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# Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk Taking Behaviors of 13 to 18 Year-Olds in a Regional Family Practice Office

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Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk

Taking Behaviors of 13 to 18 Year-Olds in a Regional Family Practice Office

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### **Abstract**

Risk-taking behaviors are a significant problem in the adolescent population and the three leading causes of mortality for adolescents are suicide, homicide, and unintentional injury (Heron, 2017). National organizations support screening for adolescent risk-taking behaviors and research demonstrates effectiveness of screening. This quality improvement (QI) project implemented the Rapid Assessment for Adolescent Preventive Services (RAAPS) screening tool at a regional family practice office as a vehicle to accomplish the objectives of increased identification of, and intervention for, risk-taking behaviors in adolescent patients. Included in the methods were baseline and implementation chart reviews that were used to assess the change in three measures related to intervention for risk-taking behaviors as a result of screening tool use: provider discussions with patients about RAAPS topics; follow-up appointment discussions; and referral discussions. The Promoting Action on Research Implementation in Health Sciences (PARiHS) Framework was utilized to guide implementation, which took place over 11 weeks. Discussions about helmet use and about having an adult to talk to increased significantly, and discussions about referrals to specialty providers increased significantly. It was found that using the RAAPS screening tool at this family practice office was feasible. Utilizing a team approach and identifying champions in implementation of the RAAPS was discovered to be beneficial for appropriate usage of the screening tool. An implication was that the RAAPS should become standard care at this office to best serve adolescent patients and potentially decrease rates of the top three leading causes of mortality in this age group.

*Keywords:* adolescents; risk-taking behaviors; screening; RAAPS

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Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk-Taking Behaviors of 13 to 18 Year-Olds in a Regional Family Practice Office

### **Introduction**

Adolescence is a period of time in the lifespan marked by many changes, including brain development, puberty, and curiosity about risk-taking behaviors (American Academy of Pediatrics [AAP], 2017a). Patterns that begin in this period of time often persist into the adult years (AAP, 2017a). Moreover, between the ages of 10 and 24 years, the top three sources of mortality are unintentional injuries, suicide, and homicide (Heron, 2017). Other leading sources of morbidity in adolescence fall under the categories of sexual activities, alcohol and substance use, inadequate diet and exercise, and tobacco use (Kann et al., 2018). Of note, the 2017 Youth Risk Behavior Survey found that about 17% of surveyed youth had experienced suicidal ideation and about 7% had tried to commit suicide (Kann et al., 2018).

Clearly, risk-taking behaviors are a significant problem for adolescents. Therefore, the AAP and United States Preventive Services Task Force (USPSTF) both recommend a yearly tobacco, alcohol and drug assessment between the ages of 11-21 and depression screening between the ages of 12-21 (AAP, 2017b; USPSTF, 2016). The AAP additionally advocates for pediatric providers to communicate the importance of seatbelt use, eating a healthy diet, and participating in exercise (AAP, 2018). Likewise, the Centers for Medicare and Medicaid Services (CMS) advocate screening for mental health concerns, tobacco use, substance use, dietary patterns, sexual risks, and safety during yearly wellness visits for adolescents (CMS, 2014). Also, an adolescent quality measure of the National Committee for Quality Assurance (NCQA) is to discuss emotional and social health at annual wellness visits (CMS, 2014).

Undoubtedly, national organizations have made a commitment to recommending



participation in screening for risk-taking behaviors. Even the Patient Protection and Affordable Care Act of 2010 requires that health insurances financially cover evidence-based screenings for adolescents (111<sup>th</sup> Congress, 2010). However, while risk-taking behaviors are included in top causes for morbidity and mortality in the adolescent population, and national organizations encourage screening for these behaviors, screening is still not consistently completed (AAP, 2016).

The purpose of this DNP scholarly project was to acknowledge the practice issue of insufficient adolescent screening and correct this issue in a workplace by the implementation of the RAAPS at the selected regional family practice office. The RAAPS is a 21-question evidence-based screening tool that is valid and reliable for the identification of risk-taking behaviors in 13 to 18 year-old patients (Salerno, Marshall, & Picken, 2012). The RAAPS will be implemented as a quality improvement (QI) project. The above stated guidelines were not routinely followed at this practice site and the application of the RAAPS assisted the organization in complying. Furthermore, RAAPS utilization provided an opportunity for increased identification of, and intervention for risk-taking behaviors in adolescent patients.

### **Assessment of the Organization**

#### **Stakeholders**

Stakeholders for this QI project included healthcare providers, namely, physicians; nurse practitioners (NPs); and a physician assistant (PA); business office coordinators (BOCs); medical assistants (MAs); licensed practical nurses (LPNs); the office manager; and the operations director for all of the organization's family practice offices in this county. Notably, adolescent patients were the most significant stakeholders. This regional family practice office is located in a county of the Midwest where adolescent risk-taking behaviors are a substantial problem. For example, in the 2016-2017 Michigan Profile for Healthy Youth Questionnaire, in this county, nearly 50% of students

in 11<sup>th</sup> grade had been drinking alcohol, about 22% had been bullied at school in the past month, and fewer than 20% had eaten five or more servings of fruits or vegetables in the last week (Michigan Department of Education, 2017). Out of a concern to protect adolescents and prevent harmful influences, providers at this site had an opportunity to assume the responsibility of the identification of risk-taking behaviors and provision of interventions. An assessment of the organization guided QI implementation.

### **Framework for Assessment and SWOT Analysis**

By using the Burke and Litwin (1992) model (see Appendix A) as a framework for the organizational assessment, it was found that transformational factors involved in change, such as the external environment and the organization's mission, greatly impacted the regional healthcare organization site and furthermore, the implementation of the RAAPS at this site. This regional healthcare organization is included as part of a large faith-based health system in the United States and this linkage strongly influenced the beliefs and practices of this office (XXX, 2018a). For example, discussion of the sexual health content of RAAPS was restricted, as abstinence was the only accepted form of contraception for this faith-based health system (United States Conference of Catholic Bishops [(USCCB)], 2009). In addition, the external environment for this regional healthcare organization included organizations like the AAP, USPSTF, CMS, and NCQA, which all recommended screening adolescents for risk-taking behavior.

The mission of this regional healthcare organization was to provide healing to the populations they served (XXX, 2018b). Implementation of the RAAPS complemented this mission statement well, because screening for risk-taking behaviors provided the possibility to detect those behaviors and to treat or refer the patient. Furthermore, one of this regional healthcare organization's guiding behaviors was to have truthful and considerate conversations (XXX, 2018b). The RAAPS

helped to facilitate these types of conversations between adolescent patients and their providers.

In addition, transactional factors involved in change, such as structure and manager roles also influenced the regional healthcare organization site. At this site the office manager and lead physician worked as a dyad to lead and oversee staff and were responsible for assuring that the core values and guiding behaviors were represented. They approved changes in workflow, which included the implementation of a DNP scholarly project. In regards to manager roles, the previous year's staff surveys indicated that an area of improvement was communication from the manager. Therefore, the office manager made a plan to provide weekly emails that included new or important information for all staff. In addition, she facilitated a daily huddle as an attempt to help the team feel better connected, to encourage staff, and to congratulate staff on exceptional work. Furthermore, both transformational and transactional factors involved in change included culture and context.

Climate describes the outlook of employees about the management of their work environment, as well as the teamwork they do or do not experience with their colleagues (Burke & Litwin, 1992). It was found that the climate of this regional family practice office was characterized by uncertainty about the consistency of their management, but also a strong sense of collaboration among staff members. Culture describes policies and procedures that govern how the specific workplace is designed to function (Burke & Litwin, 1992). The office's procedure of longer appointments for wellness visits and shorter visits for sick or chronic visits influenced the amount of time a provider was afforded to discuss risk-taking topics.

The Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis (see Appendix B) revealed that this site has strengths, such as teamwork among staff, and support from the operations director and site mentor for use of the RAAPS (see Appendices C and D); weaknesses, such as communication patterns and lack of standardization; opportunities, such as enhanced follow up and

advocacy from national organizations; and threats, such as two vacant MA positions and changes in processes related to the implementation of a social determinants of health questionnaire on September 4, 2018.

### **Current State of the Site**

Chart reviews performed between June 2018 and September 2018 revealed that this regional office did not have standardized practice related to adolescent risk-taking behaviors. During those 13 weeks, eleven providers saw 100 patients between the ages of 13 and 18 years for wellness visits (see Appendix E, including all 100 patients). It was found that, as a whole, 90% or more of patients were asked about diet; exercise; or depressed mood during their wellness visits. However, 50% or less of patients were asked about suicidality; abuse; or serious problems at home or school; or whether they had an adult in their lives they could talk to. Shockingly, 10% or less of patients were asked about bullying; eating disorders; abuse of prescription or over-the-counter medications; or driving while texting, drunk or high, or riding with a driver who was impaired in those ways. Because two patients had missing data, only 98 patients were included in the analysis.

As the main causes of morbidity and mortality in adolescents are influenced by risk-taking behaviors, the infrequent discussions regarding risk-taking behaviors at this office left room for improvement and led to the clinical questions for this doctor of nursing practice (DNP) Scholarly Project:

1. Does screening adolescents for risk-taking behaviors increase identification of adolescents with risk-taking behaviors?
2. Is it reasonable for providers to use results from a screening tool about risk-taking behaviors to guide interventions?
3. Does identification of adolescents with risk-taking behaviors increase provider interventions

for those risk-taking behaviors?

### **Ethics and Protection of Human Subjects**

The regional healthcare system and the student's university granted Institutional Review Board (IRB) approval for this QI project (see Appendices F and G). In order to safeguard the privacy of protected health information (PHI), data were collected on Research Electronic Data Capture (REDCap), which is the secure online system that the regional healthcare system uses to store data. During both pre- and post- implementation chart reviews, only patient age; sex; dates of the patient visit; discussion of the RAAPS topics; and responses to the RAAPS questions were collected from the electronic health record (EHR). Each provider was assigned a code number that was known only to the DNP student and it was not linked to employee or social security numbers (which were never known to the student).

There is research to support the premise that the benefits of screening for risk-taking behaviors outweigh the risks. For example, one study examined level of distress, need for help, and positive feelings for 15-25 year- olds after taking a survey about sexual experiences (Kuyper, de Wit, Adam, and Woertman, 2012). It was found that 96.5% had positive thoughts after taking the survey, 25% had a sad mood after taking the survey, and 3.5% felt a need for help (Kuyper et al., 2012). Thus, a much greater proportion of participants experienced positive thoughts compared to those who felt sad, and an additional benefit was the realization on the part of some participants of their need for help (Kuyper et al., 2012).

Furthermore, a recent study about screening teens for bullying, alcohol use, and electronic image sharing demonstrated that most participants found the screening to be more helpful than upsetting (Shaw, Runions, Johnston, and Cross, 2017). In addition, the USPSTF (2016) discovered that the potential for adolescent harm from depression screening and counseling is extremely low.

Therefore, it was expected that the potential for adolescent harm from risk-taking behavior screening from the RAAPS was also low. The anticipated benefits of identification and management of risk-taking behaviors exceeded the potential for threats of being screened. Risks were minimized by the adolescents' ability to refuse screening or to skip questions they did not wish to answer. Because the procedures were implementation of standard care guidelines, signed consent was not required from the parents. Human Subjects Protection training had been completed by all project members and was used to guide data collection.

### **Clinical Practice Question**

Accordingly, an evidence-based project was proposed to answer the following practice question: *at the regional family practice office, after orientation and education about the RAAPS screening tool, would providers increase discussions about risk-taking behaviors; increase discussions about follow up appointments; or increase discussions about referrals related to risk-taking behaviors for their adolescent patients?*

### **Review of the Literature**

#### **Methods**

**PRISMA.** The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (See Appendix H) guideline served as the framework for this review (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009). A comprehensive electronic search was conducted in CINAHL, Cochrane Library, and PubMed and was limited to reviews in the English language during the period of 2013 to 2018. Keywords were risk behavior screening, risk behavior assessment, adolescent, teen, alcohol use, provider, intervention, and screening. The wild card symbol \* and Boolean operators AND and OR were utilized to increase the available results. One search example was provider AND intervention AND adolescent\* OR teen\* AND screening\*.

## **Inclusion and Exclusion Criteria**

**Population.** Studies including adolescent patients between the ages of 11 to 25 who completed a screening tool regarding a risk-taking behavior were included. Research articles that included participants below the age of 11 years or above the age of 25 years were excluded.

**Intervention.** Included risk-taking behaviors were generalized risk-taking behaviors, suicidality, mental health, depression, alcohol use, and youth violence. To be included, each study was required to have a healthcare provider deliver an intervention following the administration of a screening tool. Included settings were primary care offices or emergency departments. Articles were excluded in which a screening tool was administered, but no provider interventions were mentioned; and in which provider interventions were discussed, but no screening tools were mentioned.

**Comparison.** The comparisons were treatment as usual (TAU) compared to an intervention for treating risk-taking behaviors; and between-group and within-group comparisons for two different interventions. Two studies included no comparison group.

**Outcome.** Outcomes of treating risk-taking behaviors were effectiveness of screening to increase provider referrals; effectiveness of referrals to increase attendance at the subsequent appointment; effectiveness of screening and intervention to decrease risk taking behaviors, alcohol use, suicidality, and symptoms of mental health disorders; and effectiveness of a screening tool and intervention to improve treatment of depression.

## **Search Outcomes**

The search yielded 1,019 articles. On CINAHL, 447 articles were found; on Cochrane Library, 72 articles were found; and on PubMed, 503 articles were found. Three articles were located through online searches that identified publications similar to those already obtained. Two duplicates

were found. The PRISMA criteria guided inclusion and exclusion criteria for articles (Moher et al., 2009). Review of titles and abstracts resulted in removal of 1,007 articles that did not meet the inclusion criteria. In addition, 4 articles were excluded after in-depth examination of content, as they did not meet inclusion criteria. The remaining 10 articles were included in this review (see Appendix I).

## **Synthesis**

**Methods.** The literature review contained one systematic review. Systematic reviews are considered the highest level of evidence on the hierarchy of evidence, meaning that the study design is most rigorous and subsequently, a reader has a higher confidence in its validity (East Carolina University Libraries, 2018). Two of the single studies were randomized controlled trials (RCTs). RCTs are considered to be at the second-highest level on the hierarchy of evidence (Melnik & Fineout-Overholt, 2015). The remaining single studies were considered to be at levels three and four on the hierarchy of evidence (Melnik & Fineout-Overholt, 2015). Of the nine single studies, six studies were cross sectional while the remaining three studies were longitudinal. In the systematic review, again, six studies were cross sectional while the remaining three studies were longitudinal.

**Outcomes.** In the two studies related to suicidality, all patients were screened for suicidal ideation and each patient who screened positive was provided an intervention (Etter et al., 2017; King, Gibson, Horwitz, & Opperman, 2015). In the study by Etter et al. (2017) each patient who screened positive for suicidal ideation was given education or referral to mental health services, dependent on provider discretion. Follow-up was not conducted in this study. The study by King et al. (2015) also included two different interventions and, after two months, the group that received a more comprehensive intervention, which included motivational interviewing (MI,) was reported to have had a greater reduction in depression compared to the group that received a less complex



intervention.

In a study about depression, all patients were screened and patients who screened positive were given one of two interventions (Saulsberry et al, 2013). In this study, while both groups reported lower rates of depression and loneliness, the group that received MI instead of brief advice was reported to have had greater improvement. In the second study about depression, compared to the group that was not screened, the group that was screened for depression experienced higher rates of provider interventions, which included discussion, education, referral, or medication (Aalsma et al., 2018). In a study that evaluated mental health screening, the participants who were screened had a higher likelihood of discussing their mental health with their provider, being referred to counseling, and actually receiving counseling, than those who were not screened (Jonovich & Alpert-Gillis, 2014). In addition, in a study that screened all patients for mental health concerns, the patients who responded positively with a mental health concern received more referrals to mental health services and subsequently utilized mental health services more than those who did not respond with a mental health concern (Hacker et al., 2014).

In a study about alcohol use, rates of alcohol cessation increased after three months in the group that was screened for peer risk of alcohol use and given brief provider advice (Louis-Jaques, Knight, Sherritt, & Van Hook, 2014). In another study, the group that was screened for youth violence (YV) discussed YV more with their provider than the group that was not screened (Riese, Mello, Baird, Steele, & Rainey, 2015). Gadowski et al. (2015) evaluated a screening tool for nine risk-taking behaviors. Participants who were screened had more discussions with their provider about psychosocial and mental health concerns than their counterparts who were not screened. Finally, in the systematic review by Webb Kauer, Ozer, Haller and Sancu (2016), in seven out of the nine studies screening and follow-up of a variety of risk taking behaviors and mental health

disorders improved patient outcomes.

Thus, in the included studies, screening and interventions for risk-taking behaviors were very effective. In each study, participants completed the screening tools that were administered to them. Subsequently, each of the screening tools helped to identify adolescents with a risk-taking behavior. Furthermore, after viewing the results of the screenings, providers intervened through methods of discussion, provision of education, referral, and prescription of medication.

Interestingly, MI was utilized and found to be more effective than the alternative intervention in two studies. Overall, patients who were screened received more services. In the longitudinal studies, it was demonstrated that more comprehensive interventions led to more positive patient outcomes. There is evidence to indicate that screening adolescents for risk-taking behaviors such as depression, suicidality, alcohol use, and violence can be a successful way to identify these behaviors in this population. In addition, it is reasonable for providers to use results from screening tools about risk-taking behaviors to guide interventions.

### **Limitations**

A limitation of the literature review was that only one systematic review and two RCTs were among the 10 studies meeting search criteria. Therefore, more randomized, controlled studies are needed to further validate the claims that screening for risk-taking behaviors is efficacious in increasing provider intervention. Furthermore, a limitation was that evidence was included only if it was published in the last five years. More level one and two studies in the hierarchy of evidence may have been published prior to the last five years.

In addition, methods used for screening varied greatly among the studies. In the systematic review, researcher-assisted administration of the screening tool was the method for screening in several studies, while in all of the single studies, self-administered screening tools were used. Also,

some self-administered screening tools were completed using paper, and others were completed on an electronic device. These inconsistencies may have confounded the study findings because of a decrease in internal validity. Lastly, only three single studies and three studies included in the systematic review were conducted longitudinally. While the other seven studies demonstrated positive results during the intervention, it is unknown if the clinical benefits were sustainable. Most of the longitudinal studies demonstrated sustainability of the interventions over time. Therefore, more high quality studies that follow participants longitudinally need to be conducted about this topic.

## **Results**

This literature review provided evidence that screening for risk-taking behaviors could be beneficial in terms of knowing who is at risk, and subsequently, what interventions are applicable to them. Providers in these studies utilized the screening results of patients with risk-taking behaviors and intervened appropriately with many of the adolescent patients. These outcomes are suggestive of a conclusion that screening for risk-taking behaviors can and should be conducted routinely in primary care in order to provide best quality care for adolescents. In order to provide effective care, we need to know what care is needed.

### **Phenomenon Conceptual Model: The PARiHS Framework**

The Promoting Action on Research Implementation in Health Services (PARiHS) Framework (see Appendix J) was used to describe the way change occurred in this organization. According to the PARiHS Framework, the three main components of *evidence, context, and facilitation* are each essential to successful application and sustainability of a change process, and each component works in relationship to the other two (Kitson, Harvey, & McCormack, 1998; Rycroft-Malone, 2014). The level of rigor, excellence, and effectiveness for each component can

vary on a continuum of supportiveness for the change ranging from low to high (Kitson et al., 1998). When the components are considered to be “high,” in supportiveness, there is a greater probability of successful implementation (Rycroft-Malone, 2004).

### **Evidence**

The subcomponents of evidence include *research, clinical experience and patient preference* (Kitson, et al., 1998). On the “low” side of the evidence continuum, research is represented by anecdotal evidence and descriptive information, while the “high” side of the continuum is characterized by RCTs, systematic reviews, and evidence-based guidelines (Kitson, et al., 1998). RCTs have demonstrated that screening for risk-taking behaviors is efficacious in identifying adolescents with risk-taking behaviors and expediting intervention (King, Gibson, Horwitz, & Opperman, 2015; Riese, Mello, Baird, Steele, & Rainey, 2015). Therefore, RAAPS fell on the “high” side of the subcomponent continuum of research. In addition, clinical experience belongs on the low side of the continuum if expert opinions are divided, and on the high side of the continuum if there exists high levels of consensus about the evidence (Kitson, et al., 1998). Finally, in the systematic review by Webb, et al. (2016) many providers utilized the results from various screening tools to direct their interventions, which subsequently enhanced patient outcomes. If patients are not involved, patient preferences are considered to be on the low side of the continuum, and if staff members and patients are in partnership relationships, patient preferences are on the high side of the continuum (Kitson, et al., 1998). When screening tools are used in a clinical setting, patients have the option of whether or not to complete the tool.

### **Context**

The next component of the framework is context, which describes the physical setting where the change is to be implemented (Kitson, et al., 1998). *Culture, leadership, and measurement* all

influence the context (Kitson, et al., 1998). “Low” cultures for EBP are task- driven, show low regard for individuals, have low morale, and provide little or no continuing education (Kitson, et al., 1998). On the contrary, cultures considered to be “high” for EBP are described as being learning organizations, being patient centered, being a place where people are valued, and being a place where continuing education is offered (Kitson, et al., 1998). The culture subcomponent of the regional family practice office was considered to be on the “high” side of the continuum. For example, improving the care of adolescents was in alignment with their mission and guiding behaviors.

The context subcomponent of leadership is associated with diffuse roles, a lack of team roles, poor organization or management of services, and poor leadership when it is considered to be “low” (Kitson, et al., 1998). Leadership considered to be “high” is coupled with clear roles, effective teamwork, effective organizational structure, and clear guidance (Kitson, et al., 1998). In regards to the subcomponent of leadership, both the “low” and “high” sides of the continuum were exhibited. During the completion of the SWOT analysis, staff stated that they could count on each other for help, but their manager was not always organized or clear about her expectations. As teamwork is was a strength of the office, the DNP student capitalized on this by promoting the QI project as one way to assist the team in caring for patients and increasing reimbursement.

The last subcomponent of context is measurement. When there is an absence of audit and feedback, peer review, external audit, and performance review of junior staff, measurement is considered “low” on the context continuum. However, when internal measures and audit or feedback are used routinely, peer reviews are conducted, and work is evaluated from an external source, measurement is considered high on the context continuum (Kitson, et al., 1998). The site manager provided feedback to staff at their annual reviews and provided daily “huddle” meetings with all

staff to discuss external quality measures and team goals.

### **Facilitation**

The last component of PARiHS is facilitation. The facilitator is responsible for helping the team to realize clinical factors in need of change and then to comprehend how to enact the change (Kitson, et al., 1998). Facilitators are generally individuals who do not belong to the organization where a change process will occur (Kitson, et al., 1998). It is imperative for the facilitator to develop a relationship with stakeholders from the organization who will support and advocate for the change process (Kitson, et al., 1998).

Facilitation includes *characteristics, role, and style*. Characteristics considered to be “low” for fostering EBP include low levels of respect, empathy, authenticity and credibility, while “high” characteristics for fostering EBP include high levels of these virtues from the facilitator (Kitson, et al., 1998). On the “low” side of the role dichotomy is lack of clarity around access, authority, position in the organization, and change agenda, while role considered to be “high” includes the presence of clarity about these topics (Kitson, et al., 1998). People who are inflexible, sporadic, infrequent, and inappropriate in their behaviors are considered to be “low” in style (Kitson, et al., 1998). “High” style designates a person with a range and flexibility of style, as well as consistent and appropriate presence and support (Kitson, et al., 1998). The DNP student exhibited the “high” side of the facilitation continuum. For example, the DNP student demonstrated authenticity and credibility as a graduate nursing student who had completed a literature review about adolescent risk-taking behaviors. In addition, the DNP student learned the importance of forming relationships with stakeholders early in the change process, in order to gain support.

According to Kitson et al. (1998), it is possible that facilitation is more critical than evidence or context. Therefore, it is important to acknowledge that if, in the regional family practice office,

some of the evidence and context subcomponents are considered low on the continuum, the facilitation can work to compensate for this. Furthermore, while the DNP student cannot control many aspects of the organization, she can regulate the way that she leads in order to support the implementation of RAAPS.

## **Project Plan**

### **Purpose of Project and Objectives**

The goal of this DNP scholarly project was increased identification of adolescents with risk-taking behaviors at this regional family practice office, and subsequently, improvement of the treatment and management of these patients. In order to achieve this, the evidence-based RAAPS screening tool was implemented as the vehicle to assist providers in discerning which adolescent patients struggle with risk-taking behaviors. Objectives of the RAAPS implementation and subsequent measures that helped to evaluate the success of those objectives can be found in Appendix K.

### **Design for the Evidence-based Initiative/Implementation Model: The PARiHS Framework**

The design for the evidence-based initiative was built on the PARiHS Framework. Before implementation, the DNP student examined the PARiHS concepts of evidence, context, and facilitation in order to guide implementation.

**Evidence.** The evidence for implementation of RAAPS was high. In a study by Salerno et al. (2012) the RAAPS was found to be a valid and reliable screening tool for the identification of risk-taking behaviors correlated with morbidity and mortality in 13 to 18 year-old patients. Therefore, RAAPS fell on the “high” side of the subcomponent continuum of research. Furthermore, a recent study demonstrated the usefulness of RAAPS by surveying providers who had used it in their clinical practice. Overall, providers found that the RAAPS helped them to discover risk-taking

behaviors in their adolescent patients and subsequently assisted them in having conversations with their patients about these behaviors (Darling-Fisher, Salerno, Dahlem, & Martyn, 2014). Darling-Fisher et al. (2014) found that over 85% of the 201 providers in their study felt that the RAAPS was an asset to their practice. Thus, in regards to the subconcept of clinical experience, the RAAPS was located on the “high” side of the continuum. Partnerships with patients were made in this QI project because patients could refuse to complete the RAAPS, omit answers, or decline to discuss reported risk-taking behaviors. These components demonstrated that the patient preferences subcomponent is also considered “high” on the continuum.

**Context.** Overall, the context was conducive to implementation. The culture subcomponent of the regional family practice office was considered to be on the “high” side of the continuum. For example, as a learning organization, providers and staff at the office had recognized their need to provide better screening to adolescent patients and were open to a change in practice. In regards to the subcomponent of leadership, both the “low” and “high” sides of the continuum were exhibited. The organization structure was conducive to a change regarding adolescent risk-taking screening, as the operations director, site manager, and lead physician each approved the change. However, the site manager was unclear in her guidance of the project. In regards to the subcomponent of measurement, the “high” side of the continuum was exhibited. The information technology department for this regional family practice office provided tools to audit data, REDCap was provided to store data, and a research assistant was available for data analysis assistance.

**Facilitation.** For this QI project the DNP student was the facilitator. Consistent with the “high” side of the continuum of the characteristics subconcept the DNP student was empathetic about the change in workflow, respected each individual, and provided needed knowledge about how to utilize the RAAPs. In step with the “high” side of the role subconcept continuum, the DNP



student was available to providers and staff for questions and clearly communicated any changes, as they occurred. In regards to the subconcept of style, the DNP student demonstrated actions that are congruent with the “high” side of the continuum. She demonstrated flexibility to amendments and modifications of the implementation plan, and was consistently rounding on site to offer assistance throughout the course of implementation. According to Kitson et al. (1998), even in a context appraised as low on the low to high continuum, if the facilitation is regarded as high, successful implementation is possible.

### **Setting**

Ten primary care providers and 24 staff members worked at this regional family practice office and together, saw a total of 678 patients between the ages 13 to 18 years old. The office accepted 21 commercial insurance products, 14 Medicare products, and 6 Medicaid products. Wellness, sick, and chronic care visits were conducted at this site, and included in these visits were various minor procedures such as suture removal, ear irrigation, and cryotherapy for minor lesions. This DNP student secured administrative and IRB approvals to conduct the DNP Scholarly Project at this facility (see Appendix C and D.)

### **Participants**

The participants in this DNP Scholarly Project were patients between the ages of 13 and 18 years old who presented to the regional family practice office for any visit to a provider during the implementation period. Because providers used the RAAPS to guide their interaction with the patient and their documentation, they were participants as well. The providers, BOCs, MAs, and LPNs were educated about the RAAPS tool and asked to use it with each patient who matched these qualifications. Patients with all accepted health insurances were included. Therefore, a purposive sampling technique was used.

**Intervention**

First, providers and staff were educated about the RAAPS as well as the process for the QI project. The RAAPS (see Appendix L) paper-and-pencil screening tools were provided to the MAs and LPNs. Next, the DNP student reviewed each provider's patient schedule, finding the patients between 13 to 18 years old. She entered three patient identifiers on the forms including the patient identification number (PIN); the patient's age; and the patient's birthdate. MAs and LPNs were also instructed to enter the three identifiers on the top of the screening tool in case a patient was being seen and the DNP student had not yet filled in the identifiers. The MAs and LPNs then utilized a script to briefly describe the RAAPS to the parent and asked the parent's permission to provide the RAAPS to the adolescent patient (see Appendix M). Upon gaining approval, the MAs and LPNs distributed the RAAPS to the patients to complete, along with a manila envelope for returning the RAAPS after completion. They also provided a parent educational handout to parents (see Appendix N).

After providers entered the room for the patient visit, they evaluated results of the RAAPS and discerned which topics to address with the patient, at a time during the appointment that they found best. Next, providers sensitively discussed the concerning risk-taking topics with the patient in order to develop a treatment plan that assisted the patient in ways that were appropriate and acceptable. If applicable, a follow-up appointment was discussed to further address risk-taking behaviors, or providers discussed a referral to a mental health provider with the patient. Providers documented the administration of the RAAPS and the discussion that ensued in the patient plan portion of the electronic health record (EHR) Then, they chose whether to bill for using the tool using the applicable CPT code, which was 96160.

Next, providers gave the completed RAAPS to their MA or LPN who then placed it in a manila folder labeled for these documents in the inner office scan box. The BOCs then retrieved the RAAPS, scanned it into the correct patient's chart in the EHR, and then shredded the paper document using an electronic shredding device. During most of data collection, the completed RAAPS were then accessed by the DNP student at a later time by logging into the EHR; clicking on the charts of patients between the ages of 13 and 18; selecting "find", then "type", then "encounter document", then "health history questionnaire." In addition, the DNP student utilized a report built with assistance from the Information Technology (IT) department at the healthcare system to efficiently view charts of patients between the ages of 13 to 18. In conformity with confidentiality standards, Appendix A of the provider packet included a detailed description for providers illustrating how to prevent items related to the RAAPS from being visible on the patient portal, patient care summary, or ambulatory summary, in order to protect patients' privacy (see Appendix O.)

### **Implementation Steps and Strategies**

Planning for the QI project began in January 2018 and was completed on November 11, 2018. The QI project was implemented just over two months from November 2018 to January 2019 and results were gathered, synthesized, and disseminated by April 2019. The steps of this process follow.

1. Prior to implementation on November 12, 2018 the DNP student built a coalition of staff members who were engaged early on with the RAAPS. Developing relationships and enlisting stakeholders in the implementation process can increase the likelihood of implementation achievement (Powell et al., 2015). Furthermore, according to Kitson et al. (1998), building a coalition is congruent with

exhibiting appropriate presence and support, thus promoting a “high” style of facilitation. In order to accomplish this the DNP student:

- Met with the operations director and office manager for the regional family practice office and reviewed current practice and indication for the QI project. This began in January 2018 and was completed in May 2018.
- Met with a subset of BOCs, MAs, LPNs, and providers and inquired about their attitudes and willingness to engage in the RAAPS implementation (Powell et al., 2015). This began in May 2018 and was completed in October 2018.
- Met with a subset of BOCs, MAs and LPNs, and providers and located individuals who highly supported the QI Project and would advocate for it among their colleagues (Powell et al., 2015). This began in May 2018 and was completed in October 2018.

2. From the project start and through October 31, 2018, the DNP student educated staff and providers about the QI project and incorporated their feedback into the flow of the QI project. Examples of items in the education include national and county statistics about adolescent risk-taking behaviors, evidence of the RAAPS as a validated screening tool, and the length of time needed for a participant to complete the RAAPS (Darling-Fisher, et al., 2014; Salerno et al., 2012). It is important to meet with providers in their workplace, as well as other staff, to teach them about the QI project (Powell et al., 2015). In addition, education is consistent with the “high” side of the role subconcept of facilitation, in that the change agenda can be successfully negotiated (Kitson et al., 1998).

- The DNP student presented the planned practice change at the office provider meeting in September and October 2018 and discussed modifications based on provider feedback. These presentations included education about national guidelines; current practice; the

request for involvement; the provider packet with instructions about evidence-based methods to intervene for each risk-taking behavior (see Appendix O); billing information; reimbursement information; and thanking them for their participation (Powell et al., 2015). Additionally, the DNP student met one-on-one with providers to review the RAAPS and their feedback about the flow of the RAAPS implementation through the office.

- The DNP student met one-on-one with staff members to review the RAAPS as well as to obtain their feedback about the flow of the RAAPS through the office. Workflow was developed and educational posters and manuals were distributed to all involved staff and providers (see Appendix P: figures 1, 2, and 3, for samples of an educational poster, the flow of RAAPS through the office, and instructions to staff.)

3. The DNP student completed weekly audits, determined compliance with the RAAPS implementation, and provided feedback to providers and staff as indicated. Gathering data and sharing it with staff can influence the desired behavior (Powell et al., 2015). Furthermore, weekly audits and feedback demonstrate the “high” side of the facilitation continuum in the subconcept of characteristics. By performing these actions, the DNP student exhibited respect of the individual, empathy for the added time and effort the RAAPS requires, and authenticity and credibility in knowing the correct procedure for completion, documentation, and intervention related to the RAAPS (Kitson et al., 1998).

- The DNP student identified the rates of individual provider compliance. For providers with high compliance rates, she personally congratulated and thanked them and their team of MAs and LPNs, and BOCs. For providers with low compliance rates she

discussed this with them and their team and asked if there were barriers to compliance.

When barriers were identified, she worked to eliminate them.

4. The DNP student prepared and disseminated a report that discussed achievement of objectives, how this influenced answering the clinical questions, and how it accomplished the purpose of the DNP Scholarly Project (Powell et al., 2015). Producing and sharing the report is congruent with the high side of the facilitation continuum in the subconcept of role, in that it exhibits appropriate authority of this QI project.

- The DNP student produced a document containing the results of the QI project, including de-identified data and overall change in practice. This document was sent to providers, staff, the site manager, the site mentor, and the operations director.

### **Measures and Data Collection Procedures**

The implementation strategy of coalition building was evaluated for its success by the amount of positive feedback received from the operations director, office manager, lead physician, providers, and staff (see Appendix K). Coalition building occurred through being present in the regional family practice office, building relationships with these stakeholders, and gauging their comfort with screening tools. The implementation strategy of educating providers and staff about the QI project was evaluated through assessment of their understanding and their feedback prior to implementation (see Appendix K). Education occurred through two presentations at two provider meetings and one-on-one conversations with providers and staff. The effectiveness of the RAAPS implementation was evaluated through weekly chart reviews determining whether the RAAPS was consistently completed, documented, and billed correctly (see Appendix K).

An increase in the frequency of discussions about risk-taking behaviors; increased discussions of follow-up appointments for risk-taking behaviors; and increased discussions of

referrals for risk-taking behaviors were the patient outcomes evaluated. These were measured by pre-implementation (baseline) vs. implementation chart review comparisons of patient plans (see Appendix K), Chart reviews occurred weekly during implementation. During the baseline chart review the DNP student logged into the EHR and evaluated for each provider the last ten patients between the ages of 13-18 years old who had a wellness visit. It was determined whether any of the topics that were addressed in RAAPS were discussed in the patient plan as part of the standard practice of a wellness visit. The percentage of patients for whom this was done was calculated for each provider. The findings were recorded in REDCap. During implementation chart reviews, the EHR of all patients between the ages of 13 to 18 years who were seen for any reason were evaluated. It was determined whether the RAAPS screening tool was completed. Next, it was assessed whether screened adolescents chose the responses that indicated greater risk for any of the 21 questions. Then, it was determined if the provider addressed any of the patient responses to questions that indicate greater risk. For example, question two asked, “do you eat some fruits and vegetables every day?” A greater risk response to this type of question was the answer “no.” In comparison, question eight asked “have you ever carried a weapon (gun, knife, club) to protect yourself?” For this type of question a greater risk response was “yes.” If the patient’s responses indicated involvement in a risk-taking behavior, but it was not documented in the patient’s plan in the EHR, the DNP student personally discussed this discrepancy with the specific provider who saw the patient. If the risk-taking behavior was indeed discussed, the DNP student asked the provider to update the documentation. It was then verified that this discrepancy was corrected in the documentation.

Data collection began in July 2018 and continued through January 2019. Baseline data included patient visits between June 11, 2018 and September 7, 2018. Implementation data included patient visits between November 12, 2018 and January 24, 2019. Baseline data included 100 patients

seen for wellness visits and implementation data included 61 patients. Of the 61 patients included in the implementation sample, 40 patients were seen for wellness visits and 21 were seen for a combination of sick visits, follow-up visits and chronic care visits. All data were logged into a data collection tool on REDCap. The QI project was implemented to determine the answer to the following questions.

1. Does screening adolescents for risk-taking behaviors increase identification of adolescents with risk-taking behaviors?
2. Is it reasonable for providers to use results from a screening tool about risk-taking behaviors to guide interventions?
3. Does identification of adolescents with risk-taking behaviors increase provider interventions for those risk-taking behaviors?

### **Data Management**

The DNP student was the project director and was responsible for data management. Data were organized in REDCap as ‘yes,’ ‘no,’ or ‘missing’ depending on whether the topic associated with each RAAPS question was discussed and, in the implementation phase, in accordance with participant answers to the RAAPS questions. (See Appendix Q for operational definitions of when a topic was considered to have been discussed, and Appendix R for the rules that guided whether or not a discussion had taken place.) There was one major circumstance in which intervention data were found to be missing. When a provider documented that the patient marked multiple concerning responses on the RAAPS but only documented discussion about the items of highest severity (ex. self-harm, depression), a conversation with the provider to address the missing concerning responses occurred to verify that the provider prioritized the most significant concerns.



Each piece of data that was recorded into REDCap was double-checked to ensure accurate information was recorded. REDCap de-identified the data. The de-identified raw data were sent on an Excel spreadsheet to a University research assistant via email for analysis. Statistical analysis software (SAS) was used to complete descriptive analyses and comparisons of the baseline and implementation raw data. De-identified raw data were saved on the DNP student's password protected computer, an external hard drive, and on the research assistant's password protected computer.

No patients or providers were identified, and the patient responses were reported only in the aggregate. Additionally, the regional healthcare system and specific setting in which the project was completed was not identified. After the final presentation of the DNP scholarly project, the raw data were deleted from all computers and the external hard-drive.

### **Analysis Plan**

After baseline data collection, the data were analyzed to assess male to female patient ratios, age ranges of patients, and the number of patients seen by each provider. After implementation, the data were examined using chi-square ( $\chi^2$ ), Fishers exact test (FET,) and descriptive statistics. A *p*-value of .05 was used for determination of statistical significance. The analysis assessed the change in number of discussions related to a RAAPS topic, number of follow up appointments discussed, and number of referrals discussed, from baseline to implementation. Results were assessed to measure if more adolescent risk-taking behaviors were identified and subsequently, if more interventions for risk-taking behaviors took place. A limitation to the analysis is that providers may have discussed a topic that they did not document. This could confound the data.

### **Resources & Budget**

For every QI project, a budget must be created (see Appendix S). The majority of the

expenses for this project were donated by the DNP student and her university. Approximately 30 hours were donated to develop a plan for education and materials used for education, one hour for educating providers at two provider meetings, an estimated 85 hours of performing data collection, and nearly 70 hours on site during implementation. Therefore, the total donated cost is approximately 186 hours. The hourly rate for the DNP student's time was calculated from the median hourly wage of registered nurses (RNs) in the United States, which is \$33.65 (United States Department of Labor [USDOL], 2018a). Therefore, \$6,258.90 was donated in services by the DNP student in terms of hours given. A GVSU Presidential Research Grant allotted \$1020.48 to cover the costs of paper material and the licensing agreement for RAAPS. In addition, a GVSU research assistant donated approximately ten hours to assist with statistical analysis of data for this project. At GVSU, the hourly rate for a biostatistics research is nearly \$33.79, so the research assistant's donated salary amount is \$337.90.

An expense that must be taken into consideration is the time that the staff of the regional family practice office spent to learn about the project. The hourly rate of a medical office manager in the United States is \$47.20 and a total of one hour was spent educating and working with the office manager to promote this project (USDOL, 2018b). The average hourly rate of a physician working in a family practice office is \$95.55; a total of one hour was spent educating eight physicians, which totaled \$764.40 (USDOL, 2018c). The average hourly rate of a PA is \$50.41 and a total of one hour was spent educating the PA in the office (USDOL, 2018d). The average hourly rate of a NP is \$49.94; the DNP student spent a total of one hour educating the two NPs in the office, which totaled \$99.88 (USDOL, 2018e). Education for BOCs, MAs, and LPNs occurred during normal working hours between patient care tasks and so educating these staff members did not cost the office additional amounts.

By implementing this DNP project, the organization could have gained income. The four most utilized health insurances at the regional family practice office were Blue Cross Blue Shield, Blue Care Network, Priority Health, and Medicaid. The average reimbursement by these health insurances was \$4.73 per 96160 CPT code. The RAAPS was completed by 61 patients during implementation but only 18 of these RAAPS were known to be billed. Therefore, the regional family practice office possibly accrued \$85.14 from the RAAPS but could have accrued \$288.53 if it had billed for all 61 RAAPS assessments. In addition, the benefit of potentially preventing outcomes related to risk-taking behaviors such as suicide, homicide and school shootings is a cost mitigation that cannot be measured.

### **Timeline**

The timeline of activities has been described in this narrative and was completed for the project. It can be viewed in Appendix T.

### **Sustainability Plan**

Sustainability of a DNP project is an important consideration, as the ultimate goal was to improve patient care long term. In order to support sustainability of this project, the final data were presented to all stakeholders to demonstrate the number of items reported by patients and the potential financial reimbursement for the RAAPS during the implementation period. In addition, three specified physicians at the site planned to continue utilization of the RAAPS and advocate for its use among their colleagues. Furthermore, the RAAPS screening tool was to be available to the regional family practice office for the remainder of the licensing agreement, expiring November 2019. The organization then had a choice of purchasing the RAAPS for an additional year. At the time of this project's conclusion another DNP student had not taken handoff of the project to further develop it.

## Results

Baseline data contained 100 pre-implementation participants, including two participants with missing data who were not used in the analysis. When comparing the wellness visits in the baseline group ( $n = 98$ ) to all of the visits in the implementation period ( $n = 61$ ) it became clear that the data were skewed because of the 21 non-wellness visits (See Appendix U.) With some visits occurring as a result of a mental health concern it could have been more likely that a RAAPS topics related to mental health would be discussed and could have been more likely that a follow-up visit or referral would be discussed. For these reasons, statistical analysis was completed to compare the baseline wellness visits to the implementation wellness visits, omitting visits for mental health, sick visits, and chronic illness follow-up. When comparing the baseline wellness visits ( $n = 98$ ) to the implementation wellness visits ( $n = 40$ ) there were 53 males (54%) and 45 females (45.9%) included in the baseline group and 25 males (62.5%) and 15 females (37.5%) included in the implementation group. When comparing the age groups among the 13 to 18 year-old patients, the largest subgroup of ages in the baseline group were 14 year-olds (24.5%), and the largest subgroup of ages in the implementation group were 13 year-olds (32.5%). Descriptive data for the entire baseline sample compared to the implementation sample can be found in Appendix V: figures 1, 2, 3, and 4.

It was reasonable for providers to use results from this screening tool about risk-taking behaviors to guide their interventions. Subsequently, screening adolescents for risk-taking behaviors did increase identification of two risk-taking behaviors. When comparing the baseline wellness visits ( $n = 98$ ) to the implementation wellness visits ( $n = 40$ ) there was a significant increase in discussions of topics 5 and 20. The question for topic 5 asked “Do you always wear a helmet when you do any of these activities: ride a bike, rollerblade, or skateboard; ride a motorcycle, snowmobile or ATV; ski or snowboard?” At baseline 24.49%, or 24 participants discussed helmet use during their exam. By

using the RAAPS, 57.50%, or 23 participants discussed helmet use, which was a significant increase in the percentage, ( $\chi^2 = 13.7823, p = 0.0002$ ). The question for topic 20 asked “do you have at least one adult in your life that you can talk to about any problems or worries?” During baseline visits, 15.31%, or 15 participants discussed having an adult to talk to. During the RAAPS implementation, 40%, or 16 participants discussed having an adult to talk to, which was also a significant increase, ( $\chi^2 = 9.9449, p = 0.0016$ ).

It was also found that identification of adolescents with risk-taking behaviors did increase provider interventions for those risk-taking behaviors. The total number of discussed referrals to a specialty provider whose scope of practice was related to a RAAPS topic significantly increased when comparing the baseline group to the implementation group, (FET  $p = 0.0005$ ). See Appendix W: figure 1. At baseline 5.10%, or 5 participants had a referral discussed during their exam and 27.50%, or 11 participants in the implementation group had a referral discussed during their exam. Furthermore, when assessing the answers to RAAPS questions, question 19 was significant for prompting a discussion about a referral. Question 19 asked “In the past 12 months, have you seriously thought about killing yourself, tried to kill yourself, or have purposely cut, burned, or otherwise hurt yourself? Out of the 4 participants who answered ‘yes’ to question 19, 100% of them discussed a referral. Moreover, 19.44%, or 7 participants who answered ‘no’ to question 19 (and who were not reporting suicidal thoughts or actions) also had a referral discussed, (FET  $p = 0.0036$ ). See Appendix W: figure 2.

In contrast, one topic decreased in rates of discussions when baseline and implementation data were compared. The topic for question 7 asked “has anyone ever physically injured you (by hitting, slapping, kicking) or forced you to have sex or be involved in sexual practices when you didn’t want to?” At baseline 50%, or 49 participants discussed abuse during their wellness visit.

During the RAAPS implementation, only 20%, or 8 participants discussed abuse during their wellness visit, which was a significant difference, ( $\chi^2 = 10.5450, p = 0.0012$ ). In addition, there was not a significant increase in the number of follow-up appointments discussed when comparing baseline (3.05%) to implementation (7.50%), (FET  $p = 0.3559$ ). See Appendix W: figure 3.

During implementation, billing was completed for 45% of the RAAPS ( $n = 18$ ). The unbilled RAAPS totaled 42.5% ( $n = 17$ ), while billing data were missing for 12.5% ( $n = 4$ ). If the regional family practice office received \$4.73 in reimbursement for each of the RAAPS that were billed, they would have received \$85.14. This was a financial benefit of identification of adolescents with risk-taking behaviors in a primary care office.

## **Discussion**

### **Conceptual Framework**

In considering the outcomes of the project and viewing them through the lens of the PARiHS framework, it was found that having the concepts of evidence and facilitation and the context subcomponents of culture and measurement on the “high” side of the continuum was fundamental to the success of the project. The evidence-base of screening tools and the RAAPS as a specific screening tool assisted the staff and providers to understand the project’s credibility. In addition, the providers as a whole embraced the RAAPS as a tool that could help them better serve adolescent patients. Also, a tool that was measureable enhanced the project’s integrity.

However, it was found that facilitation was a more important contributor to success in the QI project than the evidence or context subcomponents. It was discovered that when the DNP student facilitator filled out the RAAPS screening tools with the three patient identifiers and provided those to the MAs or LPNs prior to a patient visit it was much more likely that the RAAPS screening tools would be given to patients than when the facilitator was absent from the physical setting. In addition,

the manager had many conflicting concerns during the time of implementation and was not able to provide consistent feedback. Therefore, in this context of many other priorities, the facilitator was able to support and assist staff in order to accomplish a goal of increased identification and intervention for adolescents with risk-taking behaviors.

### **Impact of Project on People & System**

The results of this QI project have impacted the regional family practice office by illustrating that risk-taking behaviors are a problem for the specific population of adolescent patients who are seen in that context. In addition, this project has supported the premise that wellness visits can be strategic opportunities to assess adolescent patients for risk-taking behaviors and to intervene. Furthermore, the clinical questions were answered. In response to the RAAPS assessments, providers at this office have conducted discussions with their patients about behaviors posing health risks, made or encouraged follow-up visits, and made or encouraged referral to counseling. These outcomes are evidence that using the RAAPS is feasible at this office.

### **Differences between Observed & Anticipated Outcomes**

It was postulated prior to implementation that there would be more topics other than topic 5 and 20 for which the number of discussions would significantly increase when comparing baseline to implementation visits. In addition, it was hypothesized that the discussion of follow-up visits would significantly increase. Rationale for why these outcomes did not take place could be related to a short implementation period, specific attributes of the patients seen for wellness visits during this time period, a small sample size overall, and the difference in number of participants when comparing baseline to implementation. The difference in the number of patients when comparing baseline to implementation may have decreased the power of the analyses. In addition, patients included in the baseline data collection were seen during summer months and patients included in

implementation data were seen during winter months. If implementation had occurred during summer months when adolescents were not attending school, they may have been involved in more risk-taking behaviors because of a less structured daily schedule. Furthermore, the socioeconomic status of participants may influence their risk-taking behaviors. As the regional family practice clinic is located in a middle-class suburb it is possible that the socioeconomic statuses of the participants were unrepresentative of a random sample of adolescents in Michigan or the United States.

### **Staff Perceptions and Behaviors**

Prior to the RAAPS implementation, several MAs and LPNs and several providers communicated hesitancy towards the QI project. Several providers contended that in the particular population of adolescent patients seen at this regional family practice office, risk-taking behaviors were not as significant a concern as in offices that serve more patients from lower socioeconomic groups. In addition, two providers decided they would only complete RAAPS during wellness visits while nine decided they would be open to using RAAPS with any adolescent patient, but would make the decision on a case-by-case basis. The reluctance from MAs and LPNs was primarily related to the supplementary time that providing the RAAPS to patients would take, as it would change their workflow. In addition, a concern from some of these staff members and some providers was that patients' parents would be uncomfortable and unsupportive of some particularly sensitive questions asked on the RAAPS, such as question 14, which asked if the patient has had any type of sex (vaginal, anal, or oral sex.) After the project commenced, it appeared as though these same providers were supportive of the RAAPS project, as they did participate in its implementation. Also, a particular MA stated that parents were more receptive to the RAAPS than anticipated and the MA's perception had changed.

As a facilitator, the DNP student was receptive to the concerns shared by staff members and



providers and worked to decrease the change in workflow for all involved by including their feedback into the procedures for administration of the RAAPS tool throughout the office. In addition, the DNP student was sympathetic to the staff who felt some questions were too sensitive by showing understanding regarding provider choices about the patients for whom the RAAPS was utilized.

### **Potential for Spread to Other Sites**

The results of this QI project may be shared with a second regional family practice office within the same healthcare system. The pediatric providers at the second office have recently adopted the RAAPS as a standard of practice for use during wellness visits. The results from the first office could encourage the staff at the second office to utilize the RAAPS consistently by demonstrating the potential outcomes. In addition, the results from the first office could encourage additional regional family practice sites with pediatric and family practice specialties within this healthcare system to consider adopting the RAAPS for use in their own office settings.

### **Strengths**

A strength of the QI project was that the RAAPS is evidence-based and endorsed by the Agency for Healthcare Research and Quality (AHRQ); the U.S. Department of Health and Human Services (HHS); the Michigan Quality Improvement Consortium (MQIC); and Possibilities for Change (2019). An additional strength of the QI project was its reception by patients, willingness of staff members to offer the RAAPS to patients, and disposition of providers to discuss the results of the RAAPS with the patients and to document these discussions. The comparison between pre- and post- implementation data demonstrated an increase in discussions for topics 5 and 20 and in the number of referrals discussed. There was no way to fully know if these risk-taking behaviors would have been recognized in the absence of the RAAPS with each individual patient, but it can be

assumed that some risk-taking behaviors would have been missed.

Another strength of the QI project was that the RAAPS is a confidential screening tool that was created to be completed by adolescents instead of parents. Before completing the RAAPS, one patient asked if her parent would see the results and staff assured her that they would not. Another patient answered the RAAPS and discussed the concerning responses with her provider but asked that one specific response not be available for her parents to view. Unless patients were at risk of harming themselves or others, their responses were not discussed with their parents.

### **Relevance and Usefulness of Work**

During data collection it became evident that creating objective operational definitions for each RAAPS topic was imperative. Having an operational definition that was consistent for both pre- and post- implementation was necessary to ensure accurate results regarding changes in discussions of topics, follow-up appointments, and referrals. It was found that some providers utilized templates available through the EHR, while other providers did not. Templates simplified the work of data collection in that the data were easier to locate in patients' charts compared to when a template was not used. To promote continuity and efficient access to data for conducting QI projects and research in the future, use of standard templates is suggested.

Throughout the course of the project, it was found that the RAAPS could be utilized as a baseline of patient behavior to assist providers in delivering health interventions. For example, a patient responded to question 16 on the RAAPS that she was sexually active but did not use protection with every sexual encounter. Weeks later she was seen in the office by a different provider for a chief complaint of vaginal irritation. The second provider viewed the completed RAAPS located in the EHR and utilized the concerning response as a tool to investigate if the vaginal irritation may be related to a sexually transmitted infection. This example highlights another

way the RAAPS can be used. If a patient has already completed the RAAPS, providers can view the previous results in the EHR and utilize this information to help them provide the best, most effective care to the patient.

### **Comparison of Results with Findings of Others**

This QI project yielded similar findings to studies from the conducted literature review. For example, in a study that implemented a screening tool in primary care to assess for suicide risk at both wellness and sick visits, use of the tool was linked to the effectiveness of identification and of subsequent provider referrals for the specified risk-taking behaviors (Etter et al., 2017). As another example, studies by Gadomski et al. (2015) and by Jonovich and Alpert-Gillis (2014) showed that when a screening tool was given during wellness visits, discussions about mental health topics increased during the visit. Similarly, with this RAAPS project, discussions about having an adult to talk to (question 20), which is related to mental health, and discussions about referrals to a mental health provider, significantly increased.

### **Limitations**

An important limitation of the QI project was lack of intrarater reliability and inability to establish interrater reliability in chart reviews because only the DNP student performed data collection. This was because of the small budget for the project and its limited scope allowed for only one data collector. With only one person collecting the data there was a greater chance for error. In addition, only one person created the operational definitions for each RAAPS topic and then judged each record to discern if the topic was addressed. The overall effect of this may have been a decrease in the validity of the results.

A second limitation of the project was the specific time of year that the RAAPS was implemented. The baseline period occurred during summer when more wellness visits were common

because of preparation for school and sports. In contrast, the implementation period occurred during winter when more sick visits were common. This disparity may have affected statistical power. If there were a greater number of similar visits when comparing baseline to implementation and a greater number of visits overall, a more significant pre/post difference may have occurred. In addition, during nearly half of the implementation period, the regional family practice office underwent a considerable construction project. During this construction, the providers and staff were under much stress as they were consistently working in different areas of the office and utilizing different exam rooms. Some MAs and LPNs verbalized reluctance in utilizing the RAAPS because of the strain they were experiencing regarding this transition.

A further limitation of the project was in regards to the quality of data available to analyze. Providers may have discussed a topic that they did not document. Further, the providers could have amended their documentation after data were collected. An additional limitation was that the RAAPS screening tool was administered using the paper format instead of the online format with a laptop or tablet. The paper format requires the forms to be scanned into the correct charts and does not prompt the provider about which risk-taking behaviors were identified and both of these factors could potentially affect the integrity of the data. This also prevents querying for responses. Overall efforts to minimize limitations included the DNP student's facilitation including presence on site, availability for questions, and engagement of staff with verbal appreciation and food incentives.

### **Implications for Practice and Further Study in the Field**

An implication for practice is that patients may have not answered the RAAPS questions honestly. Providers should be cautioned that it could be helpful to discuss risk-taking topics that were not marked as concerning in addition to those that were marked as concerning, because of uncertainty about the honesty of patient responses. In addition, by discussion of topics that were not

identified as current risk-taking behaviors the provider could take the opportunity to deliver anticipatory guidance. Furthermore, discussion about these topics could facilitate a trusting relationship between providers and patients.

It has been found that having a supportive adult is protective against self-harm in adolescence (Claes, Luyckx, Van de Ven, & Witteman, 2015; Klemera, Brooks, Chester, Magnusson, & Spencer, 2017). Literature also provides evidence that having a supportive adult can be protective against involvement in violence in the adolescent population (Ttofi, Bowes, Farrington, & Losel, 2014; Vassallo, Edwards, & Forrest, 2016). These findings suggest that it could be impactful to discuss question 20 of the RAAPS with adolescent patients, which asked “Do you have at least one adult in your life you can talk to about any worries or problems?” If a provider discovers that certain patients do have an adult in their lives that they could talk to, the provider could encourage them to discuss their feelings with these persons instead of acting out in harm towards themselves or others. If the patients do not have an adult in their lives that they could talk to, the provider could assist them in brainstorming who that adult could be. If one is not identified the provider could make referrals for counseling.

Authors of a recent meta-analysis concluded that bicycle helmets were highly effective in protecting cyclists from injury and from death (Hoye, 2018). A synthesis of results from 55 studies showed that helmet involvement was associated with 48% fewer head injuries and decreased the percentage of deaths or serious injuries by 34% (Hoye, 2018). These results support the conclusion that it could be impactful to discuss helmet use (topic five of the RAAPS) with adolescent patients. If patients report on the RAAPS that they wear helmets, providers can encourage them to continue wearing their helmets, in an effort to prevent injuries and death. If patients indicate that they do not wear helmets, providers could encourage them to begin wearing this safety equipment.

An opportunity for future study would be to follow-up with each of the RAAPS participants to assess whether their specified risk-taking behaviors decreased after taking the RAAPS and the subsequent intervention that may have occurred. Furthermore, it could be helpful to conduct a qualitative study to evaluate how the participants felt about taking the RAAPS and about provider interventions. A qualitative study could address the lived experience of this QI process from the perspective of both the staff and the patients. For example, it could be helpful to understand if patients were satisfied with the extent to which providers discussed risk-taking behaviors. It could also be beneficial to hear from providers and staff to understand their perspective of if, and if so, how, the RAAPS influenced the office's culture.

Another implication for practice and possible avenue for further research pertains to self-harm and suicidal ideation. The RAAPS item regarding self-harm and suicide was the only topic in this project that was significant for prompting a discussion about a referral ( $p = 0.0005$ .) Future research could focus on adolescent patients with this type of risk-taking behavior and the connection between a referral to a mental health provider and outcomes regarding self-harm and suicidal ideation.

### **Reflection on DNP Essentials**

In order to graduate with a DNP degree and subsequently practice as a NP, students must achieve competence in eight Essentials, defined by The American Association of Colleges of Nursing [(AACN), 2006]. Throughout the process of planning for, implementing, analyzing, and disseminating the QI project, all eight Essentials were addressed. In addition, these processes assisted the DNP student in attaining aptitude to serve as a NP in primary care.

### **Scientific Underpinnings for Practice**

The PARiHS Framework served as one of the scientific bases for understanding the change

process and for implementation of the QI project. Insight was gained about how to utilize this framework to understand the context of change and to formulate a plan to improve the health care of adolescents during wellness visits. The PARiHS Framework assisted the DNP student to view the evidence-based RAAPS tool in perspective of evidence, the context of the regional family practice office as one that was amenable to a change process, and leadership skills as essential to effective facilitation of the project (Salerno & Barnhart, 2013; Yi, Salerno, & Darling-Fisher, 2009). In addition, the DNP student created provider packets for each provider that contained evidence-based interventions for concerning responses to each of the RAAPS questions, which increased her level of competency in creating standard guidelines for a health system (see Appendix O.) An area for future development is integrating scientific frameworks and evidence-based practices into a pediatric nurse practitioner (PNP) role.

### **Organizational and Systems Leadership for Quality Improvement and Systems Thinking**

The Burke and Litwin Model (1992) and a SWOT analysis were tools used to evaluate the environment in which health care was received, and guided the organizational assessment of the regional family practice office. The DNP students' aptitude to evaluate a healthcare organization's care practices regarding adolescent risk-taking behaviors was enhanced by using the Burke and Litwin Model (1992) and SWOT analysis. In addition, the DNP student communicated among all levels of the organizational structure and gained insight about influencing change and increasing accountability for the quality of adolescent care in the family practice office. Moreover, the DNP student afforded accommodation and flexibility to the original implementation plan, according to the insight offered by team members involved at different levels of the organization, which increased her competency in organizational leadership. An area of future development would be performing a QI project at the clinic in which this DNP student will be working as a PNP so that the opportunity

to improve quality of care for patients at another site can be maximized.

### **Clinical Scholarship and Analytical Methods for Evidence-Based Practice**

Prior to the QI project's implementation, literature was evaluated to determine if screening tools had demonstrated efficacy for identification and intervention of risk-taking behaviors in adolescents. This activity enhanced the DNP student's proficiency in appraising literature. In addition, she found that literature provided evidence that screening for risk-taking behaviors and utilizing the results to develop an intervention, was feasible for providers. Prior to and during implementation of the RAAPS, data collection was performed using REDCap and understanding about using information technology to obtain data was increased. With the assistance of a statistician, the DNP student served as a consultant and analyzed the results of the QI project to assess the impact the RAAPS had on affecting the care of adolescent patients in the regional family practice office. Furthermore, the student applied the evidence by disseminating results about increased identification and intervention as a result of the RAAPS, which improved the care of adolescent patients at a regional family practice office.

### **Information Systems Technology**

The use of information systems/ technology was important in the implementation of the QI project. Patients between the ages of 13 to 18 years of age were identified using the EHR, the RAAPS was scanned into patient charts on the EHR after completion, and the data collection occurred by reviewing these charts. During data collection the DNP student learned about incongruences in how different providers document discussions in the EHR and how they each have their own operational definitions for topics. The DNP student gained insight that standardization through the use of templates would be helpful to record care and measure care quality. An area of future development would be to incorporate the RAAPS into the EHR to improve process efficiency.



### **Health Care Policy for Advocacy in Health Care**

Leading national organizations recommend screening for risk-taking behaviors in adolescent patients, and by implementing the RAAPS, the DNP student advocated for adherence to national recommendations. As suicide, homicide, and unintentional injury are the top leading causes of mortality in adolescents, the increase of discussions about having an adult to talk to, about helmet use, and about referrals, were congruent with advocacy for best quality care in adolescent patients (Heron, 2017). Through this QI project the DNP student learned the importance of educating others about the significance of adolescent-risk taking behaviors and, as a leader, promoted a plan aimed to improve care in the family practice office and subsequently decrease risk-taking behaviors of the patients. An area for future development by the DNP student could be to examine if discrepancies exist between adolescent risk-taking behaviors of different racial groups and socioeconomic classes, or if discrepancies exist in the care these different groups receive during wellness visits.

### **Interprofessional Collaboration for Improving Patient & Population Health Outcomes**

Much knowledge was gained about the importance of interprofessional collaboration and its connection to improving patient and population health outcomes, as interprofessional collaboration has been essential in the project's success from its origin to completion. The DNP student began the project by consulting with the operations director of the regional family practice office to determine the needs of the office. Once the provider performance in screening and intervening in the area of adolescent risk-taking was identified as a need, the DNP student worked together with the office manager, healthcare providers, clinical staff, business staff, the informational technology department, a statistician, and personnel from Possibilities for Change, LLC, (the company that publishes the RAAPS), to accomplish the goal of fulfilling the need.

The DNP student learned about priorities of different professional groups in regards to the

project. For example, it was important to the MAs and LPNs that the project did not overburden their workflow, and it was important for providers that the screening tool was efficient to utilize during a wellness visit. Overall, a team approach to accomplishing the objectives and identifying champions in implementation of the RAAPS was advantageous in generating consistent use of the screening tool. Future work could be done by the site mentor to increase interprofessional collaboration between the two offices within the regional healthcare organization that use RAAPS. This collaboration could potentially enhance utilization and improve the use of the tool as resources are shared between offices.

### **Clinical Prevention and Population Health for Improving the Nation's Health**

National data provided evidence that many causes of morbidity and mortality in adolescents could be connected to risk-taking behaviors and therefore, are ultimately preventable. Furthermore, local data showed that risk-taking behaviors were a significant concern for the adolescents from the county in which the family practice office exists. The RAAPS is an evidence-based vehicle to increase identification of risk-taking behaviors with a further goal to then increase intervention for those risk-taking behaviors and decrease morbidity and mortality. It is therefore congruent with clinical prevention and population health. Throughout the course of the QI project the DNP student's understanding of examining data, integrating ideas, and assessing care to enhance population health greatly improved. A gap in practice was identified and work was completed to address that gap and resolve it. Areas for future development by the DNP student could include an assessment of the sustainability of the RAAPS utilization and an evaluation of changes in rates of identified risk-taking behaviors after a referral has been discussed.

### **Advanced Nursing Practice**

NPs are concerned with the health and wellbeing of each patient. The DNP student learned

from this project that the RAAPS could help to facilitate communication and education about healthy practices for adolescent patients. In addition, insight was gained about integrating an evidence-based practice into routine clinical care and utilizing it as a tool to develop appropriate interventions. Also, the RAAPS can assist NPs to understand patients' baseline behavior, so that at subsequent visits NPs can refer to prior RAAPS in order to provide the most efficient and effective care. Additionally, the DNP student now has a better awareness about the importance to adolescents of confidential conversations with their providers. Several patients verified with staff that their answers would not be shared with their parents. It is important to respect adolescent patients by preserving their privacy when it is safe to do so. Moreover, the DNP student gained understanding about prioritizing discussions for the most significant of risk-taking behaviors in pediatric nursing practice where time limitations are a consistent concern. Additionally, different providers may use different operational definitions in documentation and therefore, the DNP student learned that standardization in documentation is significant.

### **Dissemination of Results**

In order to foster understanding of the impact of the QI project and to promote sustainability of the project, the DNP student has disseminated its results. Results were presented in a variety of settings including the regional family practice office, the GVSU's Three Minute Thesis competition, two National Association of Pediatric Nurse Practitioners (NAPNAP) conferences, and the defense presentation at GVSU. At the conclusion of the defense, the final report of the project and its findings were submitted to ScholarWorks.

### **Conclusion**

Risk-taking behaviors are a substantial concern for adolescents and the top three causes of mortality in this age group are unintentional injuries, suicide, and homicide (Heron, 2017). National

organizations have recommended screening for risk-taking behaviors in adolescents but this is not consistently done in primary care. The RAAPS was implemented in a regional family practice office and discussions between providers and adolescent patients increased significantly regarding helmet use and the adolescent having an adult to talk to, which demonstrated that the RAAPS was feasible for providers to use. The percentage of discussions about referrals to a specialty provider also increased significantly. Consistent interprofessional collaboration and the identification of RAAPS champions influenced the achievement of the QI objectives. The application of the RAAPS has not only assisted the organization in complying with national recommendations but also increased identification of and intervention for adolescents with risk-taking behaviors. The project was successful in introducing a standardized risk assessment and showing its usefulness for improving quality of care.

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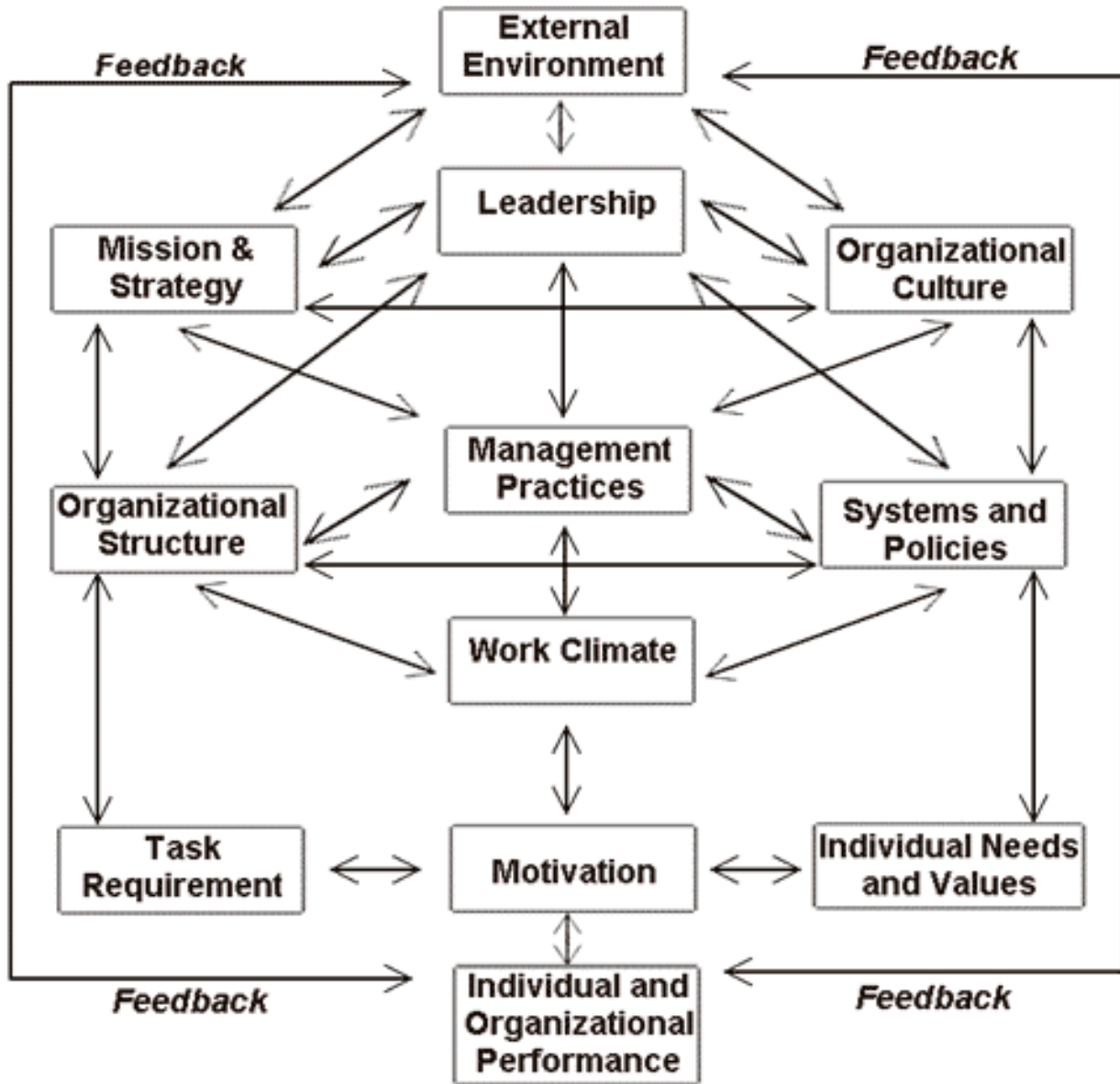
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Appendices

Appendix A

Burke-Litwin Causal Model



“A Causal Model of Organizational Performance and Change,” by W. W. Burke and G. H. Litwin, 1992, *Journal of Management*, 18, 528. Copyright 1992 by Southern Management Association.

Appendix B

SWOT Analysis of Regional Family Practice Office

<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>● Teamwork, flexibility, compassion among staff</li> <li>● Support from the operations director for RAAPS</li> <li>● Congruent with organization’s mission, core values, and guiding behaviors</li> <li>● Collaboration of new DNP graduate at another regional site of XXX</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>● Currently, little standardization related to assessment and follow up of adolescent risk-taking behaviors</li> <li>● Communication between leadership &amp; staff and different teams of staff</li> <li>● Older providers with less openness to change</li> <li>● Views that adolescents in this geographic &amp; cultural area do not experience risk-taking behaviors as at high of rates as other geographic &amp; cultural area</li> </ul>
<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>● Enhanced follow up for risk-taking behaviors in adolescent patients</li> <li>● Support from leading national organizations</li> <li>● Chance to better align with organization’s mission, core values, and guiding behaviors in regards to adolescent patients</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>● Two vacant MA positions</li> <li>● Implementation of a social determinants of health questionnaire on September 4, 2018</li> <li>● Beliefs of some individuals that asking a question to a patient will ‘put that idea’ (of the topic of the question) into the patient’s head</li> <li>● Two other large health systems in this region of the Midwest that compete with this health system</li> <li>● New EHR on the horizon</li> <li>● Time constraints</li> <li>● Patient expectations of their visit</li> </ul>

## Appendix C

## Letter of Support from Operations Director of Institution

Grand Valley State University  
Kirkhof College of Nursing  
301 Michigan St. NE  
Grand Rapids MI, 49503

Dear Institutional Review Board,

I write on behalf of \_\_\_\_\_ in support of Megan Carpenter's proposal of a Doctorate of Nursing Practice (DNP) Project from Grand Valley State University (GVSU.) This involves implementation of the Rapid Assessment for Adolescent Preventive Services (RAAPS) screening tool at \_\_\_\_\_ with the intention to identify and manage adolescent risk-taking behaviors. Studies indicate adolescents exhibit high rates of texting/emailing while driving, smoking tobacco, drinking alcohol, bullying, insufficient exercise, and inadequate fruit and vegetable intake (Centers for Disease Control and Prevention, 2017). The American Academy of Pediatrics (AAP) (2017) recommends pediatric providers annually screen adolescents for alcohol and tobacco use and communicate the importance of seatbelt use, eating a healthy diet, and participating in exercise (AAP 2015; AAP 2018). However, because this endorsement often goes unheeded, a gap exists between scholarly recommendations and clinical practice at \_\_\_\_\_ (AAP, 2008).

RAAPS is a validated screening tool for use in primary care to assess risk-taking behaviors in adolescents aged 13-18 years old (Salerno & Barnhart, 2013). Although tools like the PHQ-9 are used to screen for depression in primary care, these only assess the risk for one problem. The RAAPS screens for many risk-taking behaviors that are identified as leading causes of adolescent mortality (Darling-Fisher et al., 2014). The screening contains twenty-one questions and can be completed by the patient in less than seven minutes (Darling-Fisher et al., 2014). The RAAPS is supported by the Agency of Healthcare Research and Quality (AHRQ) and the US Department of Health and Human Services (HHS) (Possibilities for Change, 2018).

Assessing for adolescent risk taking behaviors using RAAPS is congruent with \_\_\_\_\_'s Core Values of justice and reverence and I support this application and the use of this tool. This DNP Project is additionally supported from \_\_\_\_\_ Medical Director for \_\_\_\_\_ policies and procedures related to the risk behaviors identified include: suicidal or potentially suicidal patient care in physicians office practices, sexual assault, child abuse, neglect, or sexual abuse: potential and or suspected, and adult abuse, assault, or neglect and educational handouts available in \_\_\_\_\_ align with this tool. These policies and educational handouts are acknowledged within a packet offered to providers.

Risk areas 14, 15, and 16 are allocated this statement in the provider packet:

“Abstinence is promoted as this is the healthy choice for the physical, emotional, and mental wellbeing for unmarried adolescents (Abstinenceresourcecenter.org)

A recent longitudinal study demonstrated that when adolescents had later initiation of sexual intercourse, they had significantly lower rates of sexually transmitted infections and depression long term than did their counterparts (Vasilenko, Kugler, & Rice, 2016).”

I support Megan Carpenter's project as requirement for the DNP degree sought through Grand Valley State University.

Sincerely,

6/4/18  
Operations Director

## Appendix D

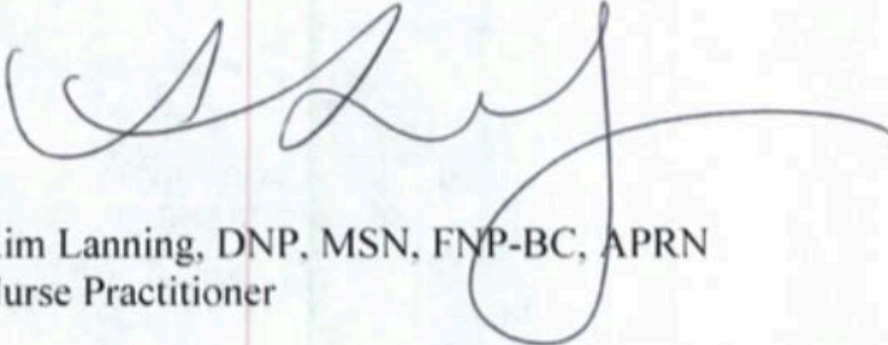
## Site Mentor Letter of Support

Regarding: Permission to Conduct DNP Project at

To whom it may concern,

Megan Carpenter is a Doctorate of Nursing Practice (DNP) student at Grand Valley State University. I have been her preceptor for her primary care practicum since August, 2017 at

She will now be pursuing her DNP project work at this site. This project involves evaluating the current recommendations regarding screening for risk-taking behaviors in adolescent patients, recognizing incongruences between national standards and clinical practice, and implementing a process to better serve this population. She will be conducting the project from May 2018- April 2019. The team assisting with the project include myself, Cynthia Coviak, and Diane Slager.

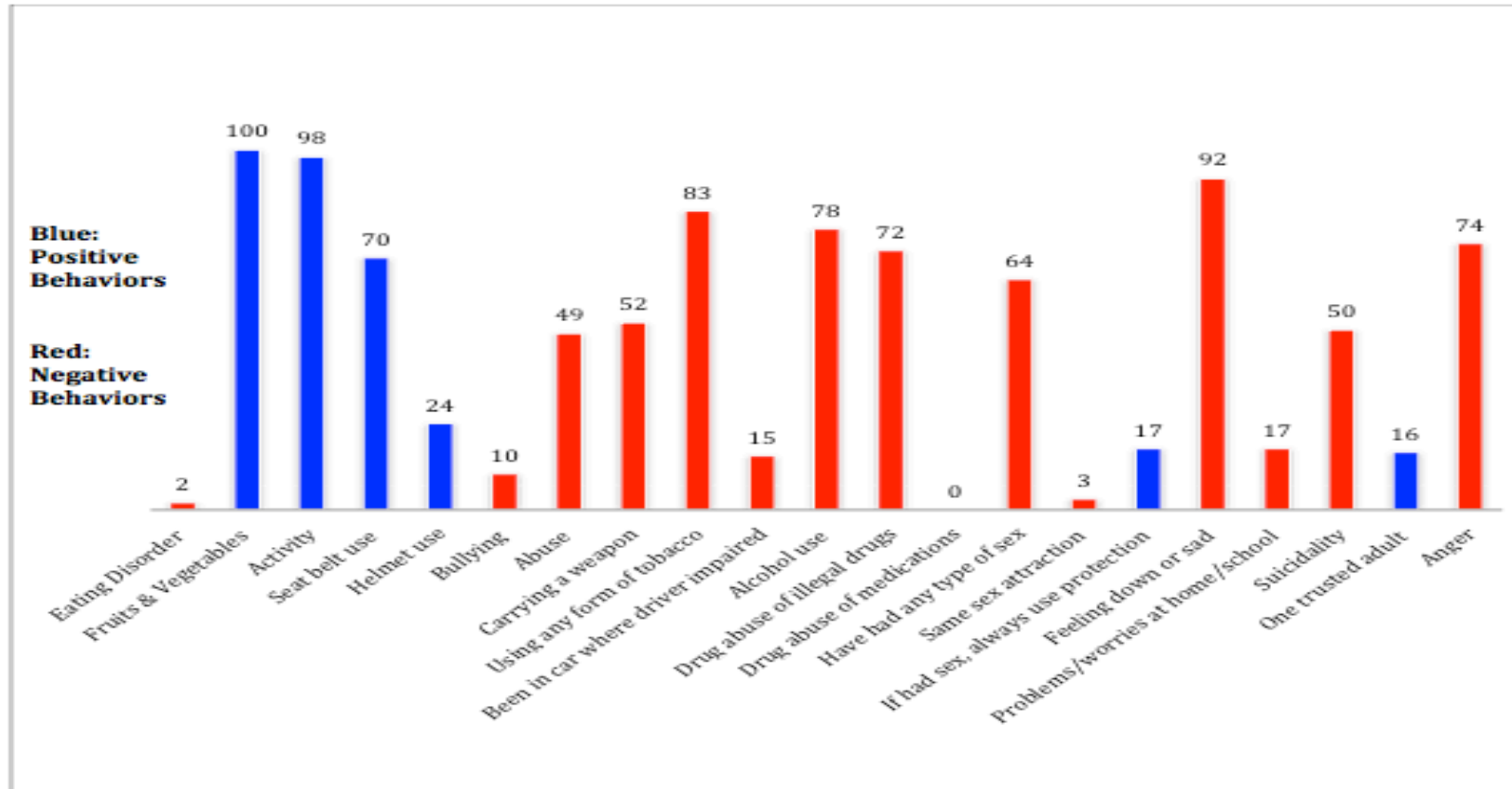
A handwritten signature in black ink, appearing to read 'Kim Lanning', is written over a light blue background. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Kim Lanning, DNP, MSN, FNP-BC, APRN  
Nurse Practitioner



Appendix E

Baseline Data Collection at Regional Family Practice Office (n=100)



Percentage of 13 to 18 year old patients asked about RAAPS topics at wellness visits  
 over 13 week baseline period (June 11-September 7, 2018)

## Appendix F

## Organization IRB Determination

**NOTICE OF CLINICAL QUALITY IMPROVEMENT MEASUREMENT DESIGNATION**

To: Megan Carpenter, BSN, RN, DNP-s

Re: IRB# 18-0613-2  
Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk Taking Behaviors of 13 to 18 year olds in a Regional Family Practice Office

Date: 07/09/2018

This is to inform you that the Institutional Review Board (IRB) has reviewed your proposed research project entitled *"Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk Taking Behaviors of 13 to 18 year olds in a Regional Family Practice Office"*. The IRB has determined that your proposed project is not considered human subjects research. The purpose and objective of the proposed project meets the definition of a clinical quality improvement measurement. All publications referring to the proposed project should include the following statement: *"This project was undertaken as a Clinical Quality Improvement Initiative at and, as such, was not formally supervised by the Regional Institutional Review Board per their policies."*

The IRB requests careful consideration of all future activities using the data that has been proposed to be collected and used "in order to implement the RAAPS and improve the care and follow-up of adolescent patients with risk-taking behaviors."

The IRB requests resubmission of the proposed project if there is a change in the current clinical quality improvement measurement design that includes testing hypothesis, asking a research question, following a research design or involves overriding standard clinical decision making and care.

Please feel free to contact me if you have any questions regarding this matter.

IRB Chairperson

Copy: File

DEFENSE

## Appendix G

## GVSU IRB Determination



DATE: July 13, 2018

TO: Cynthia Coviak  
FROM: HRRC  
STUDY TITLE: Using the Rapid Assessment for Adolescent Preventive Services (RAAPS) to Screen for Risk-Taking Behaviors of 13 to 18 year olds in a Primary Care Office  
REFERENCE #: 19-016-H  
SUBMISSION TYPE: HRRC Research Determination Submission

ACTION: Not Research  
EFFECTIVE DATE: July 13, 2018  
REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research\* according to current federal regulations. The project, therefore, does not require further review and approval by the Human Research Review Committee (HRRC).

A summary of the reviewed project and determination is as follows:

The purpose of this quality improvement project is to implement routine adolescent risk and health behavior screening at a local primary care practice and evaluate the subsequent frequency of intervention by providers at the practice. While this is a systematic investigation, it is not designed to create new generalizable knowledge. Therefore, this project does not meet the federal definition of research and IRB oversight is not required.

An archived record of this determination form can be found in IRBManager from the Dashboard by clicking the "\_ xForms" link under the "My Documents & Forms" menu.

If you have any questions, please contact the Office of Research Compliance and Integrity at (616) 331-3197 or [rci@gvsu.edu](mailto:rci@gvsu.edu). Please include your study title and study number in all correspondence with our office.

Sincerely,  
Office of Research Compliance and Integrity

## Appendix H

## PRISMA Flow Diagram of Search Selection Process

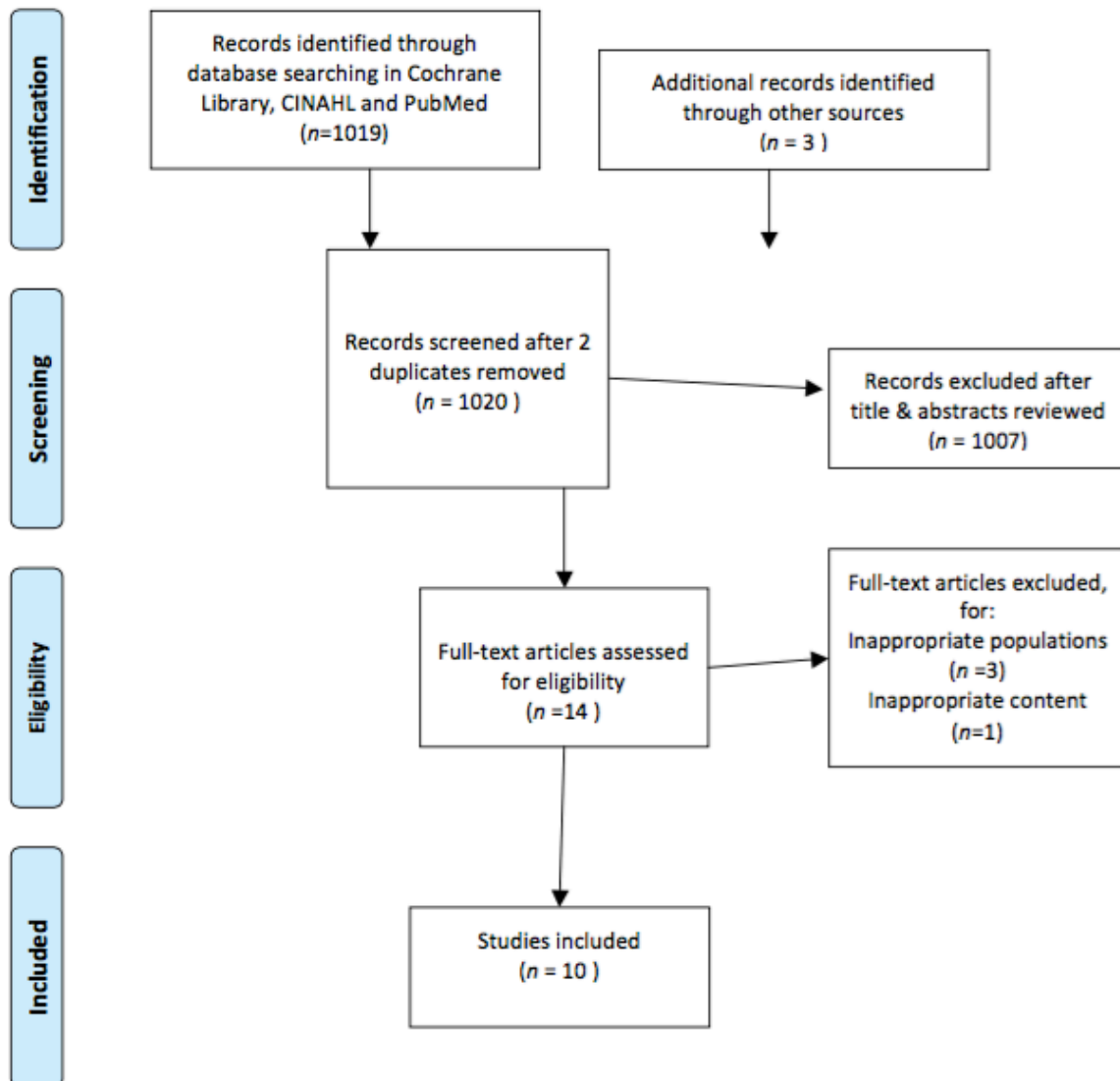


Figure 1: Flow diagram of search selection process. Adapted from “Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement,” by D. Moher, A. Liberati, J. Tetzlaff, D. Altman, and PRISMA group. Copyright 2009 by PLoS Med The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Medicine*.

## Appendix I

Table of Evidence

Author (Year) Purpose	Design	Inclusion Criteria	Intervention vs Comparison	Topics Screened	Results	Limitations	Conclusion
Saulsbury, Marko-Holguin, Blomeke, Hinkle, Fogel, Gladstone, Bell, Reinecke, & Corden Van Voorhees (2013) Evaluate if motivational interviewing (MI) or brief advice (BA) by providers is effective for adolescents who screen positive for depression risk	Quasi-Experimental (N=58)	Adolescents from 12 primary care sites	No control group; between-group and within group comparisons for baseline and one year follow up	Depressed mood, Loneliness, Hopelessness, Self-harm ideation, Depressive disorder	From baseline to 6 week follow up, both groups decreased in symptoms of depression & ratings of loneliness; from baseline to one year both groups decreased in ratings of loneliness  Fewer subjects in the group that received MI had had a depressive episode after 12 months compared to the group that received BA	Attrition rate; not double blinded	MI and BA can both be effective interventions for adolescents who screen positive for risks of depression
Louis-Jacques, Knight, Sherritt, & Van Hook (2014) Evaluate if screening for alcohol use improves provider intervention and subsequently improves alcohol cessation and initiation in adolescents	Before/after comparative effectiveness Trial (Case control) (N=2,092)	12-18 year olds at 9 primary care offices; Could read; Emotionally & medically stable; Willing to finish all assessments within the upcoming year	Control vs. Intervention	Alcohol use	3 months after screening & provider brief advice (cSBA), alcohol cessation was evident in participants with peer risk; in participants with peer risk screening & cSBA did not significantly decrease rates of alcohol initiation	Self-report; Not randomized	Screening for peer risk of alcohol use along with cSBA can increase rates of alcohol cessation for adolescents with peer risk

<p>Etter, McCord, Ouyang, Gilbert, Williams, Hall, Tu, Downs, &amp; Aalsma (2017). Assess effectiveness of clinical decision support system (CDSS) in primary care to screen for and provide follow up for adolescents with suicidality</p>	<p>Prospective cohort (N=2,134)</p>	<p>Ages 12-20 at 2 federally qualified health clinics; Well visit or sick visit</p>	<p>No comparison group</p>	<p>Suicidality, Depression, Substance Use</p>	<p>85% of providers charted about a form of management for patients who were positive for suicide risk; 38 patients were positive for suicidal ideation. Providers intervened for 16 of the 38 by referring to inpatient care, outpatient care, &amp;/or an educational document.</p>	<p>Self-reported; The suicide screen does not ask when the patient was having suicidal ideation; Only asked one question about suicidal ideation; Unsure if follow up care was helpful or not to the patient</p>	<p>Screening tool completed prior to visit led to referrals made for suicidal ideation.  Not all patients who screened positive for suicide were positive for depression and vice versa</p>
<p>Gadomski, Fothergill, Larson, Wissow, Winegrad Nagykaladi, Olson, &amp; Roter (2015) Assess if screening tool increases interventions by provider for risk-taking behaviors</p>	<p>Quasi-Experimental (N=72)</p>	<p>Ages 15-19 at 2 primary care clinics; Only well visits</p>	<p>Control group vs. Experimental group</p>	<p>Nutrition, Exercise, School, Safety, Reproductive Health, Drugs, Alcohol, Tobacco, Depression, Anxiety, Mental Health</p>	<p>Patients from the experimental group discussed psychosocial issues &amp; mental health concerns significantly more with their provider. Substance abuse discussions were not significantly different between the two groups.</p>	<p>Not randomized; Possible Hawthorne effect</p>	<p>Screening tool completed prior to visit increased discussion about psychosocial issues &amp; mental health</p>
<p>King, Gibson, Horwitz, &amp; Opperman (2015) Assess if the Efficacy of Teen Options for Change (TOC) program for adolescents who screen positive for suicidality when presenting to ER with another problem decreases depression, hopelessness, and/or suicidality</p>	<p>Pilot RCT (N=49)</p>	<p>14-19 years old in one ER; positive results on suicide screening tool or positive results on depression and alcohol or drug use screening tools; had to come to ER with main concern not psychiatric</p>	<p>Comparison group vs. Experimental group</p>	<p>Depression, Hopelessness, Suicidal Ideation</p>	<p>At two month follow up: Large effect size related to depression for experimental group vs. control group</p>	<p>Small sample size; short length of time before follow up; only participants were patients in afternoon or night shifts; results may not be generalizable</p>	<p>TOC can be a helpful program for adolescent patients who come to the ER for a medical problem and screen positive for suicidality, by decreasing rates of depression</p>

Aalsma, Zerr, Etter, Ouyang, Lewis Gilbert, Williams, Hall, & Downs (2018) Efficacy of clinical decision support system (CDSS) including a screening tool & provider prompts to improve treatment of depression	Prospective cohort study (N=2,038)	12-20 year olds in two clinics; well visit or sick visit	No comparison group	Depression	Nearly 15% of participants screened positive for depression. providers intervened through: discussion (27%), an educational document (15%), providing contact information for a crisis line (9%), mental health referral for therapy (42%), and beginning treatment with a SSRI (6%).	Self-reported results may not be generalizable, large differences between the two clinics related to mental health referrals; large differences between providers related to starting SSRI treatment	CDSSs can effectively identify adolescent patients with depression and provide options for providers to assist them in treating these patients
Webb, Kauer, Ozer, Haller, & Sancic (2016) Evaluate if screening & follow-up of risk taking behaviors and mental health disorders enhances clinical results	Systematic Review (N=9 studies)	At least 75% of subjects $\leq 25$ years at primary care sites	Every study utilized a screening tool and one or more follow up methods by providers; 7 studies had comparison group & experimental group; 2 groups no comparison group	Diet, Exercise, Substance use, Risky behavior due to substance use, exercise, screen time, safety, sleep quality of life, sexual health or behavior	7 out of the 9 studies demonstrated that screening & follow up of risk taking behaviors and mental health disorders improved clinical results	Not all studies were randomized; 5 studies had small sample sizes; 1 conceivably biased study; 2 studies had too short of a time before follow up was conducted; 4 studies had participants who left the study; 3 studies used a method of patient reporting; 2 studies were not randomized, 3 studies did not include a control group; 5 studies that used more than one interventions which led to difficulty in determining which intervention was effective	Screening for risk taking behaviors and mental health disorders and follow up of the results by providers has the potential to enhance clinical results for adolescent patients. Screening and follow-up should be included in standard practice for primary care.
Jonovich & Alpert-Gillis	Post-inter-	11 and 12 year olds and their	Control group vs.	Mental health	Experimental group significantly	May not be generalizable	Screening tools for

(2014) Evaluate if screening for mental health concerns can increase rates of referral to mental health services and attendance at mental health appointments	vention study (Case control) (N=292)	parents during well visit at 1 primary care site	Experimental group		more likely to receive referral for counseling and attend counseling appointment; experimental group did not have higher rates of diagnosis of a mental health problem or prescription of a medication for a mental health problem	related to only 1 clinic and only 11 and 12 year old subjects	mental health concerns and follow up of responses by providers can possibly increase rates of referral to mental health services and attendance of referral appointments
Hacker, Arsenault, Franco, Shaligram, Sidor, Olfson, & Goldstein (2014) Assess if positive responses on a mental health screening tool increase provider referral to mental health specialist and does positive responses with a referral increase the attendance of mental health visits completed within 180 days of well visit	Retro-spective chart review (Case control) (N=227)	14-17 year olds during well visit at 10 primary care sites in one system; commercially insured; positive screening results on PSC/Y-PSC screening tool; not currently accepting specialty mental health care services	Comparison group vs. experimental group	Mental health	Experimental group were referred to mental health specialist more than control group ( $p < .0001$ ); experimental group actually had contact with mental health specialist (including phone call, ( $p < .0001$ ); Only 18% of the subjects that were referred from the experimental group were seen by a mental health specialist in person within the 180 day period after their well exam.	May not be generalizable because completed at 1 healthcare system and only with patients who had commercial insurance; smaller sample size	Using a screening tool can help to recognize adolescents with mental health concerns and can increase follow up measures; Referral for mental health services may not translate into patients attending mental health visits
Riese, Mello, Baird, Steele, & Rainey (2015) Evaluate if screening for youth violence (YV) risks increases provider discussion about YV risks	Cluster RCT (N=183)	13-19 year olds during well visit at 1 primary care site	Control group vs. Experimental group	Physical fights, Threatened with a weapon, Bullied, Has carried a weapon	Experimental group talked with their physician more about the 4 youth violence (YV) topics	Self report; results may not be generalizable related to only 1 clinic site; did not address follow up after discussions	Using a screening tool during well visits can increase provider discussion about YV risks



Appendix J

PARiHS Continua of Dimensions

Enabling the implementation of evidence based practice

151

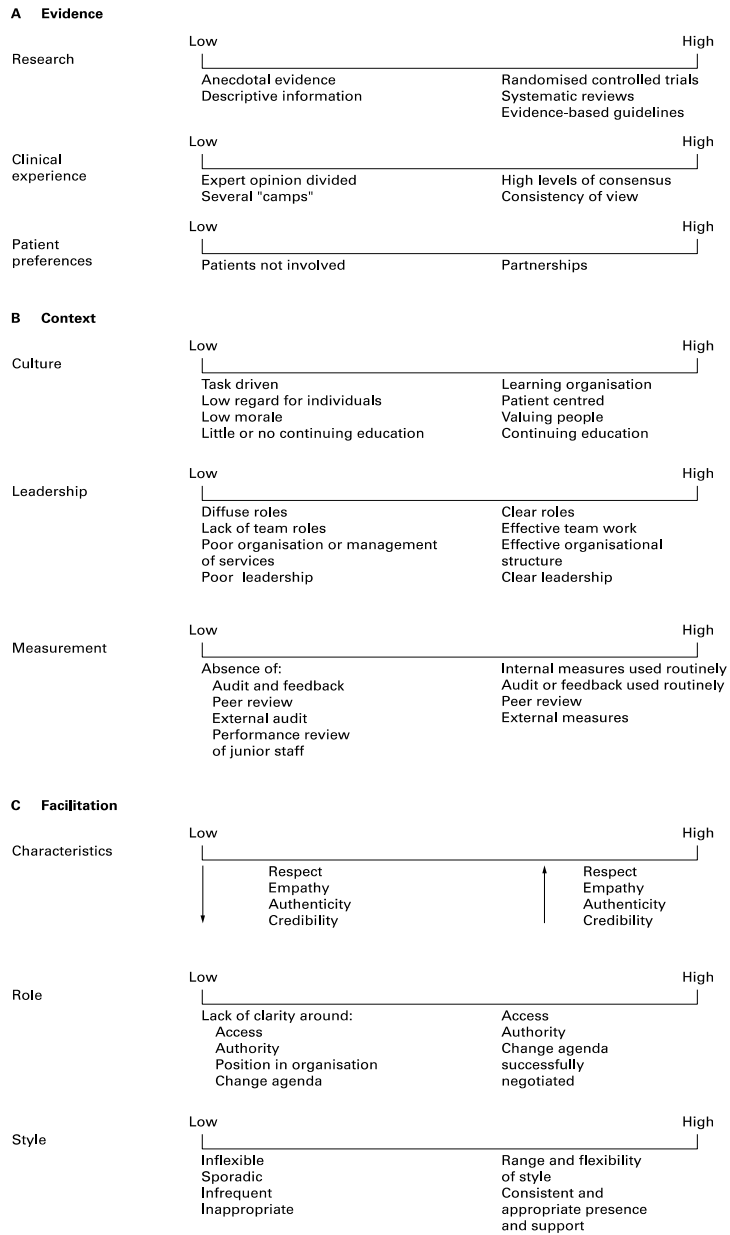


Figure 3 Conditions for evidence, context, and facilitation.


“Enabling the implementation of evidence based practice: a conceptual framework,” by A. Kitson, G. Harvey, and B. McCormack. Copyright 1998 by Quality and Safety in Health Care.

Appendix K  
Objectives and Measures

	Concept measured	How measured (tool, survey, variable)	When measured	Who measured
Implementation strategies	Coalition Building: Operations director, office manager, lead physician, subset of providers, BOCs, MAs, and LPNs	How much positive feedback to RAAPS was received	By November 12, 2018	DNP student
	Education to providers and staff about QI project	Understanding relayed through feedback	By October 31, 2018	DNP Student
	Implementation of RAAPS	Chart review of whether RAAPS tools were completed, documented, and billed	Weekly during implementation	DNP student
Patient outcomes	Increase in discussions about risk-taking behaviors	Chart review of documentation of risk- taking behaviors	Weekly during implementation	DNP student
	Increase in follow- up appointments about risk-taking behaviors	Chart review of documentation of follow-up appointments	Weekly during implementation	DNP student
	Increase in referrals about risk-taking behaviors	Chart review of documentation of referrals	Weekly during implementation	DNP student

## Appendix L

## Sample of RAAPS Screening Tool


Standard RAAPS  
Assessment Preview

The RAAPS assessments are comprised of 21 evidence-based questions proven to elicit honest responses from teens. The standardized, validated comprehensive assessments are available to license in a cloud-based or paper format, with three age-specific assessments available: older child (9-12yrs), standard (13-18yrs), and young adult (18-24yrs).

**A sample question for each risk category in the RAAPS standard assessment is below.**

**Nutrition/Physical Activity:**  
Are you active after school or on weekends (walking, running, dancing, swimming, biking, playing sports) for at least 1 hour, on at least 3 or more days each week?

**Substance Use:**  
In the past 3 months, have you drunk more than a few sips of alcohol (beer, wine coolers, liquor, other)?

**Sexual Health:**  
If you have had sex, do you always use a condom and/or another method of birth control to prevent sexually transmitted infections and pregnancy?

**Violence:**  
During the past month, have you been threatened, teased, or hurt by someone (on the internet, by text, or in person) causing you to feel sad, unsafe, or afraid?

**Protective:**  
Do you have at least one adult in your life that you can talk to about any problems or worries?

**Mental Health:**  
During the past month, did you often feel sad or down as though you had nothing to look forward to?

**Safety:**  
In the past 12 months, have you driven a car while texting, drunk or high, or ridden in a car with a driver who was?

*When an adolescent responds positively to any of the questions, a pre-populated health message appears upon completion of the assessment. The health messages can be used by professionals or talking points to help guide the adolescent toward positive behavior change. In the example below, the adolescent responded positively for safety risks.*

---

**HEALTH MESSAGE**

Driving drunk, high, or while texting is risky and you're much more likely to be in a car crash. All of these things slow down your reaction time and makes it harder to focus while driving. You can lower your chance of an accident by following a few simple tips.

To limit the temptation to text while driving:

- Put your phone in your glove box or back seat while driving.
- Turn your phone off while driving.
- Wait until you are parked to use your phone.
- Ask a friend riding with you to text for you.


Never drive a car after using even a small amount of drugs or alcohol and avoid riding with someone who has.

- Before you go out for the night, decide who is going to be the designated driver and stick to it.
- Identify someone you can call for a ride if you find yourself in a situation that is unsafe.
- Offer to drive if you are sober.
- Find a ride from someone else.
- Call a taxicab.
- Make plans to stay the night wherever you are going.

You can make a difference in your life and the lives of your friends by making safe driving choices.

<http://www.drivingsober.net/Teen-page.html>  
[www.takethewheel.net](http://www.takethewheel.net)

National Alcohol/Drug Abuse Hotline: 1-800-662-HELP(4357)



Email [info@Pos4Chg.org](mailto:info@Pos4Chg.org) for details on how to use RAAPS to empower youth to make healthy lifelong decisions.

## Appendix M

## Script for MAs and LPNs

- Please tell parents: "We're using a new confidential screening for teens that asks some sensitive questions. Your teen can choose not to answer any questions they don't want to. Would it be ok with you for {fill in name here} to take it?"

## Appendix N

## Parent Handout



## Frequently Asked Questions about the RAAPS Assessment

**What is the RAAPS?**

- RAAPS is short for “**Rapid Assessment for Adolescent Preventive Services.**” RAAPS is short assessment used to identify risky behaviors that can affect the health of teens, developed at the University of Michigan by a team of expert researchers and health professionals. Teens were also involved in the process to make sure the assessment was engaging and relevant. RAAPS is used and trusted by thousands of health professionals and teens around the world.

**Why is my teen being asked to complete the RAAPS?**

- The American Medical Association and the American Academy of Pediatrics recommend routine risk behavior screening for *all teens*.
- Most adult health issues result from diseases, which is why adults are regularly screened for diseases like heart disease, cancer, high blood pressure, etc. However, most serious teen health issues result from risky behaviors like drinking alcohol, texting and driving, unsafe sexual experiences, and feelings of depression.
- Most teens engage in risky behavior, sometimes without realizing it. RAAPS identifies behaviors that may put your teen at risk so healthcare professionals can offer them information and education to make more positive choices.

**Can I see what questions my teen was asked?**

- Talk to your teen's healthcare professional about viewing a blank copy of the RAAPS risk assessment.

**Aren't you exposing my teen to things they haven't thought about before?**

- Through TV, social media, and their friends — teens are exposed every day to behaviors like substance use, sex, and more. Data shows that children as young as 11 years old are engaging in risky behaviors, many times without an adult knowing about it. The biggest increases in trying new risky behaviors occur between 13 and 15-years-old. To wait to identify risky behaviors until a teen is 16 or 17-years-old may be too late.
- Studies show teens want to talk about risky behaviors, but often don't know how to bring them up. Asking teens about behaviors doesn't cause them to start doing them or to think that they are OK. Asking does make it OK for teens to ask their questions and receive information on avoiding risky situations.

**Can I see how my teen responded to RAAPS?**

- Teens need to be alone to complete RAAPS so that they can be honest.
- Healthcare providers will share your teen's responses with you only if they say that they want to hurt themselves, hurt someone else, or that someone is hurting them.
- When talking about results, healthcare professionals will encourage your teen to also share their behaviors and experiences with you so that you can continue the conversations at home.

**Why is my teen spending time with their healthcare professional without me in the room?**

- As your teen gets older, they will begin to take on the responsibility of caring for their health, and time alone with their healthcare professional is an important part of them learning how to do this.

**Isn't it my job to talk to my teen about common risky behaviors?**

- Research shows teens who talk with trained adults and their parents report fewer risky behaviors than those who don't.
- There are a lot of ways you can also support your teen in reducing or preventing risky behaviors. You have a big influence on what your teen will do when faced with risky situations. Taking the RAAPS can help open the door to conversations with your teen. Ask them their thoughts about RAAPS and what they know about risky behaviors. Don't just have one conversation, talk early and often about behaviors that put them at risk and your expectations.
- For help in establishing a strong relationship that supports talks with your teen on any issue they may face as they develop through the teen years, check out *Teen Speak* by Dr. Jennifer Salerno
- Talk to your teen's healthcare professional if you have additional questions.



The U.S. Centers for Disease Control and Prevention reports that three out of four serious injuries and deaths in teens are caused by preventable, risky behaviors.

## Appendix O

## Outline of Provider Packet Materials

1. Summary to describe the RAAPS, which patients should utilize it, how to document its use, how to keep documentation confidential in the EHR, and how to bill for its use
2. Evidence-based instructions on how to proceed with concerning responses to each of the 21 RAAPS questions
3. List of local counseling services
4. Relevant policies from regional healthcare organization related to the RAAPS

## Appendix P

Sample Educational Fliers at Regional Family Practice Site

## Rapid Assessment for Adolescent Preventive Services (RAAPS)

➤ Survey to screen for risk-taking that impacts the *wellness* of teens

### Why are we using RAAPS ?

- Between the ages of 10-24, leading causes of death include <sup>\*</sup>unintentional injuries, \*suicide, \*homicide, \*heart disease, \*diabetes & \*stroke
- MHPP consistently screens for diet, exercise & depression but not other risk behaviors
  - Ex. of RAAPS question: **Have you ever carried a weapon (gun, knife, club, other) to protect yourself?**

### Who can we use RAAPS with ?

- **13-18 yr olds**
- Average estimated payment is about \$5 per screening
- Est. Time: 5 minutes in patient room
- Nov 12 - Jan 31
- Megan Carpenter, NP student is available on site at times each week. Can contact at [dickenme@mail.gvsu.edu](mailto:dickenme@mail.gvsu.edu) for questions, comments, or concerns.



American Academy of Pediatrics. (2017).  
Centers for Disease Control and Prevention (2017).  
Possibilities for Change. (2018).

Figure 1. Information flyer for providers and staff.

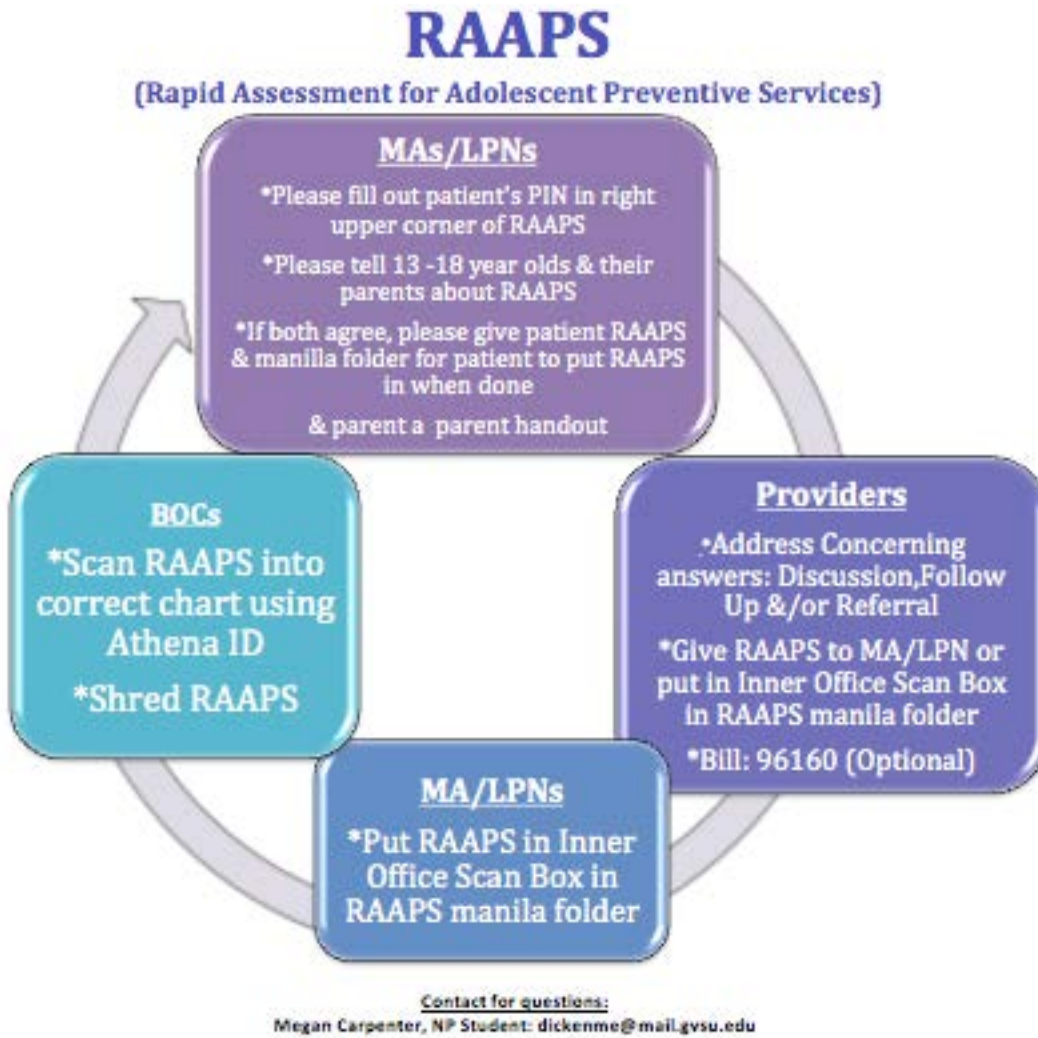


Figure 2. Flow of RAAPS in regional family practice site.



MA/ LPNs

- When you have a 13-18 year old patient with a well child, please write their ID & date in right upper corner before rooming them.
- Upon rooming, please, *give parents the **Parent Handout** and say: "We're using a new confidential screening for teens that asks some sensitive questions. Your teen can choose not to answer any questions they don't want to."*
- Once they are finished looking at the **Parent Handout**, please say:  
Would it be ok with you for {fill in name here} to take it?"
- If they say Yes, ask {fill in name here} if they are willing to answer questions.
- If parent & patient agree, please ask patient to sit on patient bed (for privacy) & give the **patient the RAAPS** with the manila folder to put the **RAAPS** in when they are done
- Provider will bring out **RAAPS**. Please put in **RAAPS** manila folder in Inner Office Scan Box

\*\*\*\*\*Thank you!\*\*\*\*\*

BOCs

- Please take **RAAPS** from **RAAPS** manila folder in Inner Office Scan Box
- 
- Please scan **RAAPS** into the patient chart (using ID in right upper corner)
- Please shred **RAAPS**

\*\*\*\*\*Thank you!\*\*\*\*\*

Figure 3. Instructions to MAs, LPNs, and BOCs.

## Appendix Q

## Operational Definitions for whether each RAAPS Topic was Discussed

1. In the past 12 months, have you taken diet pills or laxatives, made yourself vomit (throw up) after eating, or starving yourself to lose weight?
  - No food restrictive behavior
  - Denies eating disorder
  - Anorexia nervosa diagnosis
  
2. Do you eat some fruits and vegetables every day?
  - Discussed appropriate diet
  - Discussed more fruits and veggies
  - Diet counseled
  - Reports well balanced diet
  - Good eating habits
  - Discussed current nutrition behaviors
  - On Assessment/Plan: Continue healthy diet
  - Reports diet not well balanced
  - Encourage health food choices
  - Reports 3 meals/day
  - Discussed diet
  - Importance of eating regular meals
  - Counseled on good food choices
  
3. Are you active after school or on weekends (walking, running, dancing, swimming, biking, playing sports) for at least 1 hour, on at least 3 or more days each week? Discussed appropriate exercise
  - Physical activity counseled
  - Reports gets regular exercise
  - On AP: Exercise daily
  - Exercise at times
  - Discussed exercise
  - Try to get at least 45-60 min of exercise daily
  - Exercise one hour a day
  - Continue exercise daily or minimum 5 times a week for 30 minutes
  - Encourage exercise
  - Discussion of current physical activity behaviors (exercise and activity routine)
  - Discussed exercise
  - Normal exercise habits
  - Discussed activity
  - Discussed physical activity behaviors

4. When you are driving or riding in a car, truck or van do you always wear a lap/seat belt?
  - Reports wears seatbelt [use]
  - Anticipatory guidance: Insist that seatbelts be used by everyone
  - Seatbelt used routinely: Y
  - Anticipatory guidance: Show your teen that seatbelts are important by wearing yours every time you drive.
  - Always wear a seatbelt
  - Reports wears seatbelt
  
5. Do you always wear a helmet when you do any of these activities: ride a bike, rollerblade, or skateboard; ride a motorcycle, snowmobile or ATV; ski or snowboard? I don't do any of these
  - Bike helmets: N/Y
  - Reports uses helmet for biking/scootering
  - Encouraged bike helmet use
  - Counseled about/on use of helmets
  - Remember to wear helmet at all times
  - Does not use helmet for biking/scootering
  - Counseled on wearing a helmet while biking
  - Always wear a helmet
  - Advised patient to regularly wear helmet while bike riding
  - Advised to wear a helmet
  - States he doesn't wear a helmet
  
6. During the past month, have you been threatened, teased, or hurt by someone (on the internet, by text, or in person) causing you to feel sad, unsafe, or afraid?
  - Bully/bullying
  - Bullying in school
  
7. Has anyone ever physically injured you (by hitting, slapping, kicking) or forced you to have sex or be involved in sexual activities when you didn't want to?
  - In the past year, have you been hit, kicked, or otherwise physically hurt by someone? Has anyone ever forced you to have sexual activity?
  
8. Have you ever carried a weapon (gun, knife, club, other) **to protect yourself** from another person?
  - Reports firearm safety
  - Guns present in Home
  - Fighting and carrying weapons can be dangerous
  - Anticipatory guidance: firearms should only be used with strict supervision
  - Anticipatory guidance: fighting and carrying weapons can be dangerous
  - Discussed exposure to guns
  
9. In the past 3 months, have you smoked any form of tobacco (regular or e-cigarettes, Juul, cigars, black and mild, hookah, vape pens) or used smokeless tobacco (dip, chew, snus)?
  - Anticipatory guidance: make healthy decisions about tobacco
  - Smoking status: never smoker (or never smoker (has done e-cigs a few times))

- Denies tobacco use
- Anticipatory guidance: All tobacco is addictive
- Smokeless tobacco status? Never user
- Tried vaping x2

10. In the past 12 months, have you driven a car while texting, drunk or high, or ridden in a car with a driver who was?

- Anticipatory guidance: Do not drink and drive or ride in a vehicle with someone who has been using drugs and alcohol
- Teach your teen not to ride in a car driven by someone who is drunk or high
- Discussed Driving safety
- AP: no texting while driving
- Discussed driving

11. In the past 3 months, have you drunk more than a few sips of alcohol (beer, wine coolers, liquor, other)?

- Anticipatory guidance: make healthy decisions about drinking
- Anticipatory guidance: Alcohol and drug use will impair your judgement
- Alcohol intake: None
- No alcohol abuse
- Denies alcohol abuse
- Discussed alcohol
- Discussed alcohol abuse
- No alcohol consumption

12. In the past 3 months, have you used marijuana, other street drugs, steroids, or sniffed/huffed household products?

- Anticipatory guidance: make healthy decisions about drug use
- Discussed drugs
- Denies drug use
- Anticipatory guidance: Alcohol and drug use will impair your judgment
- Discussed plans to do drug testings as warranted. No drugs or no medication. (under ADHD diagnosis)
- Drugs-tried vaping x2

13. In the past 3 months, have you taken a prescription medication (codeine, OxyContin, Norco, Vicodin, Adderall, Ritalin, Xanax, other) without a prescription, taken more than the prescribed amount or continued to take it after you no longer needed it?

- He does use some controlled substances not prescribed to him

14. Have you ever had any type of sex (vaginal, anal or oral sex)?

- Anticipatory guidance: make healthy decisions about sex
- Discussed sexuality

- Discussed sexually transmitted diseases
- Denies sexual activity
- If your teen is sexually active, encourage him to protect himself with a condom and use birth control methods
- Active sexual interest
- Discussed Sexually transmitted disease
- Identifies as pansexual
- Not sexually active currently
- Identifies as a guy and sexual preference is females
- Currently identifies as heterosexual, previously identified as bisexual
- Reports sexually active
- Appointment for pre-natal care
- Not sexually active
- Sexual activity
- Attracted someone of same gender
- Not interested in sexual activity at this time

15. Have you ever been attracted to someone who is the same gender as you (girl if you are a girl/ guy if you are a guy) or do you feel that you are gay, lesbian or bisexual?

- Prefers boys
- Identifies as pansexual
- Identifies as a guy and sexual preference is females
- Currently identifies as heterosexual, previously identified as bisexual
- Attracted someone of same gender
- Expressed an interest in the same gender

16. If you have had sex, do you always use a condom and/or another method of birth control to prevent sexually transmitted infections and pregnancy? I have never had sex.

- Educated on practicing safe sex
- Anticipatory guidance: Make healthy decisions about sex
- Discussed sexuality and protecting self
- Discussed sexually transmitted diseases
- Discussed birth control
- If your teen is sexually active, encourage him to protect himself with a condom and use birth control methods
- No contraceptive use
- Uses protection
- Current birth control method: none
- Let us know if you have any issues with the birth control we prescribed (Under diagnosis of contraception care, not dysmenorrhea)
- Discussed/counseled on safe sex
- Not using condoms
- Counseled on safe sex practices
- STIs
- Discussed birth control options

17. During the past month, did you often feel sad or down as though you had nothing to look forward to?

- Reports normal mood
- PHQ given
- NOT “normal affect and mood” in PE
- Reports no depression
- Depressive disorder diagnosis

18. Do you have any serious problems or worries at home or at school?

- No Family Crises/stressors
- Denies any problems in school
- Home environment is safe, feels safe at school
- Feels safe at home and at school (8)
- Family problems
- Home life feels stable ‘normal’
- Family lost their electricity
- Problems with school academically
- Discussed home situation
- Problems doing his homework
- Home-safe, but lots of pressure to succeed

19. In the past 12 months, have you seriously thought about killing yourself, tried to kill yourself, or have you purposely cut, burned or otherwise hurt yourself?

- Denies suicidal ideations

20. Do you have at least one adult in your life that you can talk to about any problems or worries?

- Anticipatory guidance: Talk with your parents
- Anticipatory guidance: Adolescents need parental support, warmth and guidance
- Anticipatory guidance: Let your teen know that you are always willing to talk
- “I encouraged to further develop his relationship with his father”
- does have a therapist and feels comfortable talking to her mother as an outlet
- She is open with parents about depression and difficulties in school
- Remember that you can always come here and talk to me if the stress you put on yourself becomes too much
- Discussed lack of an adult to talk to
- It is ok to talk to a teach, counselor about this (teasing)
- Discussed having a responsible person you can talk to
- Talked about having an adult to talk to at school, family, or here
- Discussed talking to someone for support
- Continue to see counselor
- Advised that she consult with therapist
- She has discussed [history of cutting] with her mother
- (if yes for referral than yes for this question
-

21. Have you ever destroyed things, hurt yourself, or hurt someone else when you were angry?

- No behavior problems
- Well behaved
- Understands conflict resolution/ violence prevention
- Anticipatory guidance: Learn how to deal with conflict without using violence

#### Referral

- Not interested in seeing a therapist
- Continue to see counselor
- Continue therapy
- Advised that she consult with therapist
- Social worker referral
- Nutritionist/dietician referral
- Advised mother & pt to consider counseling
- Continue counseling
- Follows with a psychiatrist for treatment of depression
- Did not include Physical therapist referral or yoga referral
- Mom is already getting her enrolled in counseling
- She does not want to see a counselor
- Seek tutor assistance
- Call the nutritionist to schedule an appointment
- Sees counselor weekly and monthly with psych
- Would not feel comfortable with a counselor

#### Follow-Up

- May return to office for follow up with me as discussed
- Follow up in 4 weeks
- Follow up in 2 weeks
- Follow up in a month
- See on 12-28
- We will continue to see you every 3-6 months for follow up
- I would like to follow up in 6 months
- She is receptive to following up with me
- See you back in three months to see how things are going

#### Did the provider bill?

- If it was not the most previous visit, I did not have access to the 'billing' tab when I double-checked my data, so had to select 'missing' because I cannot be sure 'yes' or 'no' is accurate

Appendix R  
Decision Tables

Yes	No
Provider specifically documented a discussion about a RAAPS topic, according to operational definitions	Provider documented “all risks discussed”
The patient could have been asked directly about the topic, as indicated in the social history, review of systems (ROS), or assessment and plan section	
Anticipatory guidance was provided as a print out in the patient plan section	

*Figure 1.* Decision table of whether a discussion about a RAAPS topic had taken place.

Yes	No
If a follow-up appointment or referral was documented as discussed, encouraged, or made	If a follow-up appointment or referral was not documented in the chart as discussed, or encouraged, or made
If referral or follow-up appointment were related to a RAAPS topic	If a referral of follow-up appointment were not related to a RAAPS topic (ex. acne, physical therapy, yoga)

*Figure 2.* Decision table of whether a discussion about a follow-up appointment or referral had taken place.



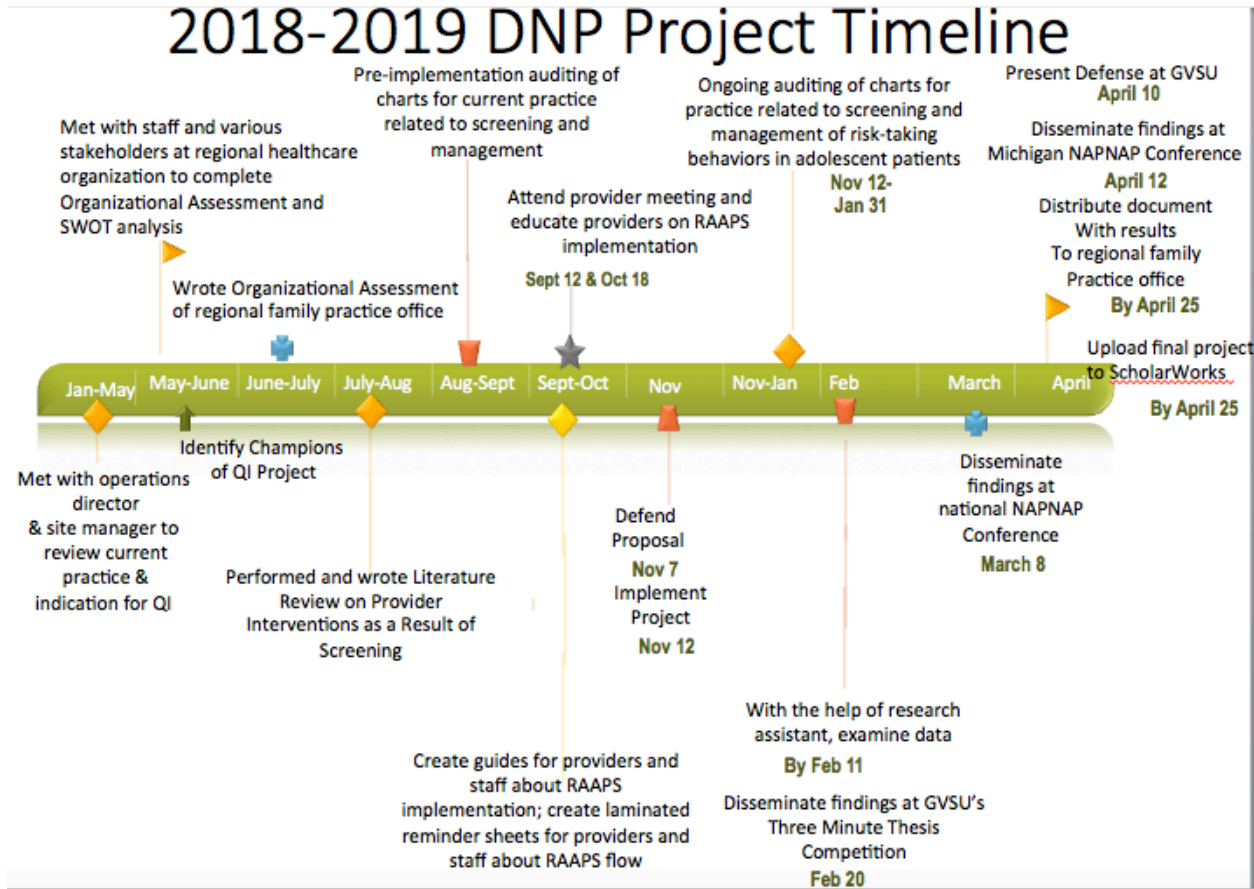
## Appendix S

## Budget

<b>Revenue</b>	
Project Manager Time (in-kind donation)	6258.90
Consultations	
Statistician (10 hours)	337.90
Cost mitigation	
Insurance Reimbursement (\$4.73 per RAAPS) for 18 patients	85.14
GVSU Presidential Grant (in-kind)	1,020.48
<b>TOTAL INCOME</b>	<b>7,702.42</b>
<b>Expenses</b>	
Project Manager Time (in-kind donation)	6258.90
Team Member Time:	
Office Manager Time for 30 minutes (two-time cost occurrence)	47.29
Educate 8 physicians for 30 minutes (two-time cost occurrence)	764.40
Educate 1 PA for 30 minutes (two-time cost occurrence)	50.41
Educate 2 NPs for 30 minutes (two-time cost occurrence)	99.88
Consultations	
Statistician (10 hours)	202.74
Cost of RAAPS licensing agreement for 1 year	360.00
Cost of provider guide	131.12
Cost of support staff guides	26.46
Cost of printing thank you sign	7.56
Cost of printing parent guide	59.00
Cost of Screening tool	59.00
Printing costs of Info Sheet	25.12
<b>TOTAL EXPENSES</b>	<b>8091.88</b>
Net Operating Plan	<b>-389.46</b>

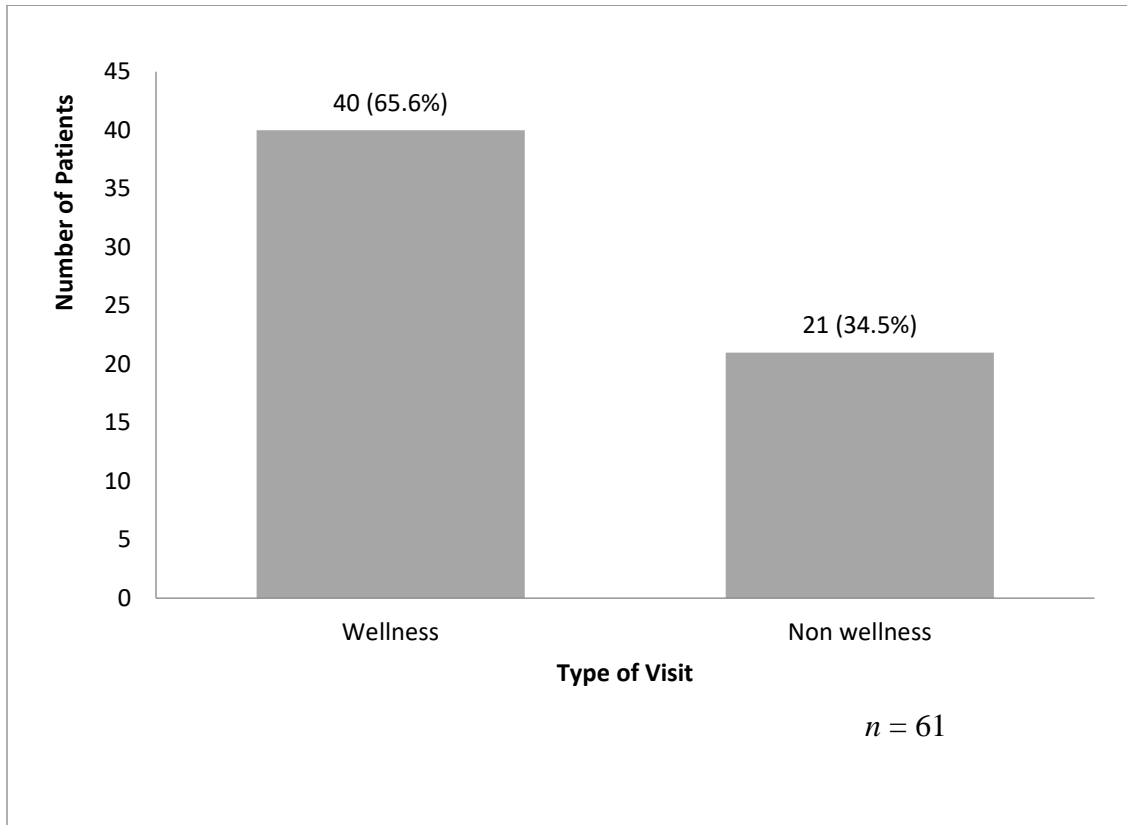
Appendix T

Timeline



Appendix U

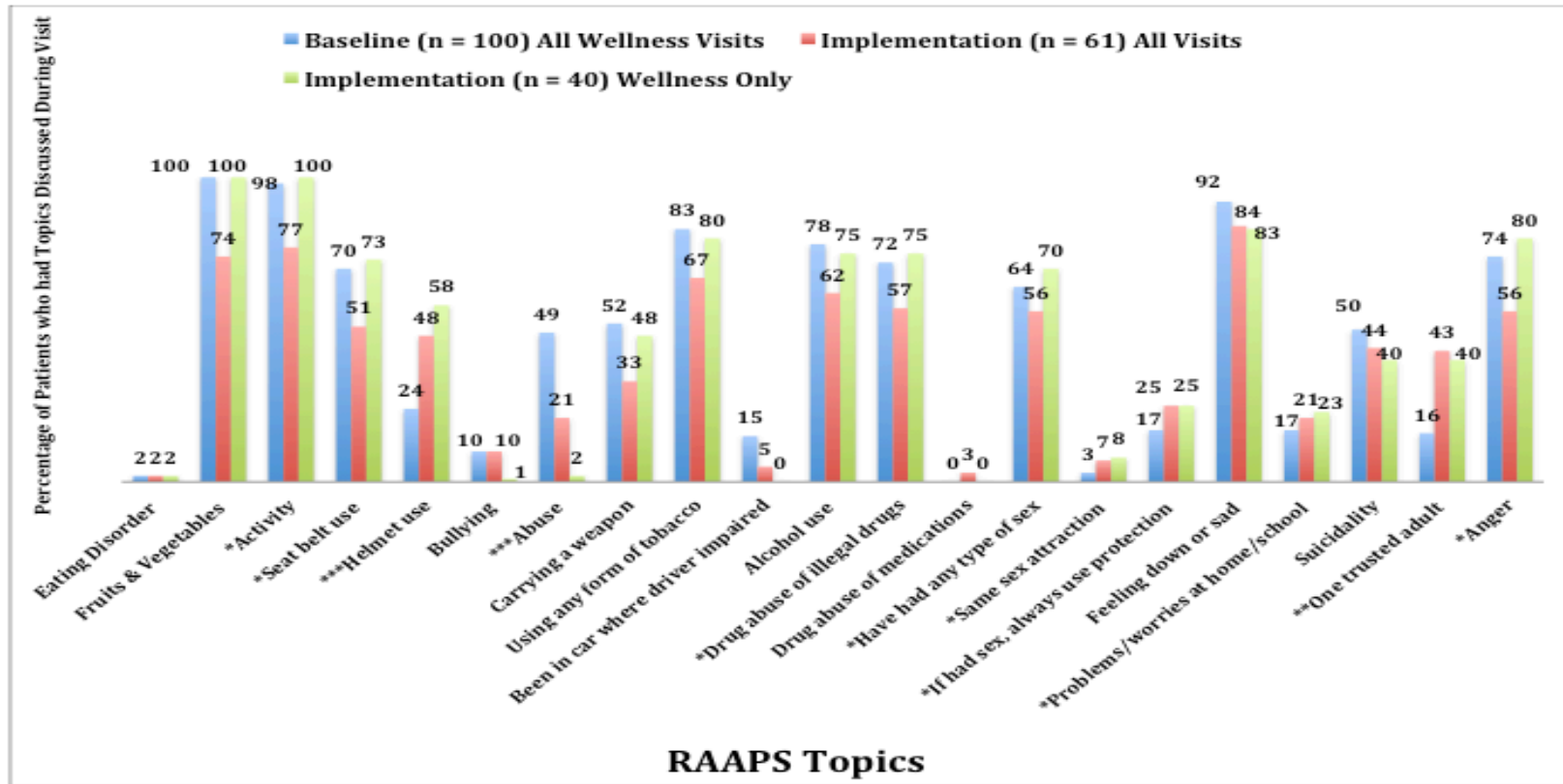
Number of Patients Between the Ages of 13-18 Seen During Implementation for Wellness Visits  
Compared to Non-Wellness Visits



Number of Patients Between the Ages of 13-18 Seen During Implementation  
for Wellness Visits Compared to Non-Wellness Visits (*n* = 61)

Appendix V

Descriptive Data for Entire Sample



\*Topic for which providers increased discussions in wellness visits (even if not significant)  
 \*\*Topic for which providers significantly increased discussions in wellness visits  
 \*\*\*Topic for which there was a significant decrease in discussions in wellness visits

Figure 1. Percentage of patients between 13-18 years old who had a RAAPS topics discussed during their visit.

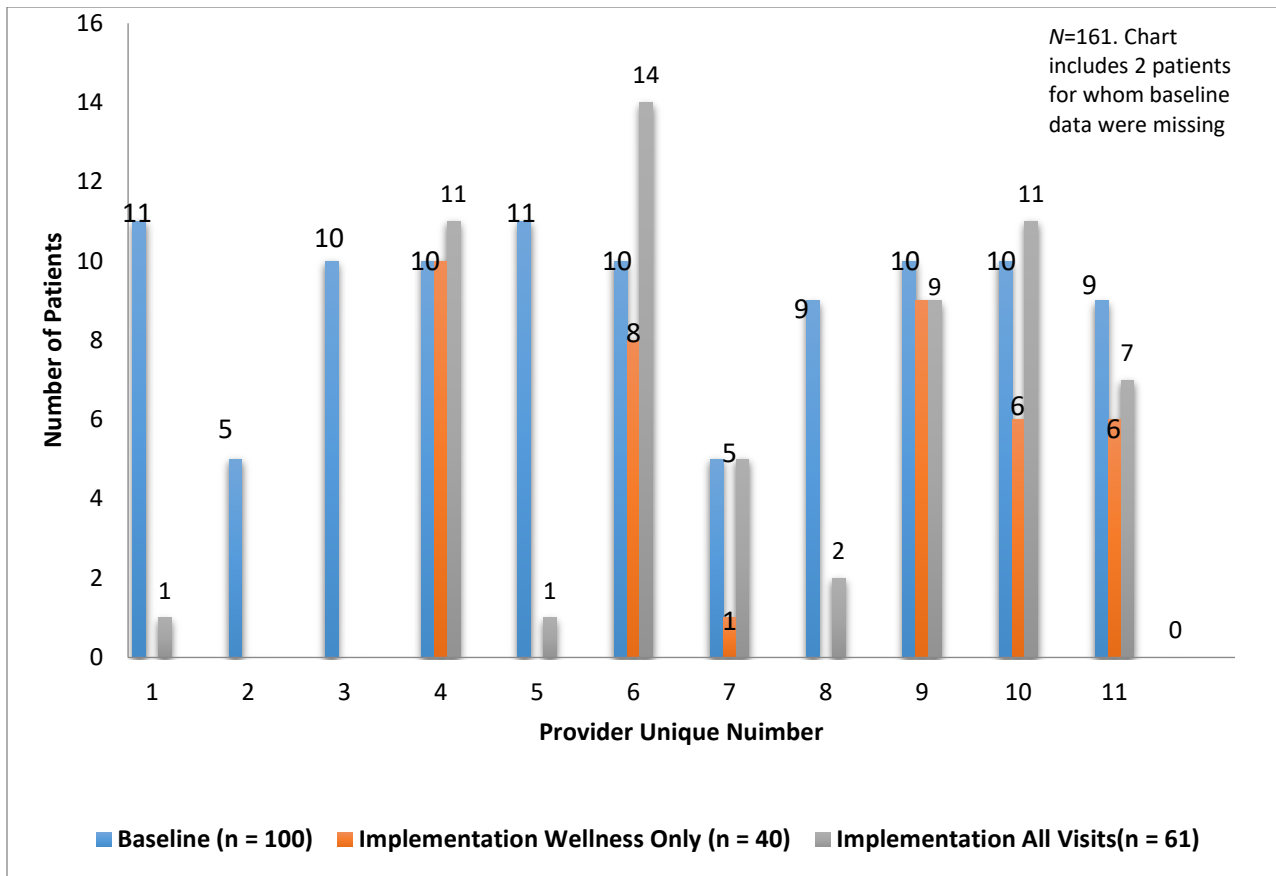


Figure 2. Count of patients between 13-18 years old seen by each provider.

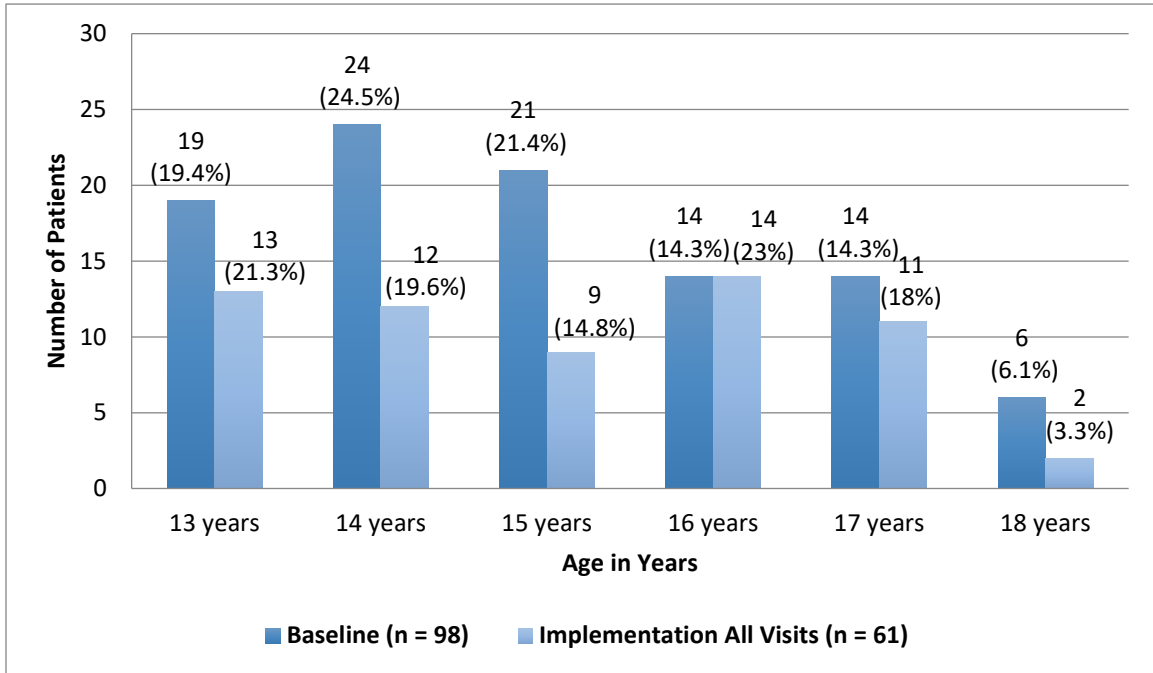
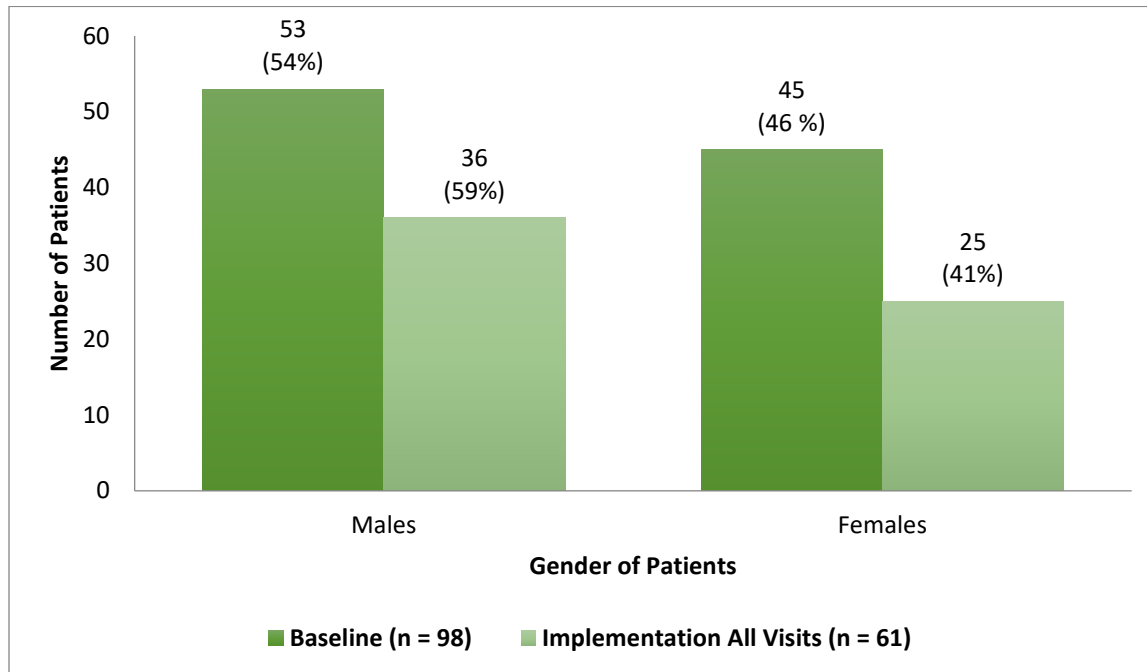


Figure 3. Count of patients per age and percentage of entire group during the baseline vs. implementation periods.



*Figure 4.* Count of patients by gender and percentage of total patients seen during the baseline vs. implementation periods.

## Appendix W

## Fisher's Exact Test Tables

	Referral Discussed	No Referral Discussed
Baseline ( $n=98$ )	5 (5.1%)	93 (94.9%)
Implementation ( $n=40$ )	11 (27.5%)	29 (72.5%)

*Figure 1.* Count of patients by referral discussion and percentage of total patients seen during the baseline vs. implementation periods.

	Referral Discussed	No Referral Discussed
Answered 'Yes' to RAAPS Question 19 ( $n = 4$ )	4 (100%)	0 (0%)
Answered 'No' to RAAPS Question 19 ( $n = 36$ )	7 (19.44%)	29 (80.56%)

*Figure 2.* Count of patients by referral discussion and percentage of implementation patients who answered yes vs. no to RAAPS question 19.

	Follow-Up Discussed	No Follow-Up Discussed
Baseline ( $n = 98$ )	3 (3.06%)	95 (96.94%)
Implementation ( $n = 40$ )	3 (7.5%)	37 (92.5%)

*Figure 3.* Count of patients by follow-up discussion and percentage of total patients seen during the baseline vs. implementation periods.