The Cleveland Regional Perinatal Network-Perinatal Depression Project: An Evaluation of the Training Model and Screening and Referring Process

Erica N. Chambers

Master of Public Health Candidate

Case Western Reserve University

Erika S. Trapl, PhD, Committee Chair

Assistant Professor, Department of Epidemiology and Biostatistics,

Associate Director, Prevention Research Center for Healthy Neighborhoods

Case Western Reserve University

Avril Albaugh, LISW, Committee Advisor

Coordinator, CRPN Perinatal Depression Project

Adjunct Instructor, Department of Psychiatry, Case Western Reserve University

Laura Santurri, PhD, MPH, CPH, Committee Advisor

Adjunct Instructor, Master of Public Health Program,

Department of Epidemiology and Biostatistics, Case Western Reserve University

Abstract

Objective: The purpose of this study mixed methods study was to evaluate the referring provider training model and Carepath protocol, tools and resources created by the CRPN Perinatal Depression Project (PDP). This study also assessed the screening and referring process among healthcare and community based institutions.

Introduction: Perinatal depression (PD) encompasses major and minor depressive episodes that occur during and after the 12 months following delivery. The prevalence of perinatal depression varies from 5% to 25% of pregnant women and new mothers. PD is associated with many negatives outcomes including low birth weight, pre-term labor, insecure attachment, behavioral and social difficulties for children, and impaired social and cognitive development for the child.

Methods: The Consolidated Framework for Implementation Research (CFIR) was used to guide this study. CFIR comprises constructs from existing implementation theories that aims at promoting theory development and a way of verifying what works well and why across various contexts. A mixed methods approach, which utilizes both quantitative and qualitative data, was used. The instrument for referring providers and interview guide used for interviewing administrators incorporated CFIR constructs related to Complexity, Planning, Engaging, Relative Advantage, Design Quality and Packaging, Networks and Communication, Reflecting and Evaluating, Knowledge and Beliefs, and Tension for Change.

Results: Four out of six healthcare and community based institutions participated in this study, with a 67% response rate. Nine out of the 17 multiple sites among the institutions were included. Four in-depth 30 minute interviews were conducted with administrators from each institution and 35 referring provider completed a survey on the perceptions of the PDP training, Carepath protocol, and tools. Over 97% of providers agreed that the PDP training was useful and thought that the resources such as the brochure and maternal depression tear off sheet was useful. The majority of the respondents, 88%, thought having the perinatal depression Carepath protocol implemented at their institution was valuable. For changes that needed to be made to the screening and referring process 21.9% state “Yes” and 78.1% stated “No”. A review of the qualitative data identified three major themes that were identified and related to the most relevant issues regarding the PDP: Overall feelings about training and tools; feelings regarding PDP Project and goals; challenges and Improvements for the PDP.

Conclusion: The majority of the participants from this study thought the PDP was meetings it’s goal and were satisfied with the Carepath protocol and tools in helping them to streamline the screening and referral process. Due to help from the PDP Project Coordinator the implementation of the Carepath protocol was done without many complications. Most of the issues with the screening and referring process are related to referrals with the mental health providers. Modifications to the referral fax form or separate form should mandate mental health providers to confirm that a client has been seen. A refresher course for physicians may be helpful for more involvement with screening and referring process. The PDP should continue to evaluate the perinatal depression training model and conduct exploratory studies for the purposes of creating an evidence based model that can be replicated in similar populations.

Background

Perinatal depression encompasses major and minor depressive episodes that occur during and after the 12 months following delivery. The prevalence of perinatal depression varies from 5% to 25% of pregnant women and new mothers (Gavin et al., 2005). There are many types of perinatal depression and it can affect any women regardless of age, culture, or socioeconomic status (HRSA, 2012). Prenatal depression is depression that is experienced during pregnancy. Another form of mild perinatal depression is "baby blues". It is experienced by women within the first two weeks of giving birth and the symptoms associated with it disappear after about 14 days. Post-partum/post-natal depression has symptoms that last longer than 14 days and it can affect a woman up to 12 months after giving birth. Postpartum psychosis is the most severe form of perinatal depression that affects only one to two women per one thousand (HRS, 2012; health.ny.gov).

Perinatal depression along with other adverse factors including stress, socioeconomic deprivation, and lack of social support can increase the likelihood of suffering from postpartum depression (Bunevicius et al., 2009). Postpartum depression affects approximately 13% of new mothers with higher rates, up to 38.2%, among women of lower socioeconomic status (Goodman et al., 2010). There is also evidence that African American women of lower socio-economic status may be more at risk for perinatal depression than their Caucasian counterparts (Tandon et al., 2012). Perinatal depression has been associated with many negatives outcomes not only for women but their families and children as well. It can affect bonding relationships between mother and infant which can create an insecure attachment, behavioral and social difficulties for children, impaired social and cognitive development for the child, and long-term behavioral problems (Goodman et al., 2010; Shakespeare et al., 2003).

Individuals suffering from perinatal depression are often underdiagnosed and undertreated, complicating 10% to 15% of all deliveries (Thoppil et al., 2005). Untreated perinatal depression has been associated with inadequate prenatal care, poor maternal health, and substance abuse (Goodman et al., 2010; Vesga-Lopez et al., 2008). The impact of untreated perinatal depression has also been associated with adverse obstetrical and birth outcomes including preeclampsia, neonatal growth retardation, low birth weight, preterm labor, increased hospital visits, spontaneous abortion, and fetal death (Goodman et al., 2010). A majority of women with post-natal depression do not seek treatment due to stigma and having unrealistic perceptions of motherhood. As a result, it has been estimated that only about half of the cases of post-natal depression are detected by health professionals (Buist et al., 2006; Shakespeare et al., 2003). Perinatal depression if left untreated can become chronic throughout a woman's life (Goodman et al., 2010). The burden of a major depressive disorder is greatest for women over their lifetime, up to 25% compared to 12% for men.

History of Maternal and Child Health (MCH)

The dynamic view of child health and illness prevention was fueled by growth of knowledge related to bacteriology and communicable diseases toward the end of the 19th century. Most health concerns with children had its origin in child labor, where exploitation of

child labor was prevalent during the industrialization era (Lesser, 1985). It was also during this time that the professional voices from both the medical and social sciences field were beginning to identify childhood as a time of growth and development and less as little adults, the prevailing view during this time (Lesser, 1985). By the end of the 19th century there was a consensus that preventative health services for children needed to be coupled with education to help parents adopt necessary concepts and procedures to improve children's health (Lesser, 1985).

The Maternity and Infancy Act of 1912 established the Children's Bureau which was charged with investigating and reporting all matters related to the welfare of children. This legislation with the first recognition that the federal government felt it was responsible for ensuring the welfare of the nation's children (Lesser, 1985). The studies that came out of the Children's Bureau ranged from juvenile delinquency to infant and maternal mortality. The subsequent studies from the Bureau served to help state and local groups in taking appropriate action to address the needs of pregnant women and children (Lesser, 1985). The studies from the Children's Bureau also helped to illuminate the relationship between socio-economic factors and medical causes of infant and maternal death (Lesser, 1985). These studies in particular served as the basis for the Children's Bureau to advocate for the continuation of grants-in-aid programs and the authorized legislation, the Maternity and Infancy Act of 1920-1929 (also known as the Sheppard-Towner Act) (Lesser, 1985). This legislation and the 1930 White House Conference on Child Health and Protection helped to set forth policies that improved maternal and child health outcomes greatly. This also helped the nation in recognizing the value between state and federal partnerships and served as the first public health grant-in-aid program in the United States (Lesser, 1985).

The Social Security Act

Title V was enacted in 1935 with the signing of the Social Security Act. Title V included 3 parts (1) Maternal and Child Health Services which provided grants to states to extend and improve services to mothers and children; (2) Services for Crippled Children which provided federal funds that would match state funds for comprehensive medical care for special groups of children; (3) Child Welfare Services authorized grants to state public welfare agencies to establish, extend, and strengthen services for homeless and neglected children including children in danger of becoming delinquent; and later Vocational Rehabilitation Services (Lesser, 1985). Moreover, the historic legislation resulted in the establishments of both state health departments and welfare in some states. In 1981, Title V was converted into the Maternal and Child Health Services Block Grant as part of the Omnibus Reconciliation Act (Lesser, 1985). This consolidated eight categorical child health programs into a single program (Health and Human Services, HRSA, 2010).

Today, the Maternal and Child Health Bureau (MCHB) is housed under the Health Resources and Services Administration (HRSA) as a part of United States Department of Health and Human Services. HRSA is responsible for the administration of the Title V Block grant, Healthy Start, and the Maternal, Infant, and Early Childhood Home Visiting Program. It is the

only Federal program that focuses solely on improving the health of all mothers and children at all levels including direct health care services, enabling services (e.g. transportation), and Infrastructure building services (e.g. needs assessments, planning, policy development) (Health and Human Services, HRSA, 2010).

Women's Health and Mental Health

By the end of the 20th century, along with leverage from the women's movement, the clinical medicine community began to realize that the reproduction-centered medical model was limiting in that it did not take into account the totality of a woman's lived experienced across the life span (Strobino et al., 2002). The dramatic changes in the lives of women at home and work, especially in terms of educational, social, and economic advancements altered the meaning of "women's health". Consequently the definition of women's health evolved to include their emotional, psychological, and physical well-being (Walker, 1997). There is now an understanding that these facets of health not only interact with biology but are also impacted by the social, political, and economic context in which women's lives are situated (Walker, 1997).

The US government responded to this changing health landscape by creating the Office of Women's Health (OWH), which is also situated within the US Department of Health and Human Services. Established in 1991, the OWH is charged with improving and advancing the women's health agenda to create initiatives and policies that address public health, health care professional education and health care prevention and service delivery, research, and career advancement for women in health and scientific professions. The OWH aims to promote health equity for women and girls through sex/gender-specific approaches (Health and Human Services, 2011). The OWH also works collaboratively with other federal offices, non-profit, and private organizations to promote and advocate for women's health. One of the main priorities of OWH is mental health (Health and Human Services, 2011).

The National Institutes of Health has also put mental health on the national agenda which occurred mostly during the latter half of the 20th century with the creation of the National Institute for Mental Health (NIMH) established in 1946. The Mental Community Health Centers Act of 1963 also solidified federal funds for mental health services, and the Substance Abuse and Mental Health Administration (SAMSHA) was established in 1992 (Manson, 2003). NIMH and SAMSHA have had many adaptations throughout the years and these two institutions are responsible for providing services and research related to mental health. More recently in 1999 the White House held its' first national Conference for Mental Health where the *Mental Health: Surgeon's General Report* further catapulted mental health disparities to the forefront of health policy (Manson, 2003). During the last 20 years, research in the field of mental health has progressed greatly. Knowledge of how the brain develops over time coupled with understanding how the brain functions under normal conditions and in response to stressors has played major role in this progression (Healthy People, 2020). OWH is also a collaborator of the NIMH and both work on initiatives related to women's health and mental health.

The MCHB has also responded to the changing landscape of mental health and women's health by creating initiatives geared at improving the health of women across the life span as well as infants and children. Under the Division of Healthy Start and Perinatal Services within MCHB, the *Women's Health Activities* major areas of focus include risk reduction, infrastructure building/systems of care and mental health; this also includes perinatal depression. The *Best Practices in Women's Health: A Model for Care and Wellness* grant also supports and evaluates a model of collaborative improvement of care for women in community settings (Health Resources and Services Administration, 2011).

Perinatal Depression Project

The Cleveland Regional Perinatal Network (CRPN) was established in 1975 through a grant from the Robert Wood Johnson Foundation to monitor perinatal health outcomes, increase professional and consumer knowledge and facilitate quality improvement initiatives regarding maternal infant health (Cleveland Regional Perinatal Network). In 2002, the Cleveland Regional Perinatal Network received funding from the Cleveland Healthy Family/Healthy Start program. Originally known as Healthy Family/Healthy Start, the MomsFirst program exists to reduce disparities in infant mortality and poor birth outcomes experienced by African Americans in the City of Cleveland. The program is housed in the Cleveland Department of Public Health. The program conducted a study entitled "Feelings of African American Prenatal Women". The study targeted perinatal (reproductive age) African American women ages 15-44 to explore the occurrence of perinatal depression, identify existing screening and referral practices, and identify mental health services for depressed women. The goal was to use this data to implement a plan to address these concerns. The study found that there was no mental health services tailored for this population and the system to address perinatal depression was fragmented, there were gaps in screening and skilled assessment, and very problematic for mental health agencies that provided services to this population at that time. As a part of the study, a Focus group of diverse professionals including nurses, physicians, social workers, and other administrators assisted with developing recommendations to address these disparities. The recommendations from the study were to improve the current system of services for perinatal depression including education for providers and consumers about perinatal depression and strategies for streamlining access to screening and mental health services (Healthy Family/Healthy Start, 2002).

As a result of this study the CRPN Perinatal Depression Project (PDP) was created in 2005 when it received funding from Cuyahoga County Child and Family Health Services. PDP was charged with developing a provider training model on perinatal depression and to provide free on-site training to providers in Cuyahoga County and surrounding region (Healthy Family/Healthy Start, 2002). In 2005 the CRPN Perinatal Depression Project also convened the *Cuyahoga Perinatal Depression Task Force* consisting of multi-agency providers to address gaps and barriers with the current referral and intake system. The PDP trains referring providers including nurses, social workers, community health workers, medical assistants, perinatal home visiting providers, and physicians throughout Northeast Ohio. The overarching goal for the PDP is:

"Enhance coordination and collaboration of evidence-based strategies among diverse stakeholders in women's health to address mental health needs of women before, during, and after pregnancy". The objectives for the PDP include:

1. Provide training to providers in order to screen and identify women at risk
2. Promote awareness of perinatal mental health issues among providers and general public
3. Provide linkages to community services

The purpose of the training is to assist providers with identifying pregnant and postpartum women at risk for depression. The training addresses signs and symptoms of perinatal depression, impact of untreated perinatal depression, screening for perinatal depression using the Edinburgh Postnatal Depression Scale (EPDS), developing a Carepath protocol which is a navigation system with guidelines and procedures for the screening and referral process, and resource materials for clients. The training also includes how to use the maternal behavioral health referral fax sheet for referring women to mental health agencies. The work of the PDP is gaining more attention at both at the local level and national level. Due to this, the coordinator is interested in how useful the training model and implementation of the Carepath protocol, tools, and resources has been to health care and community based institutions who received services from the PDP.

Purpose of Study

The purpose of this mixed methods study was to evaluate the referring provider training model and screening and referring process among healthcare and community based institutions. The objectives of this study were to (1) assess the satisfaction with the training and education the community and clinical health institutions received from the PDP; (2) assess the usefulness of implementing the perinatal depression Carepath protocol, tools, and resources; and, (3) to identify the variables that contribute to barriers and successful screening and referral practices among referring providers.

Research Questions

The research questions for this study were as follows:

1. How useful are the PDP training, tools, and resources to the administrators and referring providers?
2. How useful has the Carepath protocol been for institutions since it has been implemented?
3. What challenges/barriers do institutions face in the process of trying to screen and refer clients for perinatal depression?
4. How is implementing the Carepath protocol for screening and referring women accomplished by an institution once training occurs?

The research questions were formulated based on the needs identified by the Project Coordinator for the PDP. The intent of the questions and the evaluation were to explore not just if the training model works, but why screening and referral practices do or do not work well within multiple healthcare and community settings.

Methods

Mixed Methodology

This study utilized a mixed methods approach. Mixed method studies combine both qualitative and quantitative research (Creswell, 2009). Studies have indicated that mixed methods research originated in the field of psychology and in recent years there has been a growth in mixed methods studies in health and social science research (Farquhar et al., 2011; Creswell, 2009). The purpose for choosing both quantitative and qualitative research for this study is complementary, where each method will address different aspects of research questions as well as build on the results from the other approach. The qualitative data gained from the interviews of administrators and the quantitative data from the referring provider survey was used to provide a more in-depth perspective on what the implementation process looks like when the Carepath protocol and perinatal depression training is put into practice in diverse organizations.

Qualitative methods used in evaluation can be utilized to understand the underlying factors in quantitative research (O' Cathain et al., 2007). In studies that evaluate health services, qualitative studies can also aid in answering the questions for program planners regarding what happens to an intervention once implemented, what that process looks like within an organization, and what works (Farquhar et al., 2011). Quantitative data is useful for explaining outcomes for various stakeholders who may be more interested in creating policies and funding programs that are cost-effective (Farquhar et al., 2011; O'Cathain et al., 2007). There have been several ways for identifying the types mixed methods strategies that research may propose and six major typologies have been identified by Creswell, 2011. This study used a concurrent triangulation approach. In a concurrent triangulation approach, researchers collect both quantitative and qualitative data concurrently and compare the data from each method for convergence, differences, or some type of combination. This approach is used mostly to offset a weakness in the other research method with weight given equally to both research methods (Creswell, 2011).

Quantitative and qualitative data integration

A side-by-side integration of the qualitative and quantitative datasets was used to describe and interpret results from this study. A side-by-side integration of the results is commonly used in mixed-methods studies where the quantitative statistical results are discussed followed by qualitative quotes that support or disconfirm quantitative results from a study (Croswell, 2009). The descriptive statistics from the instrument that address each of the research questions for this study are presented in the tables below and the emerging themes

identified from the semi-structured interviews are also presented below using exerts from the qualitative data to illustrate theme.

Theoretical Framework

Consolidated framework for implementation research (CFIR)

The Consolidated Framework for Implementation Research (CFIR) was used to guide the creation of the mixed methods study. CFIR comprises constructs from existing implementation theories that are aimed at promoting theory development and a way of verifying what works well and why across various contexts (Damschroder et al., 2009). It also provides working definitions for implementation, context, and setting which have different definitions in implementation research (Damschroder et al., 2009). The constructs of CFIR exist within general domains that may positively or negatively impact implementation but does not seek to explain interactions between constructs (Damschroder et al., 2009). The five domains included are the intervention, inner setting, outer setting, the individuals involved, and the process by which implementation is accomplished (Damschorder et al., 2009).

CFIR domains and constructs

There are metrics related to the domain *intervention*, which focuses on core and adaptable components of an intervention. More specifically, the constructs that are being measured in the intervention domain are *complexity and design quality and packaging*. Complexity encompasses how easy it is for providers to implement the intervention, ease of use with the resources provided as a part of the Carepath protocol, and ease of navigation through the provider screening and referral process. *Design quality and packaging* refers to perceived satisfaction and effectiveness (Damschroder et al., 2009). This includes the administrator's satisfaction with the intervention, provider's feelings about perinatal depression training and resources to support the intervention and if providers are reaching the intended audience, and barriers related to implementing the intervention appropriately. The metrics related to the *context domain, both inner and outer* setting glean information from constructs related to access to information and knowledge, availability of resources, and networks of communication (Damschroder et al., 2009). The metrics for both the inner and outer setting explore support from the provider's institution in regards to information on perinatal depression, the use of the Carepath protocol, strength of network of women's health professionals and mental health providers, and ways in which available resources are identified and utilized or underutilized (Damschroder et al., 2009).

The domain related to *individual characteristics* encompasses the dynamics between individuals and the organization and how the two interplay to influence individual or organizational behavior change. The domains that will be explored include knowledge and beliefs about the intervention (how-to-knowledge, skill, and value) and self-efficacy, or beliefs about one's self in executing a skill (Damschroder et al., 2009). The metrics created aim to provide insight related knowledge about the prevalence of perinatal depression, the providers ability to screen and refer clients at risk for perinatal depression, ability to identify resources

and other educational materials provided by the PDP, and value of screening women for perinatal depression on both an individual and organizational level. The final domain entitled the *implementation process* is the means by which an intervention is assimilated into an institution and the transition individuals become increasingly skillful and committed to the execution of the intervention (Damschroder et al., 2009). The constructs within this domain that metrics from the instrument addresses included the process of engagement, such as how institutions became involved with the PDP project, how providers communicate with the PDP project and mental health providers, and challenges in the process of engaging providers, clients, and mental health providers on both the individual or organizational level. The constructs within each of the five CIFR domains were chosen based on their appropriateness and if they were applicable to the components of the PDP, including relevant work that the PDP is engaged in with various clinical and community stakeholders. The instrument can be found in Appendix II.

Ethics Review

This study was approved by the Case Western Reserve University Social/Behavioral Review Board Institutional Review Board.

Quantitative Methods

Setting

Healthcare and community settings that implemented the Carepath protocol and had been trained by the PDP in the last 2 to three years were considered potential participants for this study. There was a total 6 institutions that were contacted. The participants included community based institutions such as MomsFirst, community based institution that provides health education and service coordination to expecting mothers during their first trimester through age 2 in order to reduce the Northeast and healthcare institutions such as University Hospitals in the Obestrics/Gynecology departments that served pre-natal women and provided interconception care, healthcare that is received between pregnancies.

Sample

A purposeful, non-random sample of referring providers from 6 healthcare and community based institutions were invited to participate in this study. The referring providers range in occupation including, nurses, social workers, community health workers, medical assistants, and other family support providers. Data was collected over a two month period from September to October of 2012.

Instrument

An instrument was developed using the Consolidated Framework for Implementation Research (CFIR) domains and constructs. The instrument (referring provider survey) consists of 12 items that incorporate the five CIFR domains with selected constructs. The 12 items follow a

5 point Likert scale format with an open-ended option to provide narrative text. The metrics for each of the five CIFR domains are described below. The instrument can be found in Appendix C.

Survey research methodology

Survey research methodology was utilized in this concurrent mixed methods study. Survey research describes numeric descriptions of trends, attitudes or opinions about a population by using a sample to make generalizations about that particular population (Creswell, 2009). The advantage of using survey research is that it allows for rapid turnaround for data collection.

Data collection procedures

Potential institutions and their respective administrators were identified by the PDP Project Coordinator. This researcher contacted participants through electronic mailing of a recruitment letter that explained the research study and the purpose of the survey for referring providers. The institutions that were interested responded via email with dates and meeting times for referring providers that were interested in completing the instrument. The administrators also sent a letter of cooperation giving this researcher permission to enter the institution. At the beginning of the meetings, this researcher was given 20-25 minutes to allow the referring providers to read the consent form and ask questions regarding the instrument and/or consent form. After reading the consent form the providers proceeded by completing the survey which took 5-10 minutes. All data was securely stored by the responsible investigator for this study.

Data Analysis and Interpretation

The responses from the instrument were exported to IBM SPSS 20.0 and a univariate, or descriptive analysis was conducted. This included frequencies and percentages for the results of each metrics on the instrument. The results from the metrics on the instrument that answered the research questions for this study are provided in tables below.

Qualitative methods

Setting and sample

A total of 6 institutions were contacted and a population sample of healthcare and community based administrators who helped implement the Carepath protocol were invited to be interviewed. Healthcare and community settings that implemented the Carepath protocol and had been trained by the PDP in the last 2 to three years were considered potential participants for this study. The purposive sample of interviewees were chosen based on their role in their organization and role in implementing the Carepath protocol and the accompanying tools and resources. Moreover, the administrators possess rich information on both their organization and the implementation process behind the intervention. Purposeful

sampling is useful because the intent in using this strategy is to gain an in-depth understanding from a very selective group of participants (Patton, 2002). Interviews were conducted over a two month period from September to October 2012.

Open-ended questions from referring provider Instrument

The instrument for referring providers gave them an opportunity to provide qualitative responses related to challenges or changes regarding the PDP. The instrument also gave providers an opportunity to identify where they received support if they had challenges with screening or referring women.

Interview guide

Individual interviews are the most widely used type of qualitative data collection (Hays & Singh, 2012). This study utilized semi-structured, in-depth interviews. An interview guide was developed to provide structure and consistency in the interviews. The interview guide used questions and prompts that were explored during the interviews. The interview guide helps to delineate the sequence of questions and about which information to explore in greater detail (Patton, 2002). Probing questions are the *who, what, when, where, and how* interview questions that help to expand the interviewees responses (Hays & Singh, 2012). The interview guide questions were created using the CIFR domains and constructs aforementioned in the previous theoretical and quantitative sections. The interview guide consists of 10 questions with additional probing questions. The interview guide can be found in Appendix B.

Data collection procedures

This researcher contacted participants through electronic mailing of a recruitment letter that explained the research study and the purpose of the interview for administrators. The institutions that were interested responded via email with dates and times for the interview. The administrators also sent a letter of cooperation giving this researcher permission to enter the institution. The interviews took place in the offices of the administrators. During the administrator interviews, this researcher read over the consent form and allowed the administrator to ask questions. The consent form allowed for administrators to accept or decline the option for the interview to be recorded. After reading the consent form this researcher proceeded with the semi-structured interview. Hand written notes were taken for both recorded and non-recorded interviews. The semi-structured interview had the option of being audio recorded. The audio recordings were transcribed and securely stored by the responsible investigator for this study.

Data analysis and interpretation

The qualitative data was analyzed using content analysis. The history of content analysis can be dated back to the 18th century in Scandinavia (Hsieh & Shannon, 2005). In the United States, content analysis has its origins that date back to the 1950s where it was used to analyze text from media interviews (Priest et al., 2002). In the field of qualitative research content analysis is now a commonly used methodology used to make inferences by objectively and

systematically identifying characteristics or messages in data from sources such as interviews and observational field notes (Sheilds et al., 2008). The process used in content analysis consists of identifying characteristics or messages and creating emerging themes based on commonalities in the codes (Sheilds et al., 2008; Priest et al., 2002). Moreover, using latent content analysis involves identifying emerging themes and concepts based on the interpretation and judgment of the characteristics (Shields et al., 2008; Hsieh & Shannon, 2005). Latent content analysis will be used for this study. Latent content analysis refers to the process of interpreting the content of qualitative data where the focus is discovering underlying meanings of the words or content (Hsieh & Shannon, 2005).

The content analysis was done manually by this researcher using paper and highlighters to interpret and code the data to create emerging themes. The manual step-by-step analysis for creating emerging themes includes (1) Read the data to make interpretations about the text in order to identify codes, (2) Use various colors of highlighters for each code that is identified through the text and mark text to identify where it came from (e.g. Q2), (3) Due a manual cut and paste of highlighted coded data that share commonalities to categorize into emerging themes. No code book will be developed for the latent content analysis. This manual process is also described by Sheilds et al., 2008.

Results

Quantitative Analysis

In total 35 referring providers were surveyed in person. Four out of the six institutions participated for an overall 67% response rate. There were a total of 17 sites among the institutions. Nine of them participated. Reasons for them not participating included scheduling conflicts, lack of interest, and being non responsive. A univaritate analysis was conducted using SPSS 20.0.

For the first research question “How useful are the PDP training, tools, and resources to institutions including the administrators and referring providers, the metrics that addressed this question on the instrument included two, four, and five. Metric number two stated “The training and education that I received from the Perinatal Depression Project has been useful in helping me to screen and refer clients for perinatal depression”, all of the respondents agreed (100%) the PDP was useful. They also thought the resources like the “Guide for Mom’s” brochure and referral fax from were helpful (over 90%).

The second research question, “How useful has the Carepath protocol been for institutions since it has been implemented?” was addressed using metrics six, eight, and ten. Metric six stated “Having the perinatal depression Carepath protocol to screen and refer clients has played an important role in structuring this process at our organization”. For this metric 54.3% of the respondents “Strongly Agreed”, 34.3% “Somewhat Agreed” and 11.4% reported “Don’t Know”. Metric eight asked “How difficult was it to adapt the screening and referral Carepath protocol into your daily job activities”, and 90.6% agreed that it was not difficult. Metric ten stated “The Carepath protocol for screening and referring clients for perinatal

depression is better than the system in place before", and over half (63%) of the respondents agreed.

The third research question for this study asked "What barriers do institutions face in the process of trying to screen and refer clients for perinatal depression?" Metric 12 asked referring providers to list any challenges they had with the screening and referring process. There were five sections that addressed challenges with different aspects of the PDP. Most of the respondents marked "No" that no changes were needed to the Carepath protocol, tools, or resources. The last question, subpart E, "More resources are needed for clients regarding perinatal depression" and 59.4% stated "No" and the other 40.6% stated "Yes" or did not answer. It should also be noted that an exploratory analysis was done using crosstabs. The specialties of the referring providers were dichotomized to create two variables, community health workers and clinically trained professionals. The analysis revealed no major differences in the responses. The following responses below used data from the univariate analysis.

Table 1 Summary of Specialties for Referring Providers

Specialty	**N= 35 No. (%)**
Community Health Worker	**15 (42.9%)**
Medical Assistant	**4 (11.4%)**
Nurse	**6 (17.1%)**
Social Worker	**6 (17.1%)**
Other	**1 (2.9%)**
No Identity	**3 (8.6%)**

Table 2 How useful are the PDP training, tools, and resources to the administrators and referring providers?

CFIR Metric	**Frequency**	**Response**	**Percent**
"The training and education that I received from the Perinatal Depression Project has been useful in helping me to screen and refer clients for perinatal depression"	**14 20**	**Strongly Agree Somewhat Agree**	**58.8% 41.2%**
"The Guide for Moms" brochure and maternal depression tear off sheets are helpful in meeting client informational needs about perinatal depression"	**17 10 3**	**Strongly Agree Somewhat Agree Don't Know**	**56.7% 33.3% 10.0**
"I can connect a client to a perinatal mental health professional by using the maternal behavioral health referral form".	**19 12 4**	**Strongly Agree Somewhat Agree Don't Know**	**54.3% 34.3% 11.4%**

Table 3 How useful has the Carepath protocol been for institutions since it has been implemented?

CFIR Metric	Frequency	Response	Percent
"Having the perinatal depression Carepath protocol to screen and refer clients has played an important role in structuring this process at our organization".	**19** **12** **4**	**Strongly Agree** **Somewhat Disagree** **Don't Know**	**54.3%** **43.3%** **11.4%**
"How difficult was it to adapt the screening and referral Carepath protocol into your daily job activities".	**1** **13** **16** **2**	**Somewhat Difficult** **Not Really Difficult** **Not Difficult At All** **Don't Know**	**3.1%** **40.6%** **50%** **6.3%**
"The Carepath protocol for screening and referring clients for perinatal depression is better than the system in place before".	**3** **14** **10**	**Strongly Agree** **Somewhat Agree** **Don't Know**	**11.1%** **51.9%** **37%**

Table 4 "What barriers do institutions face in the process of trying to screen and refer clients for perinatal depression?

CFIR Metric	Frequency	Response	Percent
Subpart A: "Changes in training and education offered by the Perinatal Depression Project".	**27** **5**	**No** **Yes**	**84.4%** **15.6%**
Subpart B: "Changes in the perinatal depression Carepath protocol related to screening and referral process"	**25** **7**	**No** **Yes**	**78.1%** **21.9%**
Subpart C: "Changes need to be made to the maternal behavioral health referral fax form".	**29** **3**	**No** **Yes**	**90.6%** **9.4%**
Subpart D: "I need more training to increase my level of comfort with suggesting mental health services with clients"	**23** **9**	**No** **Yes**	**71.9%** **28.1%**
Subpart E: "More resources are needed for clients regarding perinatal depression"	**19** **13**	**No** **Yes**	**59.4%** **40.6%**

Qualitative Results

In total four administrator interviews were completed from four sites: MomsFirst, Cuyahoga County Board of Health Newborn Home Visiting Program, Northeast Ohio Neighborhood Health Services, Inc., and University Hospital Westlake Campus. The administrators held various titles including Nurse Manger, Project Director, and Program Director, and Supervisor. After performing latent content analysis of the data, there were three major themes that were identified and related to the most relevant issues regarding the PDP. (1) Overall feelings about training and tools: this theme was created from the code "Great/Perfect/Excellent" because these words were commonly used in the interviews with the administrators. The other code "Guide/Helpful/Support" was included in this theme as well because these words were also used commonly in sentences describing the tools and training; (2) Feelings regarding PDP Project and goals was created from the code Excellent/Very Well/Good/Wonderful, these were words commonly used throughout the interview when the administrators described the PDP goals; (3) Challenges and Improvements for the PDP was created from the code "Feedback". The word feedback was commonly used by the administrators who gave suggestions of improvements. The emerging things and exerts to support the themes are as follow:

Overall feelings about the training and tools

All of the administrators had positive feedback to give about the training and tools.

- "Fine, perfect. We all had a united screening" (Number 2)
- "Great. Very clear. She came out to the office and gave us all the resources and guide for how to order more." (Number 4)
- "Given them clarification and they leave it up to the women to decide what services or organizations to go to. She had them (mental health providers) come and that was really helpful." (Number 3)
- "Everything works together to support the process" (Number 1)
- "Excellent, very fortunate to have cooperation among providers" (Number 1)
- "I think we have a very good working relationship and appreciate the tools, it makes it easier for my nurses to serve the clients." (Number 3)

Feelings regarding PDP Project and goals.

There was an overall consensus that the administrators felt that the PDP was reaching its goals. Although a few suggestions were offered, the majority of the feedback was very positive.

- "Done an excellent job" (Number 2)
- "Far exceeded my expectations, very well…so much momentum and it's become widespread, more acceptable, and the providers feel a responsibility to do it". (Number 1)
- "I would say 90% of the time that it is happening, I can't imagine many pregnancies go by and they're not being asked. I can only speak for our office….I think the training was good". (Number 4)
- "Wonderful concept, good we had an agency that took on the task of identifying and creating a central agency that focused on perinatal depression." "I mean professionals have so much on their plate it was good to have this". (Number 2)

Challenges and Improvements for the PDP

One of the administrators felt as though the website for the PDP could be more interactive but most of the concerns from the administrators came from their confusion about referrals to mental health providers. There is still ambiguity about the role of the mental health providers in regards to the type of feedback they receive about their clients. Some of the statements are as follows:

- "I get feedback every now and then and what they are being told to do with the referrals are different". "The organization is telling the client to call them….Telling the nurses to have her call me." (Number 3)

- "We want more feedback…" "What happens to the client once they get referred?" (Number 4)

Qualitative feedback from Provider Instrument

Some of referring provides provided feedback on challenges they encountered during the screening and referral process. Of the comments made about changes to be made, the majority of the statements from the referring providers also reflected their concern about the referral process with mental health providers. The code called "Referral/Referred" was created because this word was often used when the providers discussed challenges they had with their clients and the code "Contact/Call" was created from responses that commonly used the words contacts, call back, turn-around time, and statements that referred to a particular agency. Some are the common statements are listed below:

- "Can we get updated referral sheets with updated phone numbers and fax numbers."
- "Faster turn-around time from contact"
- "Once referred what happens, how do these organizations follow up with us to give feedback on progress with patients".
- "Referral process could be better as far as with the client to provider also with the referring programs"
- "Often times I get the voicemail at ____, doesn't seem like I get a call back as much as I like."
- "There needs to be more referring agencies added to the list"
- "Business cards, exact contacts"
- "West side providers"

The providers who chose to respond to "Where did you go if you had issues with the Carepath protocol and the screening and referring process", there were three codes combined into the theme "Resource for Support". The codes included "Supervisor/Case Manager/Social Worker" because these terms were commonly used among providers; "PDP Project Coordinator" was created for those statements that commonly stated the PDP Project Coordinator or her name; and "Tools" for those statements that referred to the referral list sheet. Some of the common responses included:

- "Case Manager"
- "Social Worker"
- "PDP Project Director"
- "My supervisor"
- "Utilize referral list"

When asked about if more education or training was needed the majority of the respondents stated “No” (71.9%) but the changes suggested fell under the theme “Educational Opportunities” the code included “More Education/Resources/Information”. Many of the statements often included needing more brochures for clients, more information about perinatal depression in general, more education about mental health agencies for all persons, including more training for physicians. There were also a few comments made about when the patient is getting screened. The theme called “Screening Time” was created for the comments related to issues with screening. This feedback often included statements such as “still screening patients to early” or “screening too early”, and “not being screened during the pre-natal period”. These comments were also from providers who were also having issues with implementing the Carepath protocol at their organization.

Limitations

This study had a few limitations. Although many of the organizations that chose to participate in this study had a considerable amount of participants, it would have been beneficial to have more participants from the healthcare setting. Many of the healthcare settings are implementing the Carepath protocol at more than one site. For example, both NEON and UH have multiple sites but only one site from each were able to participate in this study. For this reason this study also may have had issues with self-selection bias. It would have interesting to gather information from the same institution but different participants at their other sites. This would have provided even more insight on how the context of an environment impacts the implementation of an intervention. This study also only included institutions that had been trained over the last 2 to 3 years, if the pool of participants were expanded this may have yielded different results. Many of the responses were positive this could be because only the most engaged institutions that had positive experiences implementing the Carepath protocol, tools, and resources decided to be a part of the study. Those institutions that may have been less engaged or had difficulties with the Carepath protocol, training, or tools may have chosen not to participate.

The instrument that was created for this study was an original. This researcher was not able to find another instrument that utilized the CFIR framework for an evaluation of a program related to screening and referring for perinatal depression. Although the instrument was piloted on the PDP Project Coordinator, it would have been beneficial to have a few of the referring providers complete the instrument for further modifications. The interview guide and instrument may have had issues with validity and/or reliability. Due to the fact that this is the first time the interview guide and instrument were piloted in this population, this leaves open the possibility that it can be tested in other similar populations to validate reliability and validity. This study can potentially serve as a pilot study which would allow for improvements for the interview guide and instrument.

Strengths

Utilizing a mixed methods approach also served as strength for this study. Despite the limitations, using both quantitative and qualitative data to gain insight on the screening and referring process at these institutions added great value to this study. Many studies have indicated that this approach is being used more often in clinical and social sciences research. This approach was beneficial because it allowed for different perspectives and commonalities from both the referring providers and administrators to be explored. Using the CFIR framework for this study was also a novel approach, as mentioned earlier this framework and data collection tools have the potential to be useful for evaluations of programs who serve a similar population.

Conclusions

The majority of the participants from this study thought that the PDP was meetings it's goal and were satisfied with the Carepath protocol in helping them to streamline the screening and referral process. They also seem to be pleased with the resources, education, and tools received from the PDP. Due to help from the PDP Project Coordinator the implementation of the Carepath protocol was done without many complications. Most of the administrative work for implementing the Carepath protocol is done with much assistance from the PDP Project Coordinator. The administrators expressed their appreciation for this. Most of the issues with the screening and referring process are related to referrals with the mental health providers. There still seems to be some disconnect between mental health agencies and referring providers. This is interesting because most of the referring providers stated no changes needed to be made to the referral fax form. The results from this study show a clear consensus from both the administrators and the providers that there is either miscommunication or a lack of communication between mental health agencies and both the clinical and community based institutions. To summarize the findings from this study, it can be said that both the administrators and referring providers believe the PDP Project is a great asset for maternal and child health professionals but there is still room for improvement.

The Perinatal Depression Project will also be provided with a brief report detailing main issues and suggested recommendations from this study. It is the hope of this researcher that this information will ultimately be used by the Perinatal Depression Project for program modifications. Making modifications to the referral process is needed. Modifications have currently been made to the referral fax form however there may be a need to redistribute the newly revised referral fax form to referring institutions. A refresher course on how to use the referral fax form for both mental health providers and referring provides may also help miscommunication. As an alternative, a separate sheet can be created for mental health agencies. The sheet would allow them to provide confirmation that the mental health agency was contacted by the referring provider and requires mental health providers to contact referring providers and indicate when a client is seen or is a no show. Moving forward, the PDP may also want to consider alternative mechanisms for training physicians. Providing on-site training that is tailored for physicians may be useful. Knowledge about the Carepath protocol does not appear to be evident by all physicians who work for institutions that have implemented the Carepath protocol. The PDP may also find it useful to conduct more

exploratory studies including beliefs and attitudes of women who receive services from institutions who follow the Carepath protocol and a qualitative study that explores challenges related to the screening and referring process with the referring providers. This study allowed for limited qualitative data from referring providers and there may be rich information they could provide in the form of an interview.

Public Health Implications

Addressing the needs of mental health issues during the perinatal period are increasingly becoming a major area of public health interest. More importantly, equipping health professionals with appropriate tools to address the needs of women during the perinatal period is essential. One of the national health promotion goals stated in HealthyPeople 2020 is screening for depression. The PDP is already helping to address this issue with the innovative perinatal depression training model that has been developed. The PDP has already gained both state and national attention with their model for addressing perinatal depression. This is a great opportunity for the PDP to become an evidence based model so it is imperative that it continues to be evaluated. Expanding this model regionally (e.g. Midwest) or nationally into similar communities that provide services for perinatal depression could help with addressing barriers in the screening and referral process. Nationally, the healthcare reform law is also making it possible for programs the PDP to exist. The law has put into place funding mechanisms that ensure that women are able to receive preventative health services including screening for mental health issues such as perinatal depression.

Future research should also explore screening practices of Obstetricians and Gynecologists (OB/GYN). Although this study included healthcare settings no physicians participated and screening and referring for perinatal depression was done by other health or social service professionals. Physicians play a major role in women's health and it is important that they are included in understanding the variables that affect perinatal depression. This was also noted in an article by Leddy et al., 2010. The authors conducted a study on the knowledge, attitudes, and practices regarding diagnosing post-partum depression using 400 members of the American College of Obstetricians Gynecologists. The study found that physicians are screening but not universally and they had barriers related to lack of training, lack of knowledge on diagnostic criteria, and time constraints. Many times the entry into healthcare for women of child bearing years is the OB/GYN so it would be beneficial to conduct research or provide public health funding to address this issue. Perinatal depression also had broad public health implications for children as well. For women who may not enter the healthcare system on their behalf, it may also be beneficial to provide screening for perinatal depression at well baby visits. There are a few studies that have shown this approach to screening for perinatal depression is useful for capturing women who may be at risk. Therefore additional research on the feasibility of screening for perinatal depression in the pediatric setting has potential. The model used for the PDP may prove to be useful in this setting as well.

The US Department of Health and Human Services is currently creating many pathways for mental health research and services as well as providing resources for maternal and child

health. Social service and medical professionals must continue to work together to address perinatal depression. Many studies have indicated that taking a comprehensive approach to combating perinatal depression is most effective. Identifying and addressing barriers at the individual, community, and policy level are socially and economically beneficial. Initiatives such as Healthy People 2020, which has identified mental health as a top priority and programs and funding from Title V are important national efforts focused on providing resources and awareness to issues impacting women and children. In the current political climate where more social and entitlement programs are at risk of losing funds or being eliminated, it is even more important to advocate for resources and policies that aim to improve women's health and mental health. Having a healthy woman makes for a healthy mother and this in turn impacts the health of children and families--all of which ultimately impacts our communities. The landscape and role of maternal and child health is currently evolving and it should continue to be the responsibility of our society to ensure their well-being.

Health Promotion and Disease Prevention Competencies

This study addressed the following major-specific competencies for Health Promotion and Disease Prevention.

- Identify and engaging critical stakeholders for the development, implementation, and evaluation of public health strategies that address multiple targets and multiple levels. Level: *Advanced.*
    - This study required stakeholders from the academia and community settings. It also included other public health practitioners. The input from theses stakeholders guided the creation and implementation of the evaluation for the Perinatal Depression Project.
- Describe how social, behavioral, environmental and biological factors contribute to specific individual and community health outcomes. Level: *Advanced.*
    - By conducting a literature review on perinatal depression, this researcher was able to detail the impact it has on women, children, families, and society in the background of this essay. Working with the Project Coordinator of the perinatal depression project also allowed for a more in-depth understanding of how to address perinatal depression on an individual, community, and policy level.
- Systems may be viewed as systems within systems in the analysis of public health problems and solutions. Level: *Advanced*.
    - The theoretical framework used to guide this evaluation was specifically chosen because it is useful in understanding how the implementation of complex public

health interventions is impacted at many levels within a system and among systems.

General Capstone Competencies

- Understanding the role of epidemiology in the control of public health problems…
    - Level: *Sufficient*. This study did not require much use of the principles taught in the field of epidemiology. However, this researcher did receive IRB approval to conduct this study which required a sufficient level of understanding of basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
- Understand the behavioral, social, and cultural factors related to individual and population health…
    - Level: *Advanced.* This study required understanding how perinatal depression is perceived among races/ethnicities and how cultural differences impact the way perinatal depression is treated by clinical and public health practitioners. This study allowed this researcher to work with a program that is specifically tailored to meet the needs of women from different socio-cultural backgrounds.
- Demonstrate effective written and oral skills for communicating with different audiences….
    - Level: *Advanced.* The results from this study were presented in academic, community, and other professional settings.
- Engage in a dialogue and learning from others to advance public health goals…
    - Level: *Advanced.* This study required engagement from many public health professionals who are actively involved in a variety of public health programming. This researcher used the expertise of the committee group and PDP Project Coordinator in order to create and implement the evaluation described in this study.
- In collaboration with others, prioritize individual, organizational, and community concerns and resources for public health programs….
    - Level: *Advanced.* The results and recommendations of this study will be used to prioritize organizational, community concerns, and resources offered through the PDP.
- Analyze the effects of political, social, and economic policies on public health systems at the local, state, national, and international levels….
    - Level: *Sufficient*. The theoretical framework used to guide the evaluation described in this study aimed to explore the impact of political, social, and economic factors on systems delivering public health intervention in both community and health care settings.

Appendix A

The program evaluation was conducted over a 5 month period starting from May of 2012 until October 2012. The following activities were conducted each month:

Activities	May	June	July	Aug	Sept	Oct	Nov
• Literature review on prevalence of perinatal depression. Review of "Feelings of African American Prenatal Women" report conducted by Cleveland Regional Perinatal Network • Create Provider Referral Instrument • Submit IRB Proposal							
• Receive IRB Approval • Create data management excel sheet for instrument and metrics (SPSS) • Create Analytic Plan							
• Administer referral provider survey • Conduct Administrator Interviews							
• Review prior evaluations and quarterly reports conducted by Project Coordinator							

• Attend CHRP meetings • Weekly meetings at UH with Project Coordinator • Monthly meeting with Capstone committee							
• Data maintenance and management • SPSS Analysis							
• Submit Progress Report							
• Complete Evaluation • Provide Report to UH • Complete Capstone Essay • Prepare to present results							

Appendix B

Interview Guide (Interviewer Version)

During this interview you will be asked questions regarding your involvement with the Cleveland Regional Perinatal Network: Perinatal Depression Project. Specifically I will ask you about- ways in which the screening and referral protocol was implemented into your organization, your satisfaction regarding the perinatal depression Carepath and training and resources, and barriers your organization may have encountered with screening and referring patients for perinatal depression. This interview will last approximately 30 minutes.

Domain: Intervention
Construct: Complexity
Definition of Construct: "Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement."

Question #1: Can you tell me about the timeline you created when the Carepath protocol was implemented into your organization?

Probe #1: What attributes did you consider about your organization when you designed your Carepath protocol?

Question#2: Did you face any challenges when initially implementing the Carepath into your organization?

Probe#1: So how did you deal with these challenges?

Domain: Process
Construct: Planning
Definition of Construct: "The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods".

Question #3: Can you tell me about the timeline you created when the Carepath protocol was implemented into your organization?

Domain: Process
Construct: Engaging
Definition of Construct: "Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities"

Question #4: Were there particular people at your organization who were central to getting perinatal depression Carepath implemented?

Probe#1: How was it decided who would be responsible for screening and referring women for perinatal depression?

Probe#2: Were there other people involved who would have been helpful?

Probe3#: How was leadership involved in this process?

Domain: Intervention
Construct: Relative Advantage

Definition of Construct: "Stakeholder's perception of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes"**.**

Question #5: Can you tell me about the way in which you used to screen and refer women?

Question #6: Why did you decide to implement the perinatal depression Carepath protocol as opposed to keeping your old system for screening and referring women for mental health services?

Probe#1: Did you think the Carepath protocol would provide a better system?

Domain: Intervention
Construct: Design Quality & Packaging
Definition of Construct: "Perceived excellence in how the intervention is bundled, presented, and assembled".

Question #7: What do you think about the training and the tools your organization received from the Perinatal Depression Project for supporting the perinatal depression Carepath protocol?

Probe #1: Was the training and tools such as the maternal behavioral referral fax form helpful for implementing the Carepath protocol?

Probe#2: How has the training and tools been helpful?

Probe #3: How would you describe the quality of the training and tools?

Probe#4: What other materials or training would have been helpful to support the implementation of the perinatal depression Carepath protocol?

Domain: Inner Setting
Construct: Networks and Communications
Definition of Construct: "The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization".

Question #8: What kinds of communication take place between referring providers and the administrators that makes using the Carepath protocol for screening and referring clients work?

Probe#1: Are they phone calls, meetings, or emails?

Probe#2: What makes these kinds of communication work?

Probe#3: Are there some methods of communication that are more effective than others?

Probe#4: Is there any kinds of communication between you and the providers that is lacking?

Domain: Process
Construct: Reflecting and Evaluating
Definition of Construct: "Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience".

Question# 9: Do you share any data with the providers on how well the Carepath protocol for screening and referring clients for perinatal depression since it was implemented into your organization?

Probe#1: How frequently do you do this?

Probe #2: How is it used?

Probe#3: Is it discussed with all providers?

Domain: Characteristics of the Individual
Construct: Knowledge and Beliefs about the Intervention
Definition of Construct: "Individuals attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles of intervention".

Question #10: How well do you think the Perinatal Depression Project is meeting its goals?

Probe#1: The primary goal is to ensure that women are being screened and referred for perinatal depression and other mental health services.

Probe#2: The secondary goal train providers

Probe#3: The third goal is to create a network of both mental health and perinatal health providers tailored to meeting the needs of women at risk

Domain: Inner Setting
Construct: Tension for Change
Definition of Construct: "The degree to which stakeholders perceive the current situation as intolerable or needing change".
Question #11: Do you feel as though any changes are needed?

Probe#1: Are there changes needed in your Carepath protocol for screening and referring women for perinatal depression?

Probe#2: Are there any changes needed to the training provided by the Perinatal Depression Project?

Probe#3: Are there any other changes needed that your providers have communicated with you?

Question #12: Is there anything else you would like to share?

Appendix B cont…..CFIR Constructs, Domains, and Items on Instrument

CIFR Domains	**CIFR Construct Within Each Domain**	**Justification for Constructs chosen**	**Items on instrument that measure these constructs**
Intervention: core components and adaptable elements, structures, and systems related to the intervention and organization; training (screening and the referral)	Complexity, design quality and packaging Relative Advantage	Complexity encompasses how easy it is for administrators to implement the intervention, ease of use with the resources provided as a part of the Carepath protocol, and ease of navigation through the provider screening and referral process. Design quality and packages refers to perceived satisfaction and effectiveness. This includes the administrator's satisfaction with the	**Complexity:** 1,2 **Design Quality & Packaging:** 7 **Relative Priority:** 5, 6

		intervention, provider's feelings about perinatal depression training and resources to support the intervention and if providers are reaching the intended audience, and barriers related to implementing the intervention appropriately.	
Context-Inner setting and outer setting: changes in outer setting can influence implementation, including economic, political, and social context mediated by the inner setting, which also is comprised of structural, political, and cultural context through which the implementation process will proceed.	Networks and Communications	The metrics for both the inner and outer setting explore support from the provider's institution in regards to information on perinatal depression, the use of the Carepath protocol, strength of network of women's health professionals and mental health providers, and types of communication regarding the Carepath and tools It also includes degree to which changes may be needed to screening and referring process	**Networks & Comm.** 8 **Tension for Change** 11
Individual characteristics: dynamics between individuals and the organization and how interplay between the two influence individual and organizational behavior change	• Knowledge and beliefs about intervention (how-to-knowledge, skill, value)	The metrics chosen aim to provide insight related knowledge about the prevalence of perinatal depression and baby blues, including their definitions, the providers ability to screen and refer clients with at risk for perinatal depression, ability to identify resources and other educational materials provided by the PDP, and value of screening women for perinatal depression on both an individual and organizational level.	**Knowledge and beliefs:** 10

Implementation process: means by which an intervention is assimilated into an organization; transition during which stakeholders become increasingly skillful, consistent, and committed to the use of the intervention	Engaging; formally appointed internal implementation leaders (part of their job); champions (advocates of intervention); executing the intervention as planned Reflecting & Evaluation	The metrics chosen will help to explain how institutions became involved with the PDP project, how providers communicate with the PDP project and mental health providers, and challenges in the process of engaging providers, clients, and mental health providers on both the individual or organizational level. It will also provide insight on how feedback regarding the effectiveness Carepath is shared within the agency	**Engaging:** 4 **Reflecting & Evaluation:** 9

Appendix C

COMPLETE OTHER SIDE!

Referring Provider Survey (Researcher version)

The following survey will ask you to rate your satisfaction regarding the perinatal depression training and education, Carepath protocol and tools, your feelings about screening and referring practices within your organization, and barriers with screening and referring clients for perinatal depression. Please circle your response.

1. **How would you rate your <u>current level of knowledge</u> on how to follow the perinatal depression Carepath protocol used to screen and refer clients for perinatal depression? (IV A)**

Excellent Knowledge Good Don't Know Satisfactory Poor Knowledge N/A

2. **The training and education that I received from the Perinatal Depression Project has been useful in helping me to screen and refer clients for perinatal depression. (III.E2)**

Strongly Agree Somewhat Agree Don't Know Somewhat Disagree Strongly Disagree N/A

3. **I feel confident in my ability to screen and refer clients for perinatal depression. (IV.B.)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

4. **The "Guide for Moms" brochure and maternal depression tear off sheets are helpful in meeting client informational needs about perinatal depression. (II.A.)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

5. **I can connect a client to a perinatal mental health professional by using the maternal behavioral health referral form. (II.B)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

6. **Having the perinatal depression Carepath protocol to screen and refer clients has played an important role in structuring this process at our organization. (III.D3)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

7. **Information and support are readily available if I have questions about the perinatal depression Carepath protocol or referral fax form. Yes □ No □ If yes, where do you go? (III.E3)**

8. **How difficult was it to adapt the screening and referral Carepath protocol into your daily job activities? (I.F.)**

Very Difficult Somewhat Difficult Don't Know Not Really Difficult Not Difficult At All N/A

9. **My organization does well at communicating new information regarding how to screen and refer clients for perinatal depression with providers. (III.B)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

10. **The Carepath protocol for screening and referring clients for perinatal depression is better than the system in place before. (I.C)**

Strongly Agree Somewhat Agree Don't know Somewhat Disagree Strongly Disagree N/A

11. **Does your administrator provide enough feedback to you about how well you and your Co-workers use the perinatal depression Carepath protocol? (V.5D) Yes □ No □**

12. **Are changes needed? (V.5)**
    - **a.** Changes in training and education offered by the Perinatal Depression Project. **Yes □ No □** If yes, what?

b. Changes in the perinatal depression Carepath protocol related to screening and referral process. **Yes** □ **No** □ If yes, what?

c. Changes need to be made to the maternal behavioral health referral fax form. **Yes** □ **No** □ If yes, what?

d. I need more training to increase my level of comfort with suggesting mental health services with clients. **Yes** □ **No** □

e. More resources are needed for clients regarding perinatal depression. **Yes** □ **No** □ If yes, what?

13. Specialty field, please check.

Community Health Worker □ Medical Assistant □ Nurse □ Social Worker □
Physician, specialty □ _____ Other □ please specify_____

14. Please provide any additional comments for the Perinatal Depression Project below.

Appendix D

CFIR Constructs

From: Damschroder, L., D. Aron, R. Keith, S. Kirsh, J. Alexander and J. Lowery (2009). "Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science." Implement Sci 4(1): 50.

	Topic/Description	Short Description
I. INTERVENTION CHARACTERISTICS		
A	Intervention Source	Perception of key stakeholders about whether the intervention is externally or internally developed.
B	Evidence Strength & Quality	Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes.
C	Relative advantage	Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution.
D	Adaptability	The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs.
E	Trialability	The ability to test the intervention on a small scale in the organization [8], and to be able to reverse course (undo implementation) if warranted.

F	Complexity	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement
G	Design Quality and Packaging	Perceived excellence in how the intervention is bundled, presented, and assembled
H	Cost	Costs of the intervention and costs associated with implementing that intervention including investment, supply, and opportunity costs.
II. OUTER SETTING		
A	Patient Needs & Resources	The extent to which patient needs, as well as barriers and facilitators to meet those needs are accurately known and prioritized by the organization.
B	Cosmopolitanism	The degree to which an organization is networked with other external organizations.
C	Peer Pressure	Mimetic or competitive pressure to implement an intervention; typically because most or other key peer or competing organizations have already implemented or in a bid for a competitive edge.
D	External Policy & Incentives	A broad construct that includes external strategies to spread interventions including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.
III. INNER SETTING		
A	Structural Characteristics	The social architecture, age, maturity, and size of an organization.
B	Networks & Communications	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization.
C	Culture	Norms, values, and basic assumptions of a given organization.
D	Implementation Climate	The absorptive capacity for change, shared receptivity of involved individuals to an intervention and the extent to which use of that intervention will be rewarded, supported, and expected within their organization.
1	Tension for Change	The degree to which stakeholders perceive the current situation as intolerable or needing change.
2	Compatibility	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems.
3	Relative Priority	Individuals' shared perception of the importance of the implementation within the organization.
4	Organizational Incentives & Rewards	Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary and less tangible incentives such as increased stature or respect.
5	Goals and Feedback	The degree to which goals are clearly communicated, acted upon, and fed back to staff and alignment of that feedback with goals.
6	Learning Climate	A climate in which: a) leaders express their own fallibility and need for team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation.

E	Readiness for Implementation	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention.
1	Leadership Engagement	Commitment, involvement, and accountability of leaders and managers with the implementation.
2	Available Resources Code separately: • Funding • Staffing • HR processes/support • Training • IT Support • Administrative Support	The level of resources dedicated for implementation and on-going operations including money, training, education, physical space, and time. • Availability of funding for the new program. • Are the needed people in place (regardless of whether they are newly hired or existing staff who have been re-assigned)? • Has HS provided timely and helpful support for hiring any new people needed? • Has there been helpful training? • Has IT support been readily available and helpful? • Is administrative support (e.g., coordinating and scheduling meetings, working with IT and HR, etc.) provided?
3	Access to knowledge and information	Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.
IV. CHARACTERISTICS OF INDIVIDUALS		
A	Knowledge & Beliefs about the Intervention	Individuals' attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles related to the intervention.
B	Self-efficacy	Individual belief in their own capabilities to execute courses of action to achieve implementation goals.
C	Individual Stage of Change	Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention.
D	Individual Identification with Organization	A broad construct related to how individuals perceive the organization and their relationship and degree of commitment with that organization.
E	Other Personal Attributes	A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.
V. PROCESS		
A	Planning	The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods.
B	Engaging	Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities.
1	Opinion Leaders	Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention
2	Formally appointed internal implementation leaders	Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar role.
3	Champions	"Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]" [101](p. 182), overcoming indifference or resistance that the intervention may provoke in an organization.
4	External Change Agents	Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction.

5	**Key Stakeholders**	***New Construct!*** The inclusion of stakeholders in the development and implementation of the intervention/program. A stakeholder is a person who can affect or be affected by the intervention/program.
C	Executing	Carrying out or accomplishing the implementation according to plan.
D	Reflecting & Evaluating	Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.

References

Alder, J., Fink, N., Bitzer, J., Hosli, I., & Holzgreve, W. (2007). Depression and anxiety during pregnancy: A risk factor for obstetric, fetal, and neonatal outcome? A critical review of the literature. *Journal of Maternal-Fetal and Neonatal Medicine, 20(3),* 189-209.

Buist, A., Condon, J., Brooks, J., Speelman, C., Milgrom, J., Hayes, B., Ellwood, D., Barnett, B., Kowalenko, N., Matthey, S., Austin, M.P., & Bilszta, J. (2006). Acceptability of routine screening for perinatal depression. *Journal of Affective Disorders, 93,* 233-237.

Bunevicius, A., Kusminskas, L., Pop, V.J., Pedersen, C.A., & Bunevicius, R. (2009). Screening for antennal depression with the Edinburgh Depression Scale. *Journal of Psychosomatic Obstetrics and Gynecology, 30(4),* 238-243.

Chadha-Hooks, P.L., Park, J.H., Hilty, D.M., & Seritan, A.L. (2010). Postpartum depression: an original survey of screening practices within a healthcare system. *Journal of Psychosomatic Obstetrics and Gynecology, 31(3),* 199-205.

Chaudron, H.L., Szilagyi, Kitzman, H.J., Wadkins, H.I.M.,& Conwell., Y. Detection of Postpartum Depressive Symptoms by Screening at Well-Child Visits. *Pediatrics, 113(3), 551-557.*

Cox, J.L., Holden, J.M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry, 150,* 782-786.

Creswell, J.W. (2009). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 3rd ed. Thousand Oaks, CA: SAGE Publications Ltd.

Damschroder, L.J., Aaron, D.C., Keith, R.E., Kirsh, S.R., Alexander, J.A., & Lowery, J.C. (2009). Fostering implementation of health services research finding into practice: a consolidated framework for advancing implementation science. *Implementation Science, 4, 50*-65.

Farquhar, M.C., & Ewing, G., & Booth, S. Using mixed methods to develop and evaluation complex interventions in palliative care research. *Palliative Medicine, 25(8),* 748-757.

Gavin, N.I., Gaynes, B.N., Lohr, K.N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal Depression: A Systematic Review of Prevalence and Incidence. *Obstetrics and Gynecology, 106(5),* 1071-1083.

Gemmill, A.W., Leigh, B., Ericksen, J., Milgrom, J. (2006). A survey of the clinical acceptability of screening for postnatal depression in depressed and non-depressed women. *BMC Public Health, 6*, 211-219.

Gjerdingen, D.K., & Yawn, B.P. (2007). Postpartum Depression Screening: Importance, Methods, Barriers, and Recommendations for Practice. *Journal of the American Board of Family Medicine, 20(3),* 280-288.

Goodman, J.H., & Tyer-Viola, L. (2010). Detection, Treatment, and Referral of Perinatal Depression and Anxiety by Obstetrical Providers. *Journal of Women's Health, 19(3),* 477-489.

Hays, D. G., & Singh, A.A. (2012). Qualitative Inquiry in Clinical and Educational Settings. New York, NY: The Guildford Press.

Heron, J., O'Connoer, T.G., Evans, J., Golding, J., Glover, V., & ALSPAC Study Team. (2004). The course of anxiety and depression through pregnancy and the postpartum in a community sample. *Journal of Affective Disorders, 80,* 65-73.

Hsieh, H.F., & Shannon, S.E. (2005). Three Approaches to Qualitative Analysis. *Qualitative Health Research, 15(9),* 1277-1288.

Lee, E.J., Kim, J.B., Shin, I.H., Lim, K.H., Lee, S.H., Cho, G.A., Sung, H.M., Jung, S.W., Zimmerman, M., & Lee, Y. (2010). Current Use of Depression Rating Scales in Mental Health Setting. *Psychiatry Investigation, 7(170),* 170-176.

Leddy, M., Haaga, D., Gray, J., & Schulkin, J. (2011). Postpartum mental health screening and diagnosis by obstetrician-gynecologists. *Journal of Psychosomatic Obstetrics and Gynecology, 32(1),* 27-34.

Lesser, A.J. (1983). The Origin and Development of Maternal and Child Health Programs in the United States. *American Journal of Public Health, 75(6),* 590-596.

Macgowan, M.J., & Beaularier, R.L. Using Qualitative Data Analysis Software in Teaching About Work Group Practice. *The Journal of Teaching in Social Work, 25(1/2),* 45-56.

New York State Department of Health (2006).Perinatal Depression. Retrieved from http://www.health.ny.gov/community/pregnancy/health_care/perinatal/perinatal_depression.htm

O'Cathain, A., Murphy, E., & Nicholl, J. (2007). Why, and how, mixed methods research is undertaken in health services research in England: a mixed methods study. *BioMed Central Health Services Research, 7,* 85-96.

Patton, M.Q. (2002). Qualitative Research and Evaluation Methods, 3rd ed. Thousand Oaks, CA: SAGE Publications Ltd.

Shakespeare, J., Blake, F., & Garcia, J. A qualitative study of the acceptability of routine screening of postnatal women using the Edinburgh Postnatal Depression. *British Journal of General Practice, 53,* 614-619.

Shields, L., & Ywycross, A. (2008). Content Analysis. *Pediatric Nursing, 20(6),* 38-39.

Strobino, D.M., Granson, H., & Minkovitz, C. (2002). Charting a course for the future of women's health in the United States: concepts, findings, and recommendations. *Social Science and Medicine, 54*, 839-848.

Tandon, S.D., Cluxton-Keller, F., Leis, J., Huynh-Nhu, L., & Perry, D.F. (2012). A comparison of three screening tools to identify perinatal depression among low-income African American women. *Journal of Affective Disorders, 136,* 155-162.

Vegas-Lopez, O., Blanco, C., Keyes, K., Olfson, M., Grant, B.F., & Hasin, D.S. (2008). Psychiatric Disorders in Pregnant and Postpartum Women in the United States. *Archives of General Psychology, 65(7),* 805-815.

Walker, D.K. (1997). Where Is Women's Health in Maternal and Child Health? *Maternal and Child Health Journal, 1(3),* 191-193.

United States Department of Health and Human Services: Maternal and Child Health Bureau Fact Sheet retrieved from http://mchb.hrsa.gov/about/factsheets/healthystartfactsheet.pdf.