B	CPG	Children aged 10-21	-	Recommends use of integrated care/ combination therapy by severity type. Acknowledges the need for more access to care/ relevance of an ICM	Provider training and either independent management by the PCP or integrated model (does not specify type of model): used as a general term
C	CPG	Children and Adolescents	-	Recommends use of combination therapy: more effective than those interventions alone. Use of Integrated care is a method that could overcome barriers to treatment initiation and adherence. This guideline only briefly mentions integrated care and terms it “care coordination”.	“Successful treatment is a collaborative care effort”

D	MA	N=31 RTCs	Examined studies comparing ICM's to usual care or enhanced usual care	For each of the 31 studies the primary outcome was used to measure effect size. Several trials utilized some form of ICM in some form. Overall summary effect was found to have a small and statistically significant effect (d=0.32; 95%CI, 0.21-0.44;P<0.001)	ICM focused on treatment vs. preventative showed to be more effective in this MA. ICM of some form, including PCP training, collaborative support/ consultation, referral system, and management algorithm. More research in pediatrics is needed.
E	SR	N=6 studies	Reviewed studies evaluating collaborative or integrated care models for children aged 0-21 years with BH disorder compared to usual care	Increased access to care, fewer depressive symptoms, longer duration of treatment with ICM or BHIP than in control groups with all evaluated studies	Relationship with BHC and PCP. Researchers recommend some form of psychotherapy and medication algorithm to increase PCP comfort in the management of BH disorders
F	EBQI study	N=105 PCPs	4 phase BHIP (Behavioral Health Integration Program) 1. BH ed. 2. Psych consults 3. Tech and clin. Support for PCPs 4. On site BH service	• Increased integrative care (P<0.001) • Psychotherapy (P<0.001) • Medical BH visits increased (P=0.4) • Costs of ambulatory and outpatient costs increased, but BH-related ER visit cost decreased by 19% • Provider satisfaction and self-efficacy: rated as high and 93% of participating PCPs believed that BHIP participation enabled them to appropriately care for effective management of mild and moderate BH problems in pediatric primary care	Use of the BHIP increased provider self-efficacy. Concluded that this increases care delivery, treatment completion, and increases access to mental health care (More people treated in the BHIP group). Potential for visit cost savings
G	SR	N=2190 total	Literature review of RCTs measuring	Model used varied across studies. Table present to define models used.	BHC for psychotherapy

	participants, 11 RTCs age:<18 yr	patient outcomes for BH disorders (depression, ADHD, other behavioral disorders)	• 7/11 reported a positive correlation between the intervention and outcomes and of those the most common models included population-based care, measurement-based care, and evidenced based mental health services. (5 of these utilized combo therapy within the ICM) • 2/11 reported a positive correlation between intervention and functional impairment • 2/11: positive correlation between intervention and mental and physical quality of life • 4/11 reported pos. correlation between intervention and patient satisfaction with treatment • All studies incorporated some degree of population-based care, measurement-based care, evidence based mental health services, treatment to target, and care management	PCP training and prescribing of psychotherapeutic medications Practices/ organizations can pick components that best suit patient demographics and community resources.

A- *(Zuckerbrot et al., 2018)* ***B-*** *(Cheung et al., 2018)* ***C-*** *(Walter et al., 2020)* ***D-*** *(Asarnow et al., 2015)* ***E-*** *(Burkhart et al., 2020)* ***F-*** *(Walter et al., 2019)* ***G-*** *(Yonek et al., 2020)*

CPG*- Clinical practice guideline,* ***MA-*** *Metanalysis,* ***SR-*** *Systematic review,* ***EBQI-*** *Evidence-based quality improvement,* ***PCP-*** *Primary care provider,* ***ICM-*** *Integrated Care Model,* ***BHC-****Behavioral health clinician,* ***BHIP-*** *Behavioral Health Integration Program,* ***BH-*** *Behavioral Health,* ***RCT-*** *Randomized controlled trial*

Appendix C

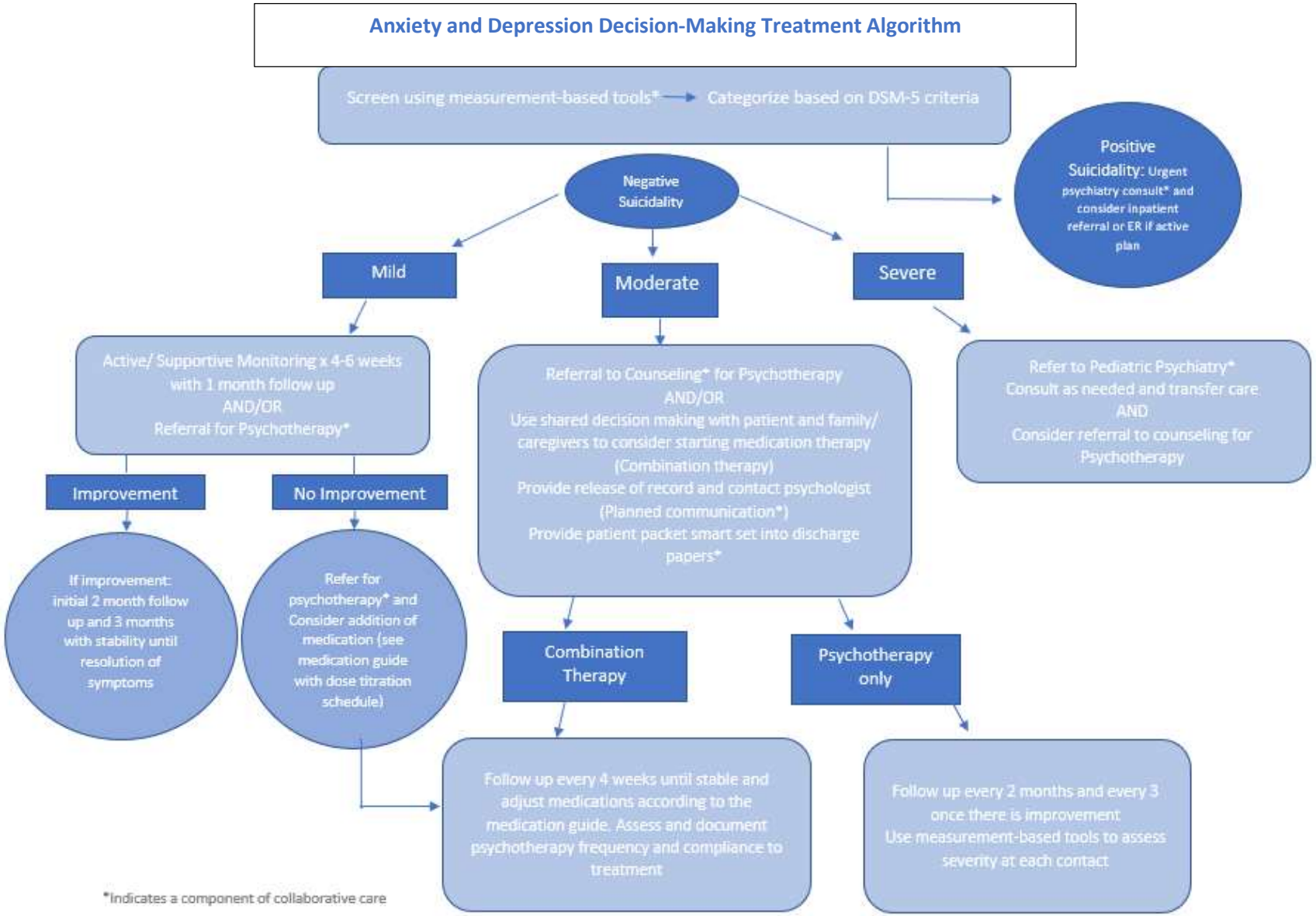
SAMSHA/ HRSA Coordinated Integrated Care Framework

Coordinated Integrated Care: SAMSHA/ HRSA Six Levels of Collaboration/ Integration (Project Benchmark)	
Level 1: Minimal Collaboration: Current state of practice	**Level 2: Basic Collaboration at a Distance: Goal behaviors**
Physical Proximity: PCP and BHCs in separate facilities	
• Have separate systems • Communicate about cases only rarely and under compelling circumstances • Communicate, driven by provider need • May never meet in person • Have limited Understanding of each other's roles	• Have separate systems • Communicate periodically about shared patients • Communicate, driven by specific patient issues • May meet as part of larger community • Appreciate each other's roles as resources
Clinical Delivery	
• Screening and assessment done according to separate practice models • Separate treatment plans • Evidence-based practices (EBP) Implemented separately	• Screening based on separate practices: information may be shared through formal requests or Health Information Exchanges • Separate treatment plans shared based on established relationships between specific providers • Separate responsibility for care/ EBPs
Patient Experience	
• Patient physical and behavioral health needs are treated as separate issues • Patient must negotiate separate practices and sites on their won with varying degrees of success	• Patient health needs are treated separately, but records are shared, promoting better provider knowledge • Patients may be referred, but a variety of barriers prevent many patients from accessing care
Practice/ Organization	
• No coordination or management of collaborative efforts • Little providers buy-in to integration or even collaboration, up to individual providers to initiate as time and practice limits allow	• Some practice leadership in more systematic information sharing • Some provider buy-into collaboration and value placed on having needed information

Business Model	
• Separate funding • No sharing of resources • Separate billing practices	• Separate funding • No sharing of resources • Separate billing practices
Advantages	
• Each practice can make timely and autonomous decision about care • Readily understood as a practice model by patients and providers	• Maintains each practice's basic operating structure, so change is not a disruptive factor • Provides some coordination and information-sharing that is helpful to both patients and providers
Disadvantages	
• Services may overlap, be duplicated, or even work against each other • Important aspects of care may not be addressed or take a long time to be diagnosed	• Sharing of information may not be systematic enough to effect overall patient care (More research is needed) • No guarantee that information will change plan or strategy of each provider • Referrals may fail due to barriers, leading to patient and provider frustration
Adapted from The Center for Integrated Health Solutions, (n.d.) *CIHS' Standard Framework for Levels of Integrated Healthcare.*	

Appendix D

Clinical Decision-Making Pathway for the Treatment of Adolescent Depression and Anxiety


Anxiety and Depression Decision-Making Treatment Algorithm
Screen using measurement-based tools* → Categorize based on DSM-5 criteria
Positive Suicidality: Urgent psychiatry consult* and consider inpatient referral or ER if active plan
Negative Suicidality
Mild
Moderate
Severe
Active/ Supportive Monitoring x 4-6 weeks with 1 month follow up AND/OR Referral for Psychotherapy*
Referral to Counseling* for Psychotherapy AND/OR Use shared decision making with patient and family/ caregivers to consider starting medication therapy (Combination therapy) Provide release of record and contact psychologist (Planned communication*) Provide patient packet smart set into discharge papers*
Refer to Pediatric Psychiatry* Consult as needed and transfer care AND Consider referral to counseling for Psychotherapy
Improvement
No Improvement
If improvement: initial 2 month follow up and 3 months with stability until resolution of symptoms
Refer for psychotherapy* and Consider addition of medication (see medication guide with dose titration schedule)
Combination Therapy
Psychotherapy only
Follow up every 4 weeks until stable and adjust medications according to the medication guide. Assess and document psychotherapy frequency and compliance to treatment
Follow up every 2 months and every 3 once there is improvement Use measurement-based tools to assess severity at each contact
*Indicates a component of collaborative care

Psychopharmacotherapy Medication Guide

Anxiety and Depression in Children and Adolescents

1st line choices: Serotonin Reuptake Inhibitors (SSRIs)

Medication Generic/ Brand	Formulations	Age	Starting Dose	Titration Amount/Schedule	Effective/ Max Dose
Fluoxetine/ Prozac	**Liquid:** 20mg/5ml **Tabs:** 30mg 60mg **Caps:** 10mg, 20mg, 40mg	≥ 8 years	10mg	10-20mg	20mg/ 60mg
Escitalopram/Lexapro	**Liquid:** 1mg/ml **Tabs:** 5mg, 10mg, 20mg	≥ 12 years	10mg	5mg	10mg/20mg
Sertraline/ Zoloft	**Liquid:** 20mg/ml **Tabs:** 25mg, 50mg, 100g	≥ 6years	25mg	12.5-25mg	50mg/200mg
Citalopram/Celexa	**Liquid:** 10mg/5ml **Tabs**: 10mg, 20mg, 40mg	≥12 years	10mg	10mg	20mg/ 60mg

BHC Directory Template

Practice	Age Group Served	Offers CBT	Provider Specifics	Additional Information	Contact
Practice/ Facility Name		Yes/ No	BHC provider names and credentials BHC provider certifications and specialty therapy training	• Services provided • Website if available • Designation of specific populations served such as LGBTQ friendly • Option for telehealth services	Physical Address: Phone: Fax: Provider Email:

Template Smart Phrases for Clinical Use

Visit Templates	**.pedsanxietyinitial** **.pedsanxietyfollowup** **.pedsdepressioninitial** **.pedsdepressionfollowup**
Pt Education	**.ssriinitialeducation** **.pedsanxietyed** **.pedsdepressioned** **.therapyoptionslist**

Appendix E

Focus Group Questions

1. **What about the use of the clinical pathway are you the most satisfied or dissatisfied with?**
2. **Did you refer to the clinical pathway to guide your clinical decision making in the treatment of adolescent depression and/or anxiety? If so, how often?**
3. **Give an example, of a situation when the clinical pathway was very useful in a patient's plan. What about an example of when it was not useful?**
4. **If you used the clinical pathway, what portion or portions of the clinical pathway did you used the most during the project period.**
5. **Were there any aspects of the clinical pathway you did not use or do not feel were relevant to the project?**
6. **What did you find the most challenging about using the clinical pathway?**
7. **Describe what impact that using the clinical pathway had on your day-to-day clinical practice.**
8. **Did you find this project to be appropriate to the patient population you regularly work with? Why or why not?**
9. **Do you intend to continue to use the clinical pathway follow the project timeframe? Why or why not?**
10. **Are there any suggestions for changes to the pathway for future use in your practice setting?**

Appendix F

Modified MIM Questionnaire

Adapted from Loeb et al., (2017)

How confident are you that you can:
1) Diagnose major depressive disorders adolescents?
2) Classify severity of major depressive disorders in adolescents?
3) Treat major depressive disorders in adolescents?
4) Diagnose generalized anxiety disorder in adolescents?
5) Classify severity of generalized anxiety disorder in adolescents?
6) Treat generalized anxiety disorder in adolescents?
7) Recommend community resources for mental health disorders?
8) Treat your patients who have both chronic medical and mental illness?
9) Have a productive conversation with a psychologist to care for a patient with a mental health disorder?
10) Have a productive conversation with a psychiatrist to care for a patient with a mental health disorder?

Not at all confident 1 2 3 4 5 6 7 8 9 10 **Extremely confident**

Appendix G

Focus Group Response Synthesis

Outcomes of Interest/ Category	Themes	Relevant Quotations
Actual use	Use of the pathway was daily to several times weekly across all participants. Use of all pathway components was not always needed for each patient and the pathway components could be used independently. Duration of the intervention may not have been long enough to see all intended effects due to variable amounts of teenage patients presenting with anxiety and depression.	"I referred to the pathway usually daily, sometimes multiple times per day." "I did not always have patients fit all of the scenarios so I may have referred to different components of the pathway on a case-to-case basis." "It would be useful to continue before we make any changes. Patients are coming in clusters so more time will help for consistency."

Relevance to practice	The project was perceived to be relevant to the practice setting especially due to the lack of available and timely resources in the communities in which the PCPs serve. The pathway was most useful with straightforward patient cases. Those with more complex conditions it was less useful. The medication guide and the algorithm were perceived to be the most utilized components of the pathway. Several participants indicated that it increased the number of patients treated verses referred and waitlisted in his or her own practice.	"The pathway was definitely appropriate. Teenagers and preteens are everywhere, this is a problem they have. It is sometimes hard separating day-to-day anxiety or situational anxiety verses disorders, but with the lack of resources we have, it is particularly important. It is not like you can just send them somewhere if they need medications and have them seen in a few weeks." "The pathway was most useful when patients were more straightforward and less useful when complex. Patients with comorbidities such as ADHD made the pathway harder to follow." "It removed a lot of stress for me by keeping me focused and help guide me when I would have spent a ton of time just doing research and looking up options for each patient." "The amount of patients I have seen, especially after COVID and even before COVID and with the resources we do not have. It's been helpful as I use it more and become more efficient. A lot of my patients were stuck on waiting lists for psychiatry." "Patient parents were very thankful because normally I would just refer these patient's out, but this allowed me to do a lot of management in office which was nice for them as they were already comfortable and familiar with us"

Impact on practice	Slowing of clinical practice in the beginning of using the pathway. Using the pathway for a longer period may be indicated to determine the true impact on practice. Ease of use improved with continued use for some PCP participants.	"As with anything it slowed me down at first. I am not sure it has helped me manage these patients more quickly, but it has made me feel more comfortable." "A longer time frame would help with efficiency, but I am still not completely used to using it so it is more difficult to tell."
Encountered barriers	Resources in the community remain insufficient. The directory providing information, which was useful, but providers still had difficulty getting patients into evidence-based psychotherapies. The BHC directory changed during the project timeframe. Wait list times changed and availability of services changed complicating use of the directory. The BHC directory did not seem to increase the amount of collaboration between PCPs and BHCs to the degree it was intended.	"The BHC directory provides a list but does not guarantee counselor or CAP availability. Some therapists are listed to provide CBT but are not actually providing it." "The ever-changing BHC directory based on provider availability or changes in the community"
Intent to continue use	All participants indicated that they planned to continue use of the clinical pathway.	"I definitely plan to continue use" "I need to use it for a longer period of time before determining changes"