Use of The Rapid Assessment for Adolescent Preventive Services © (RAAPS) Tool for Improving Detection and Follow-up Rates in Adolescents

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Abstract

A primary health concern in the adolescent population is the issue of preventable risky behaviors, which can lead to injury and even death. The primary care provider is responsible for identification of risky behavior of adolescents during preventive health visits as recommended by national guidelines. The purpose of this pilot, quasi-experimental project is to determine if use of the Rapid Assessment for Adolescent Preventive Services © (RAAPS) tool will improve detection and follow-up rates in the adolescent population. The study involves adolescents age 12-17 with fifteen retrospective and twelve post-intervention adolescent participants in the outpatient rural health setting at three primary care clinics. The student investigator incorporated educational sessions for providers in these clinics regarding the use of the RAAPS © tool. The providers implemented the use of the tool in the clinical setting. The short-term outcomes measured were the number of adolescent preventive health screens completed using the RAAPS© tool along with follow-up interventions. The results revealed an increase in detection of positive risky behavior and decrease in negative risky behavior through screening ($p < .001$). In addition, the follow-up intervention rates increased from the pre-post groups without significance ($p = .106$). The societal impacts are the long-term outcomes of the study, which include increasing the interventions provided to at-risk adolescents translating into a reduction in preventable morbidity and mortality rates in the adolescent population.

Keywords: adolescent, RAAPS, risk taking behavior, primary care, prevention

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Adolescent health complications and deaths from preventable risky behaviors remains a top priority for the United States health care system. According to several sources, approximately 70-75% of adolescent deaths are preventable and predominantly due to risky behaviors (CDC, 2014; Darling-Fisher et al., 2014; Salerno, 2016; The National Alliance to Advance Adolescent Health, 2016). From this statistic alone, one focus of preventive health interventions for the adolescent age group should be on early identification of those at risk and implementation of appropriate resources to help decrease morbidity and mortality while improving outcomes. In order for providers to detect adolescent health risk behaviors, there must be a screening tool available to utilize in the clinical setting. The Rapid Assessment for Adolescent Preventive Services © (RAAPS) risk screening tool was developed to help providers identify those risky adolescent behaviors and to give providers a comprehensive, easy-to-use, timely method to implement (Darling-Fisher et al., 2014; Salerno & Barnhart, 2014; Yi et al., 2009). Providers benefit when a standardized screening tool is utilized, such as the RAAPS ©, with efficacy established evidence-based care in the detection of adolescent risky behaviors.

The research has shown a direct link between morbidity and mortality rates of adolescents with the following social and behavioral factors: substance use, sexually transmitted diseases, physical inactivity, injuries and violence, unintended pregnancies, and unhealthy eating (Yi et al., 2009). The percentage of adolescents impacted by just six health risk behaviors was close to 70%, which resulted in health complications and death (Yi et al., 2009). These statistics involving risky behavior led to the development of specific questions on the RAAPS © tool making it important for providers to address during each health visit (Yi et al., 2009). The CDC

provides data on each adolescent behavior and recent reports showed almost 30% of adolescents had symptoms of depression with 17% considering suicide (CDC, 2014). Therefore, it comes as no surprise how important the issue of adolescent preventive health care in the primary care setting has become today.

Local Issue

Each year approximately 70% of adolescents visit the primary care setting, which gives the primary care provider the opportunity to impact lives each and every day (Darling-Fisher et al., 2014; Yi et al., 2009). In the rural health setting, adolescents often visit the primary care provider for routine physical exams, sports physicals, acute diseases, chronic health problems, accidents, injuries, and much more. All of these are opportunities for the provider in the primary care setting to engage with the adolescent during the visit through use of the RAAPS © tool to detect risky behaviors. The number one goal in health care today is safety and this goal is no different with the adolescent patient population.

Diversity Considerations

Jenkins (2011) made suggestions on how to overcome cultural barriers in research and strengthening internal validity and reliability. The student investigator was aware of possible communication barriers, patterns of health service utilization, and health belief practices of the rural adolescent population. The consideration of these key concepts allows for cultural sensitivity, which is an important aspect to any study in research (Jenkins, 2011). The parent and adolescent forms were developed for a fifth grade reading level to ensure readability. The rural health population can often be primarily Caucasian, which may limit the project's generalizability to other populations. The RAAPS © screening tool is available in English and

Spanish language which is a form of language tailoring and seen as an essential component of cultural competence in research (Im, 2015).

Problem & Purpose

A large number of health problems among adolescents are due to risky behaviors and these primary causes of premature death and health complications are rarely screened for or direct counseling provided during health care visits even with national recommendations in place (AAP, 2016). Despite current recommendations for adolescent preventive health screening, there continues to be a low response of primary care providers who screen for adolescent risky behaviors (Salerno, Marshall, & Picken, 2012). Health screening to detect risky behaviors can potentially prevent health complications and death in adolescents and can reduce morbidity and mortality rates in the population (Agency for Healthcare Research and Quality [AHRQ], 2014; CDC, 2014). The purpose of this quasi-experimental project is to determine if an intervention using the Rapid Assessment for Adolescent Preventive Services © screening tool over a three-month period will improve detection and follow-up rates in adolescents at Northwest Health Services rural clinics in three locations.

Facilitators and Barriers

The major facilitators or contributors for the project were the primary care providers participating in the pilot study, the faculty mentor, and the student investigator. The project had a cost of $110 before dissemination, which helped as a facilitator for all. There were several potential barriers with the clinic staff and providers including lack of knowledge as well as negative attitudes and beliefs toward change. There were potential social and organizational barriers including lack of support, limited resources and the workload impact. All of these

potential barriers were assessed prior to the start of the project and none became an issue during implementation.

During the project, there was sufficient feedback to the providers and contributors in order to promote sustainability. The factors promoting sustainability after the project are the student investigator's ability to successfully show the positive outcomes through dissemination of the project findings, which could lead to change in practice and ultimately improve patient outcomes. There may be opportunity for reimbursement from insurers in the future for providers who incorporate the screening tool as part of the adolescent preventive health visits (Salerno, 2016). The factors inhibiting sustainability include the additional time visits take to do the screening, effect on workflow from the addition of screening, poor feedback from the student investigator about efficacy of the intervention, and lack of dissemination of the project results.

Review of the Evidence

PICOTS

In providers that perform adolescent health visits, does the use of the Rapid Assessment for Adolescent Preventive Services © screening tool, compared to current screening methods, lead to improved detection of adolescent risky behaviors and increase follow-up intervention at three months in the primary care setting?

Search Strategies

An extensive search of PubMed, PsycINFO, Cochrane database of systematic reviews, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases and Google Scholar search engine were conducted using 12 search terms for a period from 2006-2016. The specific search terms used were adolescent, risk taking behavior, rapid assessment, Rapid Assessment for Adolescent Preventive Services (RAAPS), primary care, counseling, screening

and prevention (see Appendix A for Definition of Terms). The search was filtered for the previous ten years and English language. All study designs were included in the review and the author determined relevance to topic by reviewing titles and abstracts. Exclusion criteria included studies not pertinent to the preventive health care of adolescents and those preventive health care topics not screened through the RAAPS © tool. Twenty studies were used in this review, which includes five (level one) evidence based practice guidelines or recommendations. One meta-analysis study design (level one) was discovered along with two systematic reviews (level one). One well-designed randomized control trial (level two) was included in the review. One cross-sectional, non-experimental study design (level three) was relevant to the topic. The review included one correlational study (level four) and one cohort study design (level four). One descriptive study (level five) was obtained along with one systematic review of descriptive data study design (level five). Three single descriptive studies (level six) were found pertinent to the topic. Finally, the review concluded with one commentary (level seven) and two expert opinion studies (level seven) that all bring insightful conclusions to the table.

Evidence Based Practice Recommendations

There are multiple evidence-based recommendations and guidelines for the primary care provider to utilize during adolescent wellness visits. The overall consensus has been the need for screening of adolescents for health risk behaviors in the clinical setting (AAP, 2016; Forman-Hoffman et al., 2016; Moyer, 2013; Siu, 2016). The recommendation has been to get adolescents in the primary care provider office annually for a wellness exam, therefore most screening recommendations have been implemented at the annual screening for certain health risk behaviors (AHRQ, 2014; USPSTF, 2016). The difference between the various recommendations lies in the type of health risk behaviors to screen for along with the appropriate age to start the

process. The screening for depression in adolescents has shown to be a top priority in the healthcare setting with guidelines available for providers to utilize in clinic (AAP, 2016; Forman-Hoffman et al., 2016; Siu, 2016; USPSTF, 2016). Another area with consistent evidence for screening has been tobacco use in the adolescent as prevalence rates continue to decline. The use of tobacco can fit into a broad category with the overall screening for substance abuse in adolescents during wellness visits (AHRQ, 2012; AHRQ, 2014; Moyer, 2013; USPSTF, 2016). These two areas have been shown to reduce morbidity and mortality rates in adolescents along with improvement of health outcomes. Screening can only be successful if the results are followed with appropriate interventions (AHRQ, 2014; Forman-Hoffman et al., 2016; Siu, 2016). The primary care provider should implement health education, brief counseling and further follow-up when appropriate to the diagnosis and treatment plan (AHRQ, 2012; AHRQ, 2014; Moyer, 2013). Some of the interventions available for positive behavior screens include motivational interviewing and brief counseling (AHRQ, 2014; USPSTF, 2016).

The National Research Council and Institute of Medicine (2009) provided eleven recommendations related to Americans' health needs with one being particularly relevant to this topic: primary health care should make disease prevention, health promotion and behavioral health a major component of routine health services. The World Health Organization aligned with this recommendation by stating health services should be provided based on evidence and guidelines (National Research Council & Institute of Medicine, 2009). The primary care provider can utilize these recommendations into the clinical practice setting when providing health care to the adolescent population. The literature also described additional recommendations to better meet the needs of the adolescent population. According to AHRQ (2014), the United States health care system should be driven by the following

recommendations: improvement of patient and parent interaction in the self-management of conditions, increasing the use of preventive health services with adolescent risk assessments, and providing adolescents with necessary services related to behavioral and reproductive health. The use of a standardized screening tool can help providers implement these recommendations in a more effective way.

Preventive Health Services and Screening

The first step in preventative health services of adolescents is the provider's use of a screening tool to detect those at risk for certain health behaviors. The RAAPS © tool was tested for validity and reliability and determined to be an appropriate tool for providers to use to identify risky behaviors in adolescents (AAP, 2016; Darling-Fisher et al., 2014; Salerno, Marshall, & Picken, 2012; Yi et al., 2009). The RAAPS © screening tool assesses multiple adolescent behaviors including eating/weight, unintentional injury/violence, substance use, depression/self-harm, sexual health, and adult support (Bradford & Rickwood, 2012; Salerno & Barnhart, 2014; The Regents of the University of Michigan, 2006; Yi et al., 2009). The RAAPS © tool facilitated providers in risk assessments that are both efficient and consistent (Darling-Fisher et al., 2014; Salerno, Marshall, & Picken, 2012).

The next step after the screening process is the implementation of interventions with the use of motivational interviewing as a guiding tool. The Department of Health and Human Services (2016) provides links to providers on adolescent health topics, services, resources, tools, publications, and grants that are beneficial in the implementation process (Salerno, 2016; The National Alliance to Advance Adolescent Health, 2016). The use of effective communication came from providers using strategies during the screening process that included seeing the patient alone during the visit, allowing the patient to lead the direction of the discussion, and

providing confidentiality while still involving the parent or guardian in the visit (Brown & Wissow, 2009; Ham & Allen, 2012; Irwin et al., 2009). The use of anticipatory guidance has been proven to be effective in wellness visits with adolescents, although the evidence has shown few adolescents receive the guidance during this time (Irwin et al., 2009; National Research Council and Institute of Medicine, 2009). The primary care provider can provide adolescent-centered care by incorporating physical, behavioral, and reproductive health into each visit (AHRQ, 2012; Forman-Hoffman et al., 2016; Fox et al., 2013; Ozer et al., 2011). The goal in providing health care interventions to adolescents with this focus is a decline in risky behaviors and prevention of injury and deaths, which aligns with the goals of Department of Health and Human Services (DHHS) *HealthyPeople 2020*.

Provider Satisfaction

Provider mentality or attitude during the healthcare visit remains an important part of satisfaction for all parties involved. The use of the RAAPS © screening tool has left providers feeling satisfied with healthcare visits and a desire to use the tool in the future (Darling-Fisher et al., 2014; The Regents of the University of Michigan, 2006; Zuckerbrot et al., 2007). An overall provider satisfaction with the RAAPS © tool was 86% with the belief of a positive impact during incorporation into practice (Darling-Fisher et al., 2014; The Regents of the University of Michigan, 2006). The provider should remain non-judgmental during the healthcare visits to allow both parties to remain open and honest. This strategy has proven to work for others in the past and continues to be stressed in practice today (Brown & Wissow, 2009; Darling-Fisher et al., 2014). The use of the RAAPS © screening tool proved helpful to the adolescents in regard to a comfortable environment as filling out the tool can allow for less non-verbal miscues and more open communication between provider and the adolescent (Salerno, 2016; The Regents of the

University of Michigan, 2012). Some providers may find this helpful when experiencing difficulties with conversations around sensitive subjects, often struggling to find the proper words to ask challenging questions.

Adolescent Behavior

An overall understanding of adolescent behavior is important for providers to comprehend in order to provide adequate health care services. Several risky behaviors are directly related to poor school performance, which can cause a further downward spiral for the adolescent. Those health risk behaviors related to poor grades and test scores are behaviors such as early sexual initiation, violence of all kinds, and physical inactivity (CDC, 2014; DHHS, 2015; Salerno, 2016). The provider needs to ask about school performance to determine if further interventions are needed in regard to health risk behaviors. The RAAPS © screening tool has been proven effective in the identification of depressive symptoms in adolescents (Salerno & Barnhart, 2014; Salerno, 2016). Early identification of general depression symptoms should lead to a more in-depth workup and further assessment. The American Family Physicians support the routine screening in adolescents for depression, obesity, and sexually transmitted diseases (ACPM, 2010; Ham & Allen, 2012; Zuckerbrot et al., 2007).

The risky behavior of tobacco use in adolescents needs to be part of the screening process, and if positive, follow with a brief counseling session, education, and follow-up (AHRQ, 2012; Ozer et al., 2011). The risky behavior of alcohol consumption is the number one substance used by adolescents and can lead to motor vehicle collisions, which is the leading cause of death for this age group (AHRQ, 2014; DHHS, 2016). Additionally, one out of four adolescent passengers are at risk of injury or death due to alcohol used by the driver (AHRQ, 2014; DHHS, 2016). Prevention is the key with all of the risky behaviors especially tobacco use

and illicit drug use (AHRQ, 2014; DHHS, 2016). The entire healthcare team can make a difference by providing all adolescents with preventive health services and screening. If providers take the time to review health risk behaviors with the adolescent patients, this could improve health outcomes and reduce morbidity and mortality rates tremendously. The National Center for Injury Prevention and Control determined that from 1999-2007, approximately 85,384 adolescents age 10-18 died from preventable injuries (CDC, 2010). The direct impact of these injuries to families and communities cannot be expressed through research studies and only felt by those involved in any tragic injury or death of an adolescent.

The RAAPS © screening tool has closely identified similar prevalence rates of risky behaviors in the adolescent population compared to national data statistics. The researchers found the top three most prevalent behavioral factors included not wearing a seatbelt, feeling depressed, and physical inactivity (Salerno & Barnhart, 2014; Salerno, 2016; Yi et al., 2009). Once identified by the screening tool, the providers were able to increase rates of health counseling and preventive services just by using the RAAPS © tool (Salerno & Barnhart, 2014; Salerno, 2016; Yi et al., 2009). Every visit is crucial when it comes to the adolescent patient as a return visit may only happen once a year. The reliance on national data and trends becomes paramount to assess progress towards DHHS *Healthy People* 2020 objectives. Again, the DHHS *Healthy People* 2020 objective is to increase the proportion of adolescents who have had wellness checkup visits in the past 12 months (CDC, 2014; DHHS, 2014). The provider plays a large role in return visits for this patient population and encouragement to get adolescents in for a wellness checkup (see Appendix B for Synthesis of Evidence Table).

Theory

The Cognitive Learning theory closely aligns with practice that is influenced by education. The project focuses on the intervention of education with providers on the utilization of the RAAPS © tool. This education process involves thinking, reasoning and processing of information that all occurs within the learner (Sawyer, 2006). These concepts are the primary focus in the Cognitive Learning theory. The main idea is that a change will occur in the learner's behavior based on a change in the thinking process (Sawyer, 2006). The student investigator should assess readiness to learn during the implementation of a well-organized and structured presentation of the information (see Appendix C for Theory to Application Diagram).

Methods

IRB, Site Approval

The primary Institutional Review Board (IRB) for the project and approval was obtained from the University of Missouri-Kansas City (UMKC) IRB (See Appendix D for IRB Approval Letter). There was no IRB at the project site; therefore the student investigator obtained a site approval letter from the interim medical director (See Appendix E for Site Approval Letter). The project was considered an Evidence Based Quality Improvement (EBQI) project and involved human subjects research (UMKC, 2016). The category for IRB submission was Expedited Category Five and Seven (UMKC, 2016).

Ethical Issues

The major ethical considerations for the project included privacy and confidentiality therefore the student investigator only accessed necessary information for data collection with no patient identifiers and used the data for project purposes only without divulging any information to others not involved in the process (UMKC, 2016). The respect for persons means the student

investigator allowed providers and patients to decline participation and choose not to fill out the RAAPS © screening tool or take part in any of the project's processes. The concept of non-maleficence means that the student investigator did no harm by keeping all information private and confidential along with taking an active part in the IRB process.

In addition to these ethical aspects of research, the student investigator considered the social value of the project by identifying the need to improve adolescent health outcomes from current practices. The risks and benefits of the project were evaluated finding minimal risks for involvement and substantial potential benefits from the improvement of patient outcomes through reduction in morbidity and mortality rates in adolescents. The use of independent review was used through the IRB process, which helped determine the need for an informed consent process. The student investigator was unaware of any self-conflicts of interest related to the project.

Funding

The evidence based quality improvement project was relatively inexpensive with total costs covered by the following funding grants (see Appendix F for Program Budget). The UMKC Women's Council Graduate Assistance Fund provided the student investigator with $1450 for dissemination costs through the John J. Dralus and Duana Dralus Award and the Bestey Fletcher Award. The Travel Grant Fund provided $800 to the student investigator to cover the any additional costs for travel and dissemination of the pilot study.

Setting and Participants

The setting for the project was in the outpatient rural health setting at three primary care clinics within one organization. The participants were a convenience sample of the primary care providers in the primary care clinics who provide care for the adolescent patient population. The

patient inclusion criteria the providers will use to screen includes adolescents who are ages 12-17 years who come into the clinic for adolescent health services for chronic and preventive health visits. The patient exclusion criteria includes adolescent appointments for acute care visits, those who decline to fill out the RAAPS © screening tool and non-English or non-Spanish speaking patients. The patient sampling method was a purposeful sampling design, which is a non-randomized, non-probability type study design. The desired sampling size was thirty participants or greater for this type of pilot study in order to obtain significance. The sampling was conducted through the electronic medical charts using the inclusion and exclusion criteria with an expected number of 75 adolescent patient encounters to be reviewed in the pre and post groups.

EBP Intervention

The evidence based intervention for the project was educating providers on the use of the Rapid Assessment for Adolescent Preventive Services (RAAPS) © screening tool. The education for the tool took place on-site in the three primary care clinics during business hours. The education included introduction of the RAAPS © tool, description of the format of the tool, and explanation regarding interventions for positive response follow-up (Yi et al., 2009). The RAAPS © tool is a series of 21 “yes” or “no” questions based on the six risk areas. The RAAPS © organization provided the student investigator with a PowerPoint and other materials to use during the educational sessions (see Appendix G for RAAPS© Education Program).

During the development phase of the project, the student investigator identified and recruited primary care providers from the organization to participate in the study. During this recruitment process, the providers were given information on the study including background on the RAAPS © screening tool, goals of the project and the benefits of its use in the primary care

clinic setting. Providers were invited to participate through email invitation. Once the two participants were recruited, the program implementation phase began with an educational session with each provider lasting approximately 30-60 minutes in which a thorough breakdown of the RAAPS © screening tool was provided along with a question and answer session. The implementation phase could begin once the providers completed required CITI training in order to administer the approved Parental Permission and Adolescent Assent Forms (see Appendix H for IRB Approved Consent Forms).

Six weeks after initiation, the implementation phase continued with a 30-minute follow-up session with each provider to assess progress towards project goals. The student investigator addressed concerns with the project at this time. The implementation of the screening tool into practice lasted 12 weeks during which time the providers were responsible for identifying potential adolescent participants, consenting parents and/or adolescents who agreed to participate, and administration of the RAAPS© tool during the visit while providing follow-up interventions if necessary. After the 12 weeks of implementation, the student investigator began data collection with use of the electronic medical record documentation in order to determine the number of patients screened and the number of positive screens with appropriate follow-up intervention (see Appendix I for Data Collection Table).

Once the data collection process was completed, the statistical analysis was performed on the resulting data (see Appendix J for Statistical Analysis Table). During the evaluation phase, the student investigator gave feedback to each provider regarding the overall results and outcomes of the project through the use of a PowerPoint presentation (see Appendix K for Project Timeline Graph). Upon completion of this phase, the student investigator began dissemination of the project through poster presentation at the Midwest Nursing Research

Conference (see Appendix L for Intervention Flow Diagram).

Change Process and EBP Model

The Kotter and Cohen's Model of Change was used as the change model in the implementation of the project. The theory that lies within this model is that people change their way of thinking when the evidence relates directly to their feelings (Kotter International, 2016). This model uses an eight-step process, which includes an action at each step that leads to a successful change of new behavior. The student investigator used the change theory in planning and implementing the intervention. The steps in the change theory begin with creating a sense of urgency within the organization, then carefully selecting the team, creating a vision for the project and communicating this vision (Kotter International, 2016). Then, empower the team members by breaking through barriers, celebrate successes, continue persistence and end with nourishment of the new culture (Kotter International, 2016). These eight steps helped increase the chance of sustainability of the intervention within the organization.

The Clinical Scholar Model was used as the Evidence based Practice model in the implementation of the project. This model focuses on changing ways of thinking, encouraging evidence based practice and improving patient outcomes (Honess, Gallant, & Keane, 2009). The model was chosen due to its underlying principle of spirit of inquiry, education of direct care providers and promotion of research and evidence into patient care (Honess, Gallant, & Keane, 2009). The use of the model helped to increase sustainability as well.

Study design

The study design was a quasi-experimental design due to a lack of randomized control group. The independent variable in this study was the education provided to the providers. The

entire project resembles a pilot study, much like a preliminary study, conducted with a small number of subjects to work through the details and identify weaknesses in the study design.

Validity

The study used purposeful sampling so there was a threat to the research design's internal validity because of non-randomization. In order to limit conscious bias, the student investigator chose age to be the only criteria for inclusion. This type of sampling does limit representativeness and generalizability to a larger population. Another threat to internal validity avoided in the study was the absence of a pre-test/post-test, which could affect the results. The use of a standard measurement instrument promoted the internal validity of the study as well. The student investigator left the population as broad as possible to make the results more generalizable to all adolescents, which increases external validity. There was also involvement of multiple clinics within the same organization in the study to increase the sample size and external validity as well.

Outcomes

The short-term outcome measured in this EBQI project was the number of adolescent preventive health screens completed using the RAAPS © tool along with follow-up interventions. In addition to these outcome measures, the six risk subcategories were measured for each post-intervention screen done as well. The pre-intervention screens did not include all six subcategories with each screen; therefore, only post-intervention data was collected. The goal was to increase or achieve benchmark levels of screening near 100% by the end of the three-month time frame (see Appendix M for Logic Model).

Measurement Instrument

The Rapid Assessment for Adolescent Preventive Services © tool was the instrument used by the providers for screening adolescent patients (see Appendix N for RAAPS© Measurement Tool). The RAAPS © tool is in the private domain and permission was obtained for use of the paper format from the RAAPS © administrator, Dr. Jennifer Salerno (see Appendix O for RAAPS© Permission Material). The tool has reported content validity index scores that ranged from 0.825 to 1.0, inter-rater reliability ranged from 0.9 to 1.0, which indicates good content validity and near perfect inter-rater agreement (Salerno, Marshall, & Picken, 2012). The tool is easy to complete by the participants in paper format and can also be accessed electronically.

Quality of Data

Fisher's Exact Test was used for power analysis for a sample size of less than 30 participants. The pre-intervention group had a total of fifteen participants and the post-intervention group had a total of twelve participants. The pre-data collection consisted of a three-month retrospective chart review to determine number of current adolescent risk screens and follow-ups. The post-intervention group was compared to pre-intervention group to evaluate effectiveness of the intervention. The post-intervention group was also compared to national benchmarks set by the USPSTF and the CDC of annual risk assessment screening of all adolescents.

Analysis

The analysis of the data included use of the Chi-square test for the demographic data of the adolescents, such as age and gender, along with visit type data to help with generalizability to other populations. The outcomes measured were the rates of screening performed by the

providers along with follow-up interventions. There was retrospective data and post-intervention data comparison along with a comparison to benchmark data from the agencies listed above. In addition, the risk screening was broken down into six main categories in which comparison was done on pre versus post-intervention to determine significance. The statistical test used was Fisher's Exact test for both primary and secondary outcomes.

Results

Setting & Participants

The 12-week implementation phase of the study ran from November 30th, 2016 to February 22nd, 2017. The pre-intervention group data collection was collected during the first month of the study. The study took place at three Northwest Health clinics in the rural setting of Missouri. Two Nurse Practitioner providers took part in the study and were involved in screening the adolescent participants who met inclusion criteria. The adolescent participants ranged from ages 12-17 with a mean age for both pre and post-intervention groups of 14. The participants for the pre-intervention group were male (n=7) and female (n=8); post-intervention group were male (n=6) female (n=6). The pre and post-groups were non-paired samples yet did show similarities in age and gender. The adolescents included in the study were those seeking health care for chronic reasons, wellness checks, or sports physicals.

Intervention Course, Actual

The major components of the educational intervention began with an introduction of the RAAPS© screening tool to the providers via email as an invitation to participate in the study. Once the two providers agreed to participate, the next component of the intervention was the initial in-person educational meeting with each provider on an introduction to the topic and project overview as described above. Once this was completed, the study was able to begin the

12-week implementation phase during which time six weeks into the phase a site visit was performed by the student investigator. The six-week educational session addressed any needs the site had and ensured progression of the project toward the goal. By the six-week mark, the student investigator was aware of a low turnout in chronic care and sports physical visits in the clinics. The pre-intervention data revealed during the previous three-month time frame that (n=15) adolescents had visited the clinics; therefore this pilot study was on target to match this number. By the end of the 12-week implementation phase, post-data collection found (n=12) adolescents had visited the three clinics for chronic care, wellness, or sports physical visits.

Outcome Data by Sub-Topic

The pre and post intervention groups were non-paired samples that did have share similarities in characteristics. The mean age for the pre and post group was 14 and 14 respectively. The gender characteristics were pre group (M=7, F=8) and post group (M=6, F=6). The type of visits for pre and post were 73% and 54% respectively in pre-sports physicals (see Appendix J for Statistical Analysis Tables). The detection rates by providers using the RAAPS© of positive risky behavior increased and negative risky behavior decreased from pre-post screening with significance ($p < .001$). The number of follow-up interventions done by the providers using the RAAPS© increased and the number of interventions not done by the providers decreased from pre to post groups with no significance ($p = .106$) (see Appendix J for Statistical Analysis Tables).

The number of risk screens done to detect depression/suicide was pre-group (Yes=7, No=8) and post-group (Yes=12, No=0) showing an increase in the number of screens done after the intervention ($p = .003$) (see Appendix J for Statistical Analysis Tables). The number of risk screens performed to detect sexual health behavior was Yes=9, No=6 in the pre group and

Yes=12, No=0 in the post group, showing again an increase in the number of screens performed after the intervention. (p=0.20) (See Appendix J for Statistical Analysis Tables).

Discussion

Successes, Most Important

The most important successes of this pilot study is the significant improvement in detection of risky behavior; depression/suicide and sexual health risky behaviors in particular with use of the RAAPS© tool. In order to detect all risky behaviors, the use of a standardized screening remains very important. The other important success of this study is the improvement in follow-up intervention with the use of the RAAPS© screening tool. The use of the screening tool allowed for 100% assurance that follow-up intervention was provided to those adolescents in need.

Study Strengths

The staff at Northwest Health Services clinics was elements of support for the project and intervention. The staff was willing and eager to assist in any way with the project. The location provided services to adolescents, which made for a great location for project implementation. The primary care providers made the project successful by asking any adolescent who met inclusion criteria to take part in the study. The providers continued with successful completion of the necessary CITI training in order to administer the RAAPS© tool in the clinic setting. Then, the providers successfully administered the tools, stored the completed tools and documented the encounters correctly. These were all necessary steps that had to occur in order to make the project successful. The positive attitude from the providers regarding the project assisted in the successful completion of fifteen RAAPS© tools, which account for many

interventions being provided to adolescent patients. In addition, the study was a strong quality improvement project with relatively low costs.

Results Compared to Evidence in Literature

The current literature revealed that there continues to be a low amount of primary care providers screening for adolescent risky behaviors (Salerno, Marshall, & Picken, 2012). The study results reveal the use of the RAAPS© screening tool led to two primary care providers screening 100% of adolescents who came in to three rural health clinics during a three-month time frame. The goal of the study was to increase or achieve benchmark levels of screening near 100% by the end of the three-month time frame.

Most adolescent preventive health risk screening recommends annual checks during wellness visits to determine at those at risk (AHRQ, 2014; USPSTF, 2016). Along with screening, recommendations are in place to provide those at risk demonstrating positive screens with appropriate interventions including further follow-up as part of the treatment plan (AHRQ, 2012; AHRQ, 2014; Moyer, 2013). The study results reveal the use of the RAAPS© screening tool led to 100% follow-up interventions being provided to those adolescents screened for at risk health behaviors. That means whether the screen was positive or negative, the adolescent participants were receiving some type of health education, counseling, and/or motivational interviewing at the chronic health visit.

Limitations

Internal Validity Effects

There are several factors to consider when looking at the internal validity effects in the study. The use of the standardized screening tool increases internal validity although interpretation of the questions on the tool can alter the participant's answers. The adolescents

may have withheld information when filling out the screening tool as several of the questions surround sensitive topics. The student investigator must assume the adolescent tells the truth when answering the screening questions and he or she is willing to disclose information based on agreeing to participate. There was no selection bias in the study therefore this randomization technique helps to increase internal validity with the broad inclusion criteria. The pre-group sample did have a variety of subcategories in the type of risk screening questions addressed during the visits compared to the post-group who received standardized screening questions. The variation in risk screening can affect the study outcomes including an increased number in certain risk categories even though not all aspects of the category were addressed.

External Validity Effects

The study had a few areas effecting external validity, which can lead to decreased generalizability of the results. Once again, the broad inclusion criteria allow for a decrease in selection bias therefore an increase in external validity. The relatively small sample size and non-paired samples does limit generalizability as well. The study took place in a rural setting, which can limit generalizability to urban populations. The study did show several similar significant characteristics about the pre and post group samples, which affects external validity in a positive manner. In addition, the study focused on chronic care visits only and did not include acute care visits, which limits the generalizability of the results as well.

Sustainability of Effects and Plans to Maintain Effects

There is always potential for the observed gains of the study to become weak over time. The student investigator has disseminated results of the study at two regional conferences with hopes to educate others on the study's positive outcomes. The student investigator attended the UMKC 2017 Health Sciences Student Research Summit to disseminate the study's findings even

further. The plans for maintaining improvement come from these dissemination opportunities along with submission to MoSpace in the UMKC Repository.

Efforts to Minimize the Study Limitations

The foundation of the study was built on sound theories and evidence-based models, which was done in an effort to minimize limitations and increase sustainability. Next, the study utilized a standardized screening tool, broad inclusion criteria, and multiple settings in order to increase internal validity and generalizability. The study included several different types chronic care visits to the clinics to increase sample size and make the results less specific to a certain visit type. Even with these efforts the results of the study still carry many limitations on generalizability and application of the findings to other populations. While the use of the RAAPS© tool revealed several positive findings, it remains uncertain if another screening tool would produce similar results.

Interpretation

Expected & Actual Outcomes

The expected results of the study were an increase in the number of adolescents screened and follow-up interventions initiated by the two nurse practitioner providers in the three rural health clinics. The results of the study did show an increase in the number of adolescents screened along with an increase in the number of follow-up interventions done. The unexpected results of the study also showed an increase from pre to post groups in the detection of depression/suicide risk and the detection of sexual health risk behaviors.

The first barrier with the study was the time frame the study was implemented. The three rural health clinics did not see as many adolescents come in to the clinics during the months of December, January and February compared to the pre-group months of September, October, and

November. There may be certain times of the year in which an increase in number of adolescents visit the clinics for pre-sports physicals, chronic health concerns and wellness checks. The non-paired pre and post group creates a challenge in generalizing the results of the study. While the results of the study did show increases in detection rates and follow-up rates, the small sample size did not reach the sample size of sixty-four participants to obtain significance.

Intervention Effectiveness (inferences)

The study intervention of provider education with the use of the RAAPS© screening tool can lead to a significant improvement in detection of risky behavior, depression/suicide risk, and sexual health risk. The study intervention also can lead to improvement in follow-up intervention with the use of the RAAPS© screening tool. The study intervention required permission from the RAAPS© developer and supportive clinic staff, all which assisted in the effectiveness of the intervention. The setting was in the rural community, however, urban communities may be different in population characteristics so the results of the study are limited to this rural, Midwest population. In addition, the setting was in primary care clinics therefore generalizability to other settings such as schools, public or state clinics, and urgent care are limited.

Intervention Revision

The revisions that could potentially lead to more successful outcomes in future studies includes including more providers in the study. The study could also take place in additional settings including the urban setting and the public health setting. The time frame for the study could be changed to months where more adolescents visit the clinics. In addition to chronic visits, the study could include acute care visits in order to reach out to more adolescents.

Expected & Actual Impact to Health System, Costs, and Policy

The expected impact of the evidence-based practice intervention of the study was to give providers a comprehensive instrument, improve patient outcomes, and decrease adolescent morbidity and mortality rates from preventable injuries and deaths. The actual impact of study's intervention was an increase in detection of risky adolescent behaviors and follow-up interventions by the providers within the three rural health clinics. The twelve adolescents who participated in the post intervention group may have received improved health care during those visits and possibly a decrease in future risk of morbidity and mortality. The clinics and staff are aware of the improved detection rates of adolescent risky behaviors along with the need for future changes to current screening methods. The quality improvement study was at no cost to the clinics or staff but the RAAPS© tool is still under the private domain; therefore costs would be involved in the future purchasing of the tool. The costs involved in purchasing the RAAPS© system for the clinics was not investigated but should be in future studies to determine the economic sustainability that the study's intervention.

The anticipated cost of the study was approximately $790 with dissemination costs being the bulk of this amount. The actual cost of the study only included costs for printed material and the student investigator's cost for the travel to disseminate (see Appendix F for Program Budget). The entire cost of the project was covered by the funds received from the UMKC Women's Council Graduate Assistance Fund Awards and the Travel Grant Fund.

Conclusions

The practical usefulness of the evidence based practice intervention demonstrates the importance of adolescent preventive health risk screening in the primary care setting.

The intervention also displays the use of a standardized screening tool, such as the RAAPS © tool, can lead to improved detection rates and direct follow-up in those adolescents at risk for certain health behaviors. The RAAPS © screening tool gives the provider a comprehensive, efficient, and effective instrument to use in the clinical practice setting. This could lead to a better process for screening adolescent preventive health issues.

Although there is a body of knowledge about the use of the RAAPS © tool by providers in the healthcare setting, there is still a need for more research to identify barriers during implementation. Further research is needed to determine if the primary care setting remains a successful place to implement the tool. Future studies performed with a paired sample group with a large participant pool would further validate the importance of intervention in risky behavior in the adolescent population. The biggest gaps may be due to the challenges that arise during the enrollment of adolescents into any research study.

The student investigator will present the results and findings from the pilot study to the providers, as well as doctoral students and faculty during the final PowerPoint presentation in May. The pilot study was presented at the Advanced Practice Nurses of the Ozarks Annual Conference at Branson, Missouri in poster format. Upon completion of the pilot study, the student investigator presented at the Midwest Nursing Research Society 41st Annual Research Conference at Minneapolis, Minnesota in poster format. The hope is that other clinics within the organization hosting the study will incorporate the intervention into the practice in order to provide best care to adolescent patients.

References

Agency for Healthcare Research and Quality (AHRQ). (2014). The Guide to Clinical Preventive Services. Retrieved February 25, 2016, from http://www.ahrq.gov/sites/default/files/publications/files/cpsguide.pdf

Agency for Healthcare Research and Quality (AHRQ). (2012). Primary Care Relevant Interventions for Tobacco Use Prevention and Cessation in Children and Adolescents: A Systematic Evidence Review for the U.S. Preventive Services Task Forces. Retrieved from www.ahrq.gov

American Academy of Pediatrics (AAP). (2016). Recommendations for Preventive Pediatric Health Care. Retrieved from https://www.aap.org/en-us/Documents/periodicity_schedule.pdf

American College of Preventive Medicine (ACPM). (2010). Adolescent Wellness Clinical Reference. Retrieved March 13, 2016, from http://www.acpm.org

Bradford, S., & Rickwood, D. (2012). Psychosocial assessments for young people: a systematic review examining acceptability, disclosure and engagement, and predictive utility. *Adolescent Health, Medicine and Therapeutics*, *3*, 111-125.

Brown, J.D. & Wissow, L.S. (2009). Discussion of Sensitive Health Topics with Youth During Primary Care Visits: Relationship to Youth Perceptions of Care. *Journal of Adolescent Health, 44,* 48-54.

Centers for Disease Control and Prevention. (2014). Youth Risk Behavior Surveillance. MMWR. Retrieved March 12, 2016, from http://www.cdc.gov/mmwr

Centers for Disease Control and Prevention (CDC). (2010). Injury Mortality Reports. Retrieved March 13, 2016, from http://webappa.cdc.gov/sasweb/ncipc/mortrate10_sy.html

Darling-Fisher, C.S., Salerno, J., Hwa Y. Dahlem, C., & Martyn, K.K. (2014). The Rapid Assessment for Adolescent Preventive Services (RAAPS): Providers' Assessment of Its Usefulness in Their Clinical Practice Settings. *Journal of Pediatric Health Care, 28*(3), 217-226. Retrieved February 25, 2016, from http://ac.elscdn.com.proxy.library.umkc.edu

Forman-Hoffman, V., McClure, E., McKeeman, J., Wood, C. T., Middleton, J. C., Skinner, A. C., Viswanathan, M. (2016). Screening for major depressive disorder in children and adolescents: a systematic review for the US Preventive Services Task Force. *Ann Intern Med*, *164*, 342–349.

Fox, H.B., McManus, M.A., Irwin, C.E., Kelleher, K.J., & Peake, K. (2013). A Research Agenda for Adolescent-Centered Primary Care in the United States. *Journal of Adolescent Health, 53,* 307-310.

Ham P, & Allen C. (2012). Adolescent health screening and counseling. *American Family Physician*, *86*(12), 1109–1116.

Honess, C., Gallant, P., & Keane, K. (2009). The clinical scholar model: Evidence based practice at the bedside. *Nursing Clinics of North America, 44*(1), 117-130.

Im, E. (2015). What makes an intervention culturally competent? *Journal of Transcultural Nursing, 26*(1), 5.

Irwin, C. E., Adams, S. H., Park, M. J., & Newacheck, P. W. (2009). Preventive Care for Adolescents: Few Get Visits and Fewer Get Services. *Pediatrics*, *123*(4), e565–e572.

Jenkins, S. (2011). Conducting transcultural research: Critical thinking in Thailand. *Journal of Transcultural Nursing, 22*(1), 83-87.

Kotter International. (2016). LEAD. Change. Retrieved from www.kotterinternational.com

Melnyk, B. M. & Newhouse, R. (2014). Evidence-based practice versus evidence-informed

practice: A debate that could stall forward momentum in improving healthcare quality, safety, patient outcomes, and costs. *Worldviews on Evidence-based Nursing, 11*(6), 347-349.

Moyer, V.A. (2013). Final Update Summary: Tobacco Use in Children and Adolescents: Primary Care Interventions - US Preventive Services Task Force. *Annals of Internal Medicine, 159*(8), 552-558. Retrieved March 12, 2016, from http://www.uspreventiveservicestaskforce.org

National Research Council and Institute of Medicine. (2009). *Adolescent Health Services: Missing Opportunities*. Washington, D.C.: National Academies Press. Retrieved from http://www.nap.edu

Ozer, E.M., Adams, S.H., Orrell-Valente, J.K., Wibbelsman, C.J., Lustig, J.L., Millstein, S.G., Garber, A.K., & Irwin, C.E. (2011). Does Delivering Preventive Services in Primary Care Reduce Adolescent Risky Behavior? *Journal of Adolescent Health, 49,* 476-482.

Salerno, J. (2016). Services - Possibilities for Change. Retrieved March 13, 2016, from http://www.possibilitiesforchange.com/services/

Salerno, J., & Barnhart, S. (2014). Evaluation of the RAAPS Risk Screening Tool for Use in Detecting Adolescents With Depression. *Journal of Child & Adolescent Psychiatric Nursing*, *27*(1), 20–25.

Salerno, J., Marshall, V.D., & Picken, E.B. (2012). Validity and reliability of the rapid assessment for adolescent preventive services adolescent health risk assessment. *Journal of Adolescent Health, 50,* 595-599.

Sawyer, R.K. (Ed.). (2006). *The Cambridge handbook of the learning sciences.* New York, NY: Cambridge University Press.

Siu, A. (2016). Final Update Summary: Depression in Children and Adolescents: Screening - US Preventive Services Task Force. *Annals of Internal Medicine,* 164(5), 360-367. Retrieved March 12, 2016, from http://www.uspreventiveservicestaskforce.org

The National Alliance to Advance Adolescent Health. (2016). Retrieved March 19, 2016, from http://www.thenationalalliance.org/

The Regents of the University of Michigan. (2012). Rapid Assessment for Adolescent Preventive Services, Version 4. Retrieved from https://www.raaps.org

The Regents of the University of Michigan. (2006). Providers | Rapid Assessment for Adolescent Preventive Services. Retrieved March 13, 2016, from https://www.raaps.org/providers.php

UMKC Women's Council. (2016). Graduate Assistance Fund Immediate Aid Application. Retrieved from www.umkcwc.org

University of Missouri-Kansas City (UMKC). (2016). Research & Economic Development. Retrieved on April 3rd, 2016 from http://ors.umkc.edu

U.S. Department of Health and Human Services (DHHS). (2016). The Office of Adolescent Health, Retrieved March 13, 2016, from http://www.hhs.gov/ash/oah/

U.S. Department of Health and Human Services (DHHS). (2015). Health and Academics | Adolescent and School Health | CDC. Retrieved March 13, 2016, from http://www.cdc.gov/healthyyouth/health_and_academics/index.htm

U.S. Department of Health and Human Services (DHHS). (2014). HP2020 Objective Data Search | Healthy People 2020. Retrieved March 12, 2016, from https://www.healthypeople.gov/2020/data-search

U.S. Preventive Services Task Force (USPSTF). (2016). Published Recommendations - US Preventive Services Task Force. Retrieved March 13, 2016, from http://www.uspreventiveservicestaskforce.org

Yi, C.H., Martyn, K., Salerno, J., & Darling-Fisher, C.S. (2009). Development and clinical use of rapid assessment for preventive services (RAAPS) questionnaire in school-based health centers. *Journal of Pediatric Health Care, 23*(1), 2-9.

Zuckerbrot, R. A., Maxon, L., Pagar, D., Davies, M., Fisher, P. W., & Shaffer, D. (2007). Adolescent Depression Screening in Primary Care: Feasibility and Acceptability. *Pediatrics*, *119*(1), 101–108.

Appendix A

List 1

Definition of Terms

Adolescent: person age 12-18 years old

RAAPS ©: screening tool developed by Dr. Jennifer Salerno that requires permission for use

Risk taking behavior: an act that may result in harm to the person

Primary care: the service in charge of a patient's health care

Prevention: the process or attempt of stopping an event from happening

Appendix B

Table 1

Synthesis of Evidence

First author, Year, Title, Journal	**Purpose**	**Research Design[1], Evidence Level[2] & Variables**	**Sample & Sampling, Setting**	**Measures & Reliability (if reported)**	**Results & Analysis Used**	**Limitations & Usefulness**
American Academy of Pediatrics, 2016, Recommendations for Preventive Pediatric Health Care, Bright Futures guidelines	Recommendations are designed for care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in satisfactory fashion.	EB Guidelines represent a consensus by the AAP and Bright Futures, Level 1	Not applicable	Not applicable	Recommendation- Refer to specific guidance by age as listed in Bright Futures guidelines (see chart of periodicity Schedule)	This is one set of Recommendations & Guidelines that can be used by Practitioners
Forman-Hoffman, 2016, Screening for Major Depressive Disorder Among Children and Adolescents: A	Evaluate the evidence on screening and treating children and adolescents for MDD for	Systematic Review, Level 1, Variables- benefits and harm of screening,	Data Sources: PubMed/MEDLINE, Cochrane Library, PsycINFO, ClinicalTrials.gov, HSRProj, World	Not applicable	Conclusions: The USPSTF recommends screening for MDD in adolescents aged 12 to 18 years. Implement in system that ensures accurate	Limitations: Small sample sizes from five screening accuracy studies and six treatment

Systematic Review for the U.S. Preventive Services Task Force	the USPSTF	accuracy of screening tools vs. diag. evals, and benefits harms of tx MDD vs other interventions	Health Organization Int'l Clinical Trials Registry Platform, and reference lists of published lit.		diagnosis, effective treatment and appropriate follow-up (Grade B Recommendation)	trials, evidence gaps sharply limit conclusions for screening children < age 11years, differences by sex or race/ethnicity subgroups, and MDD tx other than SSRIs; limited applicability to PC setting Usefulness: Screening recommended in ages 12-18 years
Salerno, 2016, Possibilities of Change Website	Started by a DNP Jennifer Salerno who is the pioneer for the RAAPS risk screening, Possibilities of Change started to expand access to RAAPS and	NA	Partners with organizations (like University Health Centers, School-based Health Centers, Primary Care Practices, and Schools)	NA	Results: Impact listed on website Global reach- map of where the RAAPS is being used worldwide to identify and improve risk behaviors; provides adolescent risk trend data for 2012-2013 and 2013 U.S. Teen Risk Data	Limitations: Use as additional reference Usefulness: Site ran by developer of RAAPS who is a DNP!!!

	provide professionals with training, tools and systems to identify and reduce risk behaviors					Great link to additional resources and information on the topic
Siu, 2016, Screening for Depression in Children and Adolescents: U.S. Preventive Services Task Force Recommendation Statement	Update on the 2009 USPSTF recommendation on screening for major depressive disorder (MDD) in children and adolescents	Clinical Guideline, Level 1	Data source: USPSTF	NA	Recommendation: USPSTF recommends screening for MDD in adolescents aged 12- 18 years old. Screening should be implemented w/ adequate systems in place to diagnosis, treat, and follow-up (Grade B)	Usefulness: Guideline to be implemented into EBP; insufficient evidence to screen for MDD in children aged 11 years or younger
The National Alliance to Advance Adolescent Health, 2016, TheNationalAlliance.org Website	Devoted to education, research, policy analysis, and technical assistance in support of improved health outcomes for adolescents	Website	NA	NA	Resources: Provides links to additional resources on topic, statistics regarding services for adolescents	Usefulness: Use as additional resource
U.S. Department of Health & Human Services, 2016, Office of Adolescent Health, www.hhs.gov website	Dedicated to improving health and well being of adolescents to enable them to become healthy, productive adults	NA	NA	NA	Resources: Site provides links to OAH Initiatives, Adolescent Health Topics, resources, publications, and grants	Usefulness: Use as additional reference
U.S. Preventive	Task Force	EBP Guideline,	NA	NA	Recommendations:	Usefulness:

Services Task Force, 2016, Recommendations for Primary Care Practice: Adolescents, Website	works to improve health of all Americans by making EB recommendations about clinical preventive services	Level 1			Several recommendations made for the screening, counseling and preventive medications in the care of adolescents	Guideline to be implemented into practice
U.S. Department of Health & Human Services, (DHHS), 2015, Adolescent & School Health, Centers for Disease Control and Prevention	CDC works 24/7 to protect America from health, safety and security threats	NA	Data Source: Division of Adolescent and School Health, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention	NA	Results: Health-risk behaviors such as early sexual initiation, violence, and physical inactivity are consistently linked to poorer grades and test scores and lower educational attainment	Usefulness: Use as additional reference
Agency for Healthcare Research and Quality, 2014, The Guide to Clinical Preventive Services: Clinical Summaries of Recommendations for Children and Adolescents	Dissemination of the U.S. Preventive Services Task Force findings and recommendations to help primary care clinicians and patients decide together which preventive service is right for patient	EB Guideline from the USPSTF, a panel of national experts in prevention and EB medicine, Level 1	Not applicable	Not applicable	Based on rigorous reviews of scientific evidence Recommendations- Screen adolescents for major depressive disorder when systems are in place; Screen adolescents for obesity and offer/refer for intense counseling and behavior interventions; Screen adolescents for tobacco use and provide intervention;	Limitations: None identified but only three areas recommended for screening, RAAPS screens for many more areas Usefulness: Provides support for these three areas on RAAPS tool
Darling-Fisher, 2014, The Rapid Assessment for Adolescent Preventive Services (RAAPS): Providers' Assessment of Its Usefulness in Their Clinical Practice	Evaluate health providers' use of the RAAPS screening tool to identify adolescent high-risk behaviors, its ease of use	Mixed methods descriptive study; Level V	Completed by providers from a variety of settings across the United States n=201, 26 states and three foreign countries	Online survey was used, validity was measured by research team, 16-item survey, MC and open-	Data Analysis: SAS 9.2 used for statistical testing; both quantitative and qualitative analyses used Results: RAAPS facilitated	Limitations: Some providers thought RAAPS not as comprehensive as some tools, not enough time to complete and

Settings, Journal of Pediatric Health Care	and efficiency, impact on provider/patient discussions of sensitive risk behaviors			ended questions and eight Likert-scaled statements	identification of risk behaviors and discussions and provided efficient and consistent assessments; 86% of providers believed RAAPS positively influenced practice	address issues, concerns about adolescents' honesty Usefulness: Adoption of RAAPS in practice settings could lead to more effective adolescent preventive services by giving providers systematic tool to assess and identify adolescents at risk
Salerno, 2014, Evaluation of the RAAPS Risk Screening Tool for Use in Detecting Adolescents with Depression, Journal of Child and Adolescent Psychiatric Nursing	Aim was to evaluate the criterion validity and internal reliability of the RAAPS effectiveness as a screening tool for adolescent depression	Cross-sectional study (non-experimental design), Level III, variables are RAAPS vs. PHQ-A	High school students aged 14-18 y/o, n=286; participation based on attendance of classrooms participating in assessment by school admin., able to opt-out from survey, anonymously completed survey	Methods: retrospectively reviewed dataset from questionnaire including RAAPS and PHQ-A, used only 4 key questions from RAAPS	Analysis: Using Stata 10, Cronbach's alpha, area under ROC curve, sensitivity, specificity, and positive/negative predictive values assessed Results: Cronbach's alpha analysis showed fair internal consistency at .66, ROC curve showed overall accuracy for depression screening, two or more positive responses requires further dep. Assessment	Conclusion: RAAPS is a valid tool for identifying depression symptoms in adolescents requiring further evaluation, and for identifying other risk behaviors Limitations: Need further research in a larger, more diverse adolescent

						sample, implementation in PC setting, admin. Time, pt/PCP interaction and influence in behavior change over time
U.S. Department of Health & Human Services: CDC, 2014, Youth Risk Behavior Surveillance. MMWR	Problem: Priority health-risk behaviors leading causes of morbidity and mortality among youth. Aim: Population-based data on these behaviors at nat'l, state and local levels help monitor effectiveness of public health interventions	Youth Risk Behavior Surveillance (YRBS) System Surveys, Level V, systematic review of descriptive data	High school students, regular public and private school, grades 9-12 in 50 states and district of Columbia	Questionnaire surveys	Analytic Methods: SAS and SUDAAN software Results: From 2013 national YRBS indicated that many high school students engage in health-risk behaviors linked to leading cause of death among persons 10-24 years in U.S. Prevalence varies based on sex, race/ethnicity, and grade and across states and school districts	Limitations: Variations in health-risk behaviors across U.S. Usefulness: Helps assess trends over time, monitor progress towards 2020 objectives, compare state data, helps develop practices to decrease behaviors and improve health outcomes among youth
U.S. Department of Health & Human Services, 2014, Healthy People 2020	2020 Topics & Objectives: Adolescent Health	NA	Data Sources: National Health Interview Survey (NHIS), CDC, National Center for Health Statistics	Measurement: percent Baseline: 68.7% for 2008 Target: 75.6% Numerator:	Analysis: Data collection done annually Results: Following question used to obtain the National Baseline Data:	Limitations: Used as additional reference for project Usefulness:

				# of adolescents aged 10-17 who received wellness checkup past 12 months when not sick or injured Denominator: # of adolescents age 10-17	During the past 12 months, did (blank) receive a well-child check-up, that is a general check-up, when (blank) was not sick or injured? 1. Yes 2. No 3. Refused Don't know	Adolescent Health Objective 1- Increase the proportion of adolescents who have had a wellness checkup in the past 12 months EBP-QI Project looks at well-child checkup visits
Fox, 2013, A Research Agenda for Adolescent-Centered Primary Care in the US, Journal of Adolescent Health	Little attention has been given to how primary care can be transformed to better meet the needs of adolescents. To help generate the evidence needed, participants identified recommendations for 3 topics	Commentary, Level VII, The National Alliance to Advance Adolescent Health conference in 2012 in DC sponsored by AHRZ	Not applicable	Not applicable	Exhaustive Review of Literature and Evaluations, based recommendations from ROL and USPSTF and professional experiences Recommendations: Top 3 found here, others can be found at www.thenationalalliance.org 1. Increasing Adolescent and Parent Engagement and self-care management 2. Improving Clinical Preventive Services to reduce risk and address	Limitations, weaknesses or gaps in literature: Limitation-lower level of evidence Gaps-Needs to be stronger attention in research to adolescents as a distinct age group to ensure unique health needs are effectively addressed Needs to be increased

					conditions early Integrating physical, behavioral, and reproductive health services	support for more effective training for students and providers to enable clinicians to work in improved adolescent-centered primary care arrangements
Moyer, 2013, Primary Care Interventions to Prevent Tobacco Use in Children and Adolescents: U.S. Preventive Services Task Force Recommendation Statement	Update of 2003 USPSTF recommendation on primary care interventions to prevent tobacco use in children and adolescents	Clinical Guideline, Level 1	Data Source: USPSTF	NA	Recommendation: USPSTF recommends primary care clinicians provide interventions, including education and brief counseling, to prevent initiation of tobacco use in school-aged children and adolescents	Usefulness: Guideline to implement into EBP, relates specifically to screening and counseling for project
Agency for Healthcare Research and Quality, 2012, Primary Care Relevant Interventions for Tobacco Use Prevention and Cessation in Children and Adolescents: A Systematic Evidence Review	Review evidence for efficacy and harms of primary care interventions to prevent tobacco initiation and encourage tobacco cessation among children and	Systematic Review, Level 1, Variables-grouped trials based on focus of trial-combined prevention and cessation, prevention, or cessation	Data Sources: MEDLINE, PsycINFO, Cochrane Central Register of Controlled Trials, Database of Abstracts of Reviews of Effects	Not applicable	Meta-analyses used Conclusions: The USPSTF recommends primary care clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use among school-aged children and adolescents (Grade B	Limitations: Methodological differences bw trials limits ability to determine if small effect found on smoking initiation represents true benefits across this body of

for the U.S. Preventive Services Task Force	adolescents				Recommendation)	literature
Bradford, 2012, Psychosocial assessments for young people: a systematic review examining acceptability, disclosure and engagement, and predictive utility	Identifies psychosocial instruments that can be used as initial assessment and engagement tool with general pop young people, review properties of each	Systematic Review and Meta-Analysis, Level 1	Data Sources: Medline, EMBASE, PsychINFO, Cochrane	Not applicable	Meta-analyses used Results: RAAPS from Salerno et al, Yi et al, domains covered eating/weight, physical activity, unintentional injury/violence, substance use, sexual health, depression/self-harm, adult support, location/context used-multiple, Ages-11-14, 15-20, self-administered, admin time 5-10 min	Limitations: AHR tool covers all domains, multiple contexts, short period, computer admin. Need more long. Studies to determine predictive utility of these instruments. Usefulness: Multiple instruments to use, clinician dependent on domains interested in, preferred mode of delivery, resources, time frame,

						multidisc. Environ.
Ham, 2012, Adolescent Health Screening and Counseling, American Family Physician	Provide key recommendations for practice regarding adolescent health screening and counseling	Databases: Searched Cochrane, Essential Evidence Plus, USPSTF, National Guideline Clearinghouse, and Ovid Medline Level VII- expert opinion w/ ROL	Not applicable	Not applicable	Review of Literature so no analysis used Results/Recommendations: Evidence supports routinely screening for obesity, depression, offer HIV testing, screening other STIs	Limitations: Scant evidence validating effectiveness of physician counseling about unintended pregnancy, gang violence, and substance abuse is scant Usefulness: Suggestions on effective communication using seeing patient alone, tailoring discussion to patient, understanding role of parents and of confidentiality
Salerno, 2012, Validity and Reliability of the Rapid Assessment for Adolescent Preventive Services Adolescent Health Risk Assessment, Journal of Adolescent Health	Evaluate the validity and reliability of the RAAPS	Focus groups and retrospective chart audit, Level IV, Cohort study	Adolescents N=21, Health care professionals n=7, adolescent expert review n=10, retrospective chart audit of adolescents n=263, chart audit sample from school-based health centers	Psychometric methods to measure face-content, criterion-related validity and inter-rater and equivalence reliability	Cohen kappa measure, percent agreement & Fisher exact test used for analysis Results: Adolescent content validity index range 0.825-1.0; inter-rater content agreement range 0.9-1.0; Cohen kappa range 0.44 to 0.99; percent agreement	Limitations- Comparison with GAPS tool (gold standard for screening) not all questions could be compared to each other so some questions not compared; Some questions differing time

					range 0.71-.99; Fisher exact test resulted in all p>0.05 establishing criterion-related validity and equivalence	frames and combo of behaviors; low sample study also Usefulness- Validity and reliability of RAAPS tool established; acceptable tool for identifying risky behaviors in adolescents
The Regents of the University of Michigan, Version 4, 2012, Rapid Assessment for Adolescent Preventive Services	Screening Instrument (tool)	NA	Adolescent Health	NA	21 Question screening tool from www.raaps.org	Limitations: Using as additional reference Usefulness: Self-Administer, 5-10 min to take survey, evaluation done in office to determine if at risk counsel, at risk needs f/u, or no current risks
Ozer, 2011, Does Delivering Preventive Services in Primary Care Reduce Adolescent Risky Behavior?, Journal of Adolescent Health	To determine whether delivery of preventive services changes adolescent behavior	Exploratory study, Level IV (correlational study)	Three pediatric clinics; There was an adolescent intervention sample and a comparison sample	Methods: intervention consisted of screening and brief counseling from a provider, followed by health	Analysis: Age-related Comparison bw intervention & several cross-sectional comparison samples from age 14-15 y/o Results: Change in helmet use in intervention sample 100% higher (p<.05) and change	Conclusions: Intervention strongest effect on helmet use, shows promise for seat belt use and reducing smoking among male adolescents, not

				educator visit	in seat belt use among males 50% higher (p=.14), smoking in males 54% lower (p,.10), alcohol use no difference, drug use 10% higher (NS); sexual intercourse 18-22% lower (NS)	generalizable to females Limitations: Lack of longitudinal comparison group, uncertainty about similarity of samples over time
American College of Preventive Medicine, 2010, Adolescent Wellness Clinical Reference, www.acpm.org website	Clinical Reference Document provides evidence to support the Adolescent Wellness Exam Time tool	NA	NA	NA	Results: Provides adolescent morbidity/mortality, prevalence of risky behaviors, prevalence of preventive care, counseling, enhancing preventive services, barriers, wellness visit, communicating w/ teens, guidelines from GAPS and Bright Futures, resources	Usefulness: Use as additional reference
Centers for Disease Control & Prevention, 2010, Injury Mortality Reports 1999-2007, National Center for Injury Prevention and Control	Statistics on injury mortality	Data Sources: NCHS Vital Statistics & Bureau of Census	Adolescents ages 10-18	Measures: Number of deaths, population estimates	Analysis: By Office of Statistics and Programming Results: All injury deaths and rates per 100,000, all races, both sexes, ages 10 to 18 = 85,384, pop. 339,787,568, crude rate 25.13	Limitations: From 1999-2007 Use as additional reference Usefulness: Can select from report options based on intent or manner of injury, cause of injury, race, sex, year, age group; help look at injury rates over time and type of

						injury to determine need for interventions
Brown, 2009, Discussion of Sensitive Health Topics with Youth During Primary Care Visits: Relationship to Youth Perceptions of Care, Journal of Adolescent Health	Examined whether discussion of sensitive health topics during primary care visits was associated w/ youth's perceptions of provider and participation in treatment	Cross-sectional, Cluster-randomized trial, Level II, variables- half PCPs received 3 didactic training sessions, self-study and practice w/ stimulated pts, control received training manual and feedback on pt interviews	Settings: 13 sites agreed to participate in multiple cities in various settings PCPS n=54 including NPs Sample= families n=828	Measures: 33-item Strengths and Difficulties Questionnaire for patients; 14-item Physician Belief Scale and 11-item Provider Confidence Scale	Analysis: Multivariate random effects logistic regression Results: Youth had more positive perceptions of provider and were more likely to report taking an active role in treatment when visit included discussion of sensitive health topic	Limitations: Participation in training for the PCPs was unrelated to outcomes; is possible outcomes directly r/t topic discussed Future research needed bw discussion on sensitive topics and impact on health outcomes among youth and on diff. in PCP comm. In absence of parents Usefulness: Several implications for primary care-discussion on sensitive topics may have positive impact on youth satisfaction and participation in treatment plan which may lead to increase f/u

						and actual health outcomes
Irwin, 2009, Preventive Care for Adolescents: Few Get Visits and Fewer Get Services, Pediatrics	Examine receipt of preventive services, including disparities in services received	Single-descriptive study, Level VI, variables-receipt of preventive care visits and several measures of content of care	Sample: N=8464; ages 10-17 From data provided from AHRQ from the 2001-2004 Medical Expenditure Panel Survey	Measures: data collection from surveys	Analyses: bivariate and multi-variate Results: 38% of adolescents had preventive care visit in previous 12 months, 40% had time alone with provider, only 10% had all 6 areas of anticipatory guidance addressed during visit	Limitations: Survey does not include measures for all preventive services, highly unlikely sensitive topics were discussed d/t low time alone Usefulness: Shows that few adolescents receive preventive care visits and even less receive proper anticipatory guidance, need to improve delivery of recommended preventive services to adolescents
National Research Council and Institute of Medicine, 2009, Adolescent Health Services: Missing Opportunities	Report charged with studying adolescent health services in the US and developing policy and research recommendations to highlight critical health needs, promising models of health	Review of Literature and reports from expert committees, Level VII	Formal committee meetings, two public workshops, community forum, site visits to several institutions and organizations, group meetings with adolescents	Methods: Data collection	Analysis: Committee and experts analyzed data and research Recommendations/Results: Eleven recommendations made by these expert committees; pertinent to this project are recommendation 3: Primary Health Care:	Limitations: Limited data on national indicators of health status on behavioral and developmental health, lacking data on selected pop. Characteristics to provide longitudinal

	services, and components of care to strengthen and improve health services for adolescents and contribute to healthy adolescent development				providers of adolescent primary care services and payment systems should make disease prevention, health promotion, and behavioral health-including early identification-a major component of routine health services. WHO: 5 objectives for adolescent health services including evidence-based standards of care and professional guidelines and appropriate health services to fulfill the needs of all young people	trends and enable comparison, evaluation of various health services was limited, difficult to obtain data on adolescent workforce, no economic implications done on recommendations Usefulness: Seven Overall conclusions are the basis for the 11 recommendations
Yi, 2009, Development and Clinical Use of Rapid Assessment for Adolescent Preventive Services (RAAPS) Questionnaire in School-based Health Centers, Journal of Pediatric Health Care	Describe the development and clinical use of RAAPS, a time-efficient screening tool to assess for multiple adolescent risk behaviors.	Retrospective Chart Audit by Doctoral student, Single Descriptive Study, Level VI	Sample characteristics specified, > ½ sample AA and ages 12-13, suburbs of Michigan, two middle schools, one alternative high school, 4 NPs, 3 SWs, and 2 Physicians provide care at school-based health center	Data collected from the RAAPS forms from chart audits, provider surveys also used, no reliability mentioned	Descriptive statistical analysis used, Chi-square test of proportions, & Qualitative content analysis Results: Risk behavior/Factor Prevalence- 3 top were not wearing protective gear, feeling sad, down or depressed and physical inactivity; Providers' Intervention Documentation- 89.5% of 9-15 y/o & 95.5% of 16-20	Limitations or weaknesses: Because providers don't always record everything, questionable whether chart audits accurately capture patient encounter especially r/t counseling as time-consuming, may document more or less than

					y/o; most common intervention motivational interviewing &/or health education materials	actually occurred Strength: Increased rates of health counseling and preventive services documentation after implementation using the RAAPS tool
Zuckerbrot, 2007, Adolescent Depression Screening in Primary Care: Feasibility and Acceptability, Pediatrics	Explore feasibility and acceptability of implementing adolescent depression screening into clinical practice	2-Stage Identification protocol, Level VI, single descriptive study	Setting: 3 sites of 1 pediatric primary care practice Subjects: 11 clinicians, adolescents age 13-17	Measures: screen, depression scale, questionnaire Reliability: moderate	Analysis: Tracking forms for who screened, why and why not, computer-generated list; Descriptive comparisons, frequency distributions, point estimates of means and rates over time Results: 79% adolescents screened during health maintenance visits, providers perception more patient/parent satisfaction, all providers wish to continue screening	Limitations: Small study w/ few clinicians at only 3 sites, relied on computer and providers to gather data, unclear if screening alone improves patient outcomes, no data after initial screening Usefulness: Instituting standardized screening tool in practice met w/ little resistance by patients, parents and providers

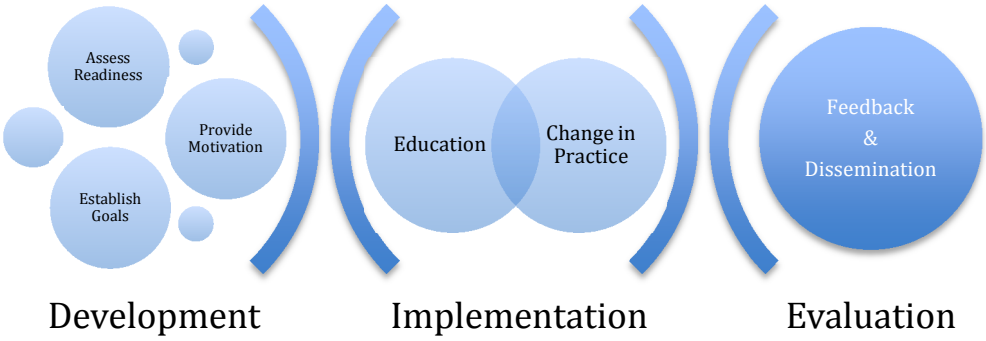
The Regents of the University of Michigan, 2006, Rapid Assessment for Adolescent Preventive Services (RAAPS): Providers	Provides information for providers about RAAPS	NA	Providers	NA	Results: Discusses why use of standardized screening tool is beneficial, how providers were currently screening adolescents for risks	Limitations: Using as additional reference Usefulness: Site able to provide description of RAAPS system

Appendix C

Diagram 1

Theory to Application

Cognitive Learning Theory (Sawyer, 2006)



Appendix D

Material 1

IRB Approval Letter

UMKC
Office of Research Services

UMKC
5319 Rockhill Road
Kansas City, MO 64110
TEL: (816) 235-5927
FAX: (816) 235-5602

NOTICE OF NEW APPROVAL

Principal Investigator: Dr. Nancy Willis-Smith
[redacted]

Protocol Number: 16-326
Protocol Title: Use of the Rapid Assessment for Adolescent Preventive Services © (RAAPS) tool to Improve Detection and Follow-up Rates in Adolescents
Type of Review: EXPEDITED
Expedited Category #: 5, 7

Date of Approval: 11/11/2016
Date of Expiration: 11/07/2017

Dear Dr. Willis-Smith,

The above referenced study, and your participation as a principal investigator, was reviewed and approved, under the applicable IRB regulations at 21 CFR 50 and 56 (FDA) or 45 CFR 46 (OHRP), by the UMKC IRB. You are granted permission to conduct your study as described in your application.

Your protocol was approved under Expedited Review Regulatory Criteria at 45 CFR 46.110 or 21 CFT 56.110 under Category #7 as follows:
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

This study was approved for the inclusion of Minors pursuant to 45 CFR 46. 404

This approval includes the following documents:

Attachments

Lessor UMKC Project Approval Letter
N5617 Recruitment Script-2
N5617 RAAPS Differentiation
N5617 Standardization and Why RAAPS
N5617 RAAPS Slides
RAAPS© Permission Email
N5617 Verbal Instructions
Waiver of Authorization of PHI Form
NWHS HIPPA Authorization Form
Subpart-D
N5617 Adolescent Recruitment Script
RAAPS Survey 2016
16-326_N5617B Adolescent Assent Form_stamped
16-326_N5617B Parental Permission Form_stamped

If a consent is being used in this research study you may find the stamped version in section 16 of your application.

The ability to conduct this study will expire on or before 11/07/2017 unless a request for continuing review is received and approved. If you intend to continue conduct

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Kansas City, MO 64110
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of this study, it is your responsibility to provide a Continuing Review form prior to the expiration of approval or a final report if you plan to close the study.

This approval is issued under the University of Missouri - Kansas City's Federal Wide Assurance FWA00005427 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under the Board's Assurance, please do not hesitate to contact us.

There are 5 stipulations of approval:

1) No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date. (PIs and sponsors are responsible for initiating Continuing Review proceedings).
2) All unanticipated or serious adverse events must be reported to the IRB.
3) All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk. This includes any change of investigator.
4) All protocol deviations must be reported to the IRB.
5) All recruitment materials and methods must be approved by the IRB prior to being used.

Please contact the Research Compliance Office (email: umkcirb@umkc.edu; phone: (816)235-5927) if you have questions or require further information.

Thank you,

Cynthia Thompson

UMKC
Office of Research Services

UMKC
5319 Rockhill Road
Kansas City, MO 64110
TEL: (816) 235-5927
FAX: (816) 235-5602

NOTICE OF AMENDMENT APPROVAL

Principal Investigator: Dr. Nancy Willis-Smith
[redacted]

Protocol Number: 16-326
Protocol Title: Use of the Rapid Assessment for Adolescent Preventive Services © (RAAPS) tool to Improve Detection and Follow-up Rates in Adolescents
Type of Review: EXPEDITED
Expedited Category #: 5, 7

Date of Approval: 11/28/2016
Date of Expiration: 11/07/2017

Dear Dr. Willis-Smith,

The above referenced study, and your participation as a principal investigator, was reviewed and approved, under the applicable IRB regulations at 21 CFR 50 and 56 (FDA) or 45 CFR 46 (OHRP), by the UMKC IRB. You are granted permission to conduct your study as described in your application.

- Additional information to be collected: office visit, the four digit code on the RAAPS© tool, the age of the adolescent and the name of the clinic
Additional information to be collected at pre-intervention: kind of screening conducted and placed into one of the following categories: Diet & Exercise, Substance Use, Depression & Suicide, Violence & Safety, Sexual Health, Unintentional Injury or other.

This approval includes the following documents:

Attachments
N5617B Data Collection
N5617B Statistical Analysis Table

If a consent is being used in this research study you may find the stamped version in section 16 of your application.

The ability to conduct this study will expire on or before 11/07/2017 unless a request for continuing review is received and approved. If you intend to continue conduct of this study, it is your responsibility to provide a Continuing Review form prior to the expiration of approval or a final report if you plan to close the study.

This approval is issued under the University of Missouri - Kansas City's Federal Wide Assurance FWA00005427 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under the Board's Assurance, please do not hesitate to contact us.

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4) All protocol deviations must be reported to the IRB.

5) All recruitment materials and methods must be approved by the IRB prior to being used.

Please contact the Research Compliance Office (email: umkcirb@umkc.edu; phone: (816)235-5927) if you have questions or require further information.

Thank you,

Cynthia Thompson

Appendix F

Table 2

Program Budget

Expenses	**Cost of Items**
Investigator- travel/hotel	$1290
Physical space- office room	$0
Equipment- computer	$0
Internet Access-Wi-Fi	$0
Electronic Medical Record system	$0 (partnership with provider's employer)
Printed resources- printer, ink, paper	$60/3months (HP Program)
Lunch for providers and staff	$50
Dissemination- conference/poster	$850
Funding Received	(-$1450GAF)(-$800Travel Grant)
Total Operating Costs	$0

Appendix H

Material 2

IRB Approved Consent Forms

Adolescent Assent Form

My name is Rachel Lessor. I am a student in the Department of Nursing at the University of Missouri-Kansas City. I would like to ask you to be a part of my research study. A research study is a special way to find out about something. I am trying to learn more about ways to help your nurse practitioners to better care of you.

If you agree to be in this study, you will be asked to fill out a form with 21 questions that ask about your health behaviors. The questions will take about 5 minutes to answer. Some of the questions will be personal and you can stop at any time. We don't know if being in this research study will help you. But you may be helping us to understand ways to help your nurse practitioners take better care of you.

If you agree to help us, your nurse practitioner and their student will go over your answers with you if necessary. If you decide to be in the study or if you decide to say "no" your choice will not affect the care you receive here.

When we are done with the study, we will write a report about what we found out. Your answers will be put together with everyone else who agrees to be in the study so that the report will show only the results of the group. We won't use your name in the report.

Please talk this over with your parents before you decide if you want to be in my study. I will also ask your parents to give their permission for you to be in this study. But even if your parents say yes you can still say no and decide not to be in the study. If you do not want your parents in the room while you fill out the survey that is your choice. Let the person know who gave you the survey if you want your parents to step out of the room during discussion of the survey.

If you don't want to be in this study, you don't have to be in it. Remember, being in a study is up to you and no one will be upset if you don't want to be in it. If you decide to stop after we begin that is okay too. The nurse practitioner will discuss your answers with you if she finds necessary.

You can ask any question that you have about the study. If you have a question later that you didn't think of now, you can call my teacher or ask your parents to call my teacher, Nancy Willis-Smith, at [redacted].

Signing here means that you have read this paper or someone read it to you and that you are willing to be in this study. If you don't want to be in this study, don't sign.

_____ _____
Printed Name of Participant Date

_____
Signature of Participant

UMKC IRB
Approved
from: 11/11/2016 to: 11/07/2017
IRB #: 16-326

Printed Name of Investigator

Date

Signature of Investigator

UMKC IRB
Approved
from: 11/11/2016 to: 11/07/2017
IRB #: 16-326

Parental Permission Letter

Dear Parents,

My name is Rachel Lessor. I am a graduate student in the Department of Nursing at the University of Missouri-Kansas City. I would like your child to take part in my DNP project. During the months of November through January, I will be educating providers at the Northwest Health Services clinics on the use of an already developed tool to screen adolescents for health risk behaviors and it's called Rapid Assessment for Adolescent Preventive Services © (RAAPS) screening tool. If you and your child agree that your child may participate in the study I will ask your child to complete the 21-question form about their behaviors. Completion of this form is estimated to take no more than three to five minutes of their time. The purpose of the study is to determine if your child completes the form, if the provider reviews the information when they enter the room and if further follow-up interventions are planned based on your child's answers. Your child's participation with this study is complete once the form is filled out and discussed with provider although if any of your child's answers on the form need to be further addressed this decision will be made between you, your child and the provider as to what additional follow-up is needed if any. If your child chooses not to participate, he/she will receive care as usual. Also, if your child requests, you may be asked to step out of the room while the form is filled out and discussed with the provider.

All of the information I obtain from your child will be kept confidential. Your child's name will not be used on the form they complete, and no information about your child will ever leave premises with a name attached. The form that your child completes will be marked with a number only so I can then identify in the chart that the provider has screened and followed-up if appropriate.

The information collected from this study will be compiled at the end of my study that will be presented to the providers and my school. The report will not contain any INDIVIDUAL information about children. It will describe how many screens were completed at the clinic and how many follow-ups were made when appropriate. I will also use the information from this study to present at conferences and publish articles in professional publications, so that providers can learn more about screening adolescents using the RAAPS© tool. Once again, I will never report individual information.

The director of Northwest Heath Services has approved the study. However, your child does not have to participate in the study as participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which the child is otherwise entitled, and the child may discontinue participation at any time without penalty or loss of benefits to which the subject is otherwise entitled. If your child does not want to fill out the form, or wants to quit after starting the form just let us know. The clinic staff are aware of the RAAPS© form and my DNP study but they do not directly handle the forms or have access after filling them out. Following the completion of the study, the forms will be destroyed securely at the office.

UMKC IRB
Approved
from: 11/11/2016 to: 11/07/2017
IRB #: 16-326

There are no direct benefits to you or your child for participating in this study. The information from the form is not directly being studied, it is the fact that the provider had the child fill out the form and addressed appropriately. There are minimal risks associated with participation in this study which includes uncomfortable feelings regarding what the questions are asking, invasion into privacy by asking sensitive questions and breach of confidentiality is always possible when accessing patient charts but using the code instead of patient's name will help prevent others from linking the form to your child. However, if your child becomes upset, he/she will be able to stop filling out the form and may choose to talk to the provider about the feelings they are having.

While every effort will be made to keep confidential all of the information you complete and share, it cannot be absolutely guaranteed. Individuals from the University of Missouri-Kansas City Institutional Review Board (a committee that reviews and approves research studies), Research Protections Program, and Federal regulatory agencies may look at records related to this study for quality improvement and regulatory functions.

The University of Missouri-Kansas City appreciates the participation of people who help it carry out its function of developing knowledge through research. If you have any questions about the study and/or your child's rights during participation you are encouraged to call **Dr. Nancy Willis-Smith,** the principal investigator, at [redacted].

Although it is not the University's policy to compensate or provide medical treatment for persons who participate in studies, if you think you have been injured as a result of participating in this study, please call the UMKC Institutional Review Board at 816-235-5927 or email: umkcirb@umkc.edu.

If you and your child agree that your child may take part in the research please return a signed copy of this form to me in the enclosed envelope. You may keep the other copy for future reference.

You have read this permission form and agree to have your child take part in the research.

_____
Name of Child

_____
Printed Name of Parent

_____ _____
Signature of Parent Date

UMKC IRB
Approved
from: 11/11/2016 to: 11/07/2017
IRB #: 16-326

Appendix I

Table 3

Data Collection Template

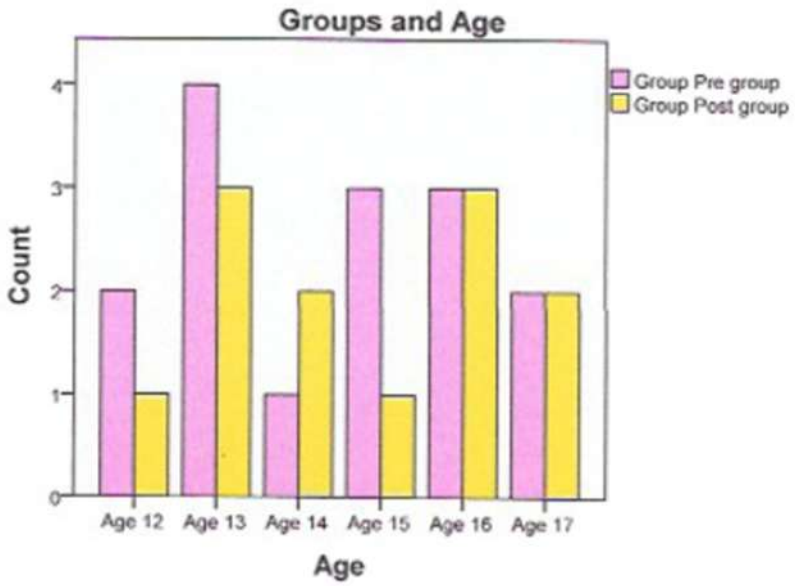
	Age	Race	Gender	Screened	Positive	Follow-up
1						
2						
3						
4						
5						
6						
7						

Appendix J

Table 4

Statistical Analysis Tables

		Age					
		12	13	14	15	16	17
Group	Pre group	2	4	1	3	3	2
	Post group	1	3	2	1	3	2



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.495[a]	5	.914
Likelihood Ratio	1.535	5	.909
Linear-by-Linear Association	.093	1	.761
N of Valid Cases	27		

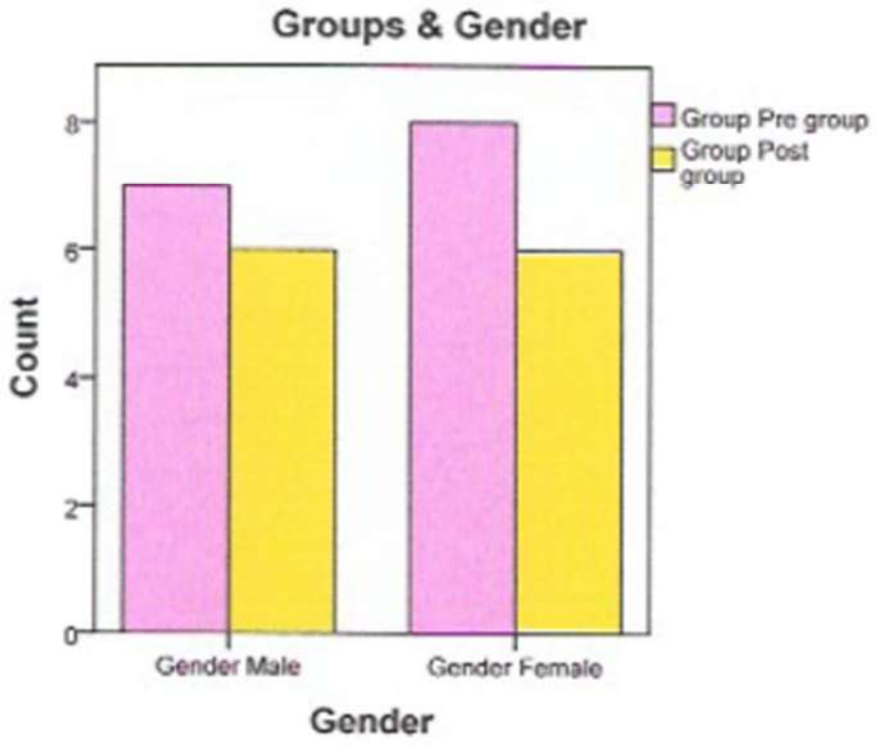
a. 12 cells (100.0%) have expected count less than 5. The minimum expected count is 1.33.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.235	.914
	Cramer's V	.235	.914
N of Valid Cases		27	

Group * Gender

		Gender	
		Male	Female
Group	Pre group	7	8
	Post group	6	6



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.030[a]	1	.863		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.030	1	.863		
Fisher's Exact Test				1.000	.585
Linear-by-Linear Association	.029	1	.866		
N of Valid Cases	27				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.78.

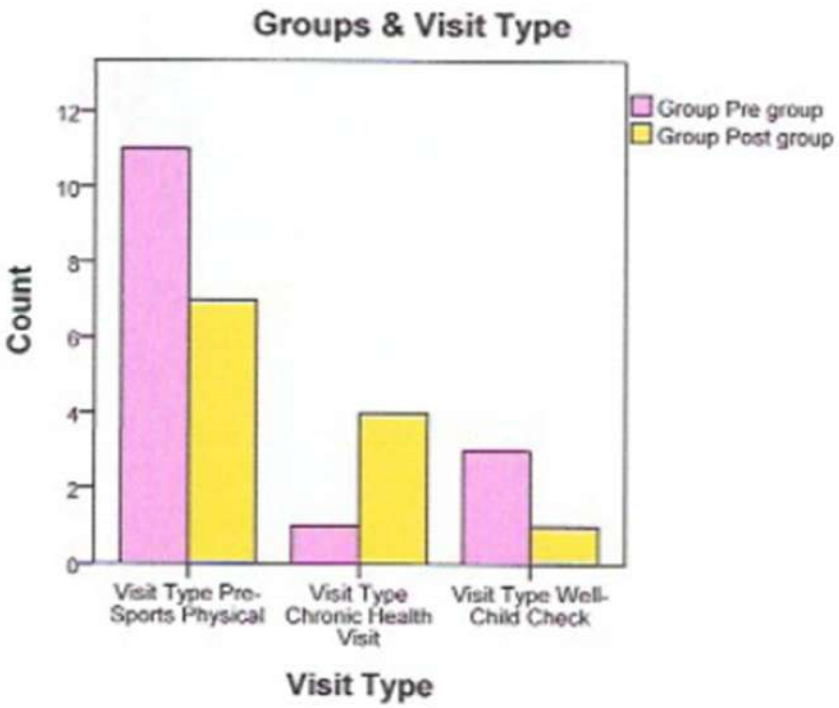
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.033	.863
	Cramer's V	.033	.863
N of Valid Cases		27	

Group * Visit Type

		Visit Type		
		Pre-Sports Physical	Chronic Health Visit	Well-Child Check
Group	Pre group	11	1	3
	Post group	7	4	1



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.398[a]	2	.183
Likelihood Ratio	3.536	2	.171
Linear-by-Linear Association	.013	1	.909
N of Valid Cases	27		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 1.78.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.355	.183
	Cramer's V	.355	.183
N of Valid Cases		27	

Group * Risk Screen

		Risk Screen
		Yes
Group	Pre group	15
	Post group	12

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	27

a. No statistics are computed because Risk Screen is a constant.

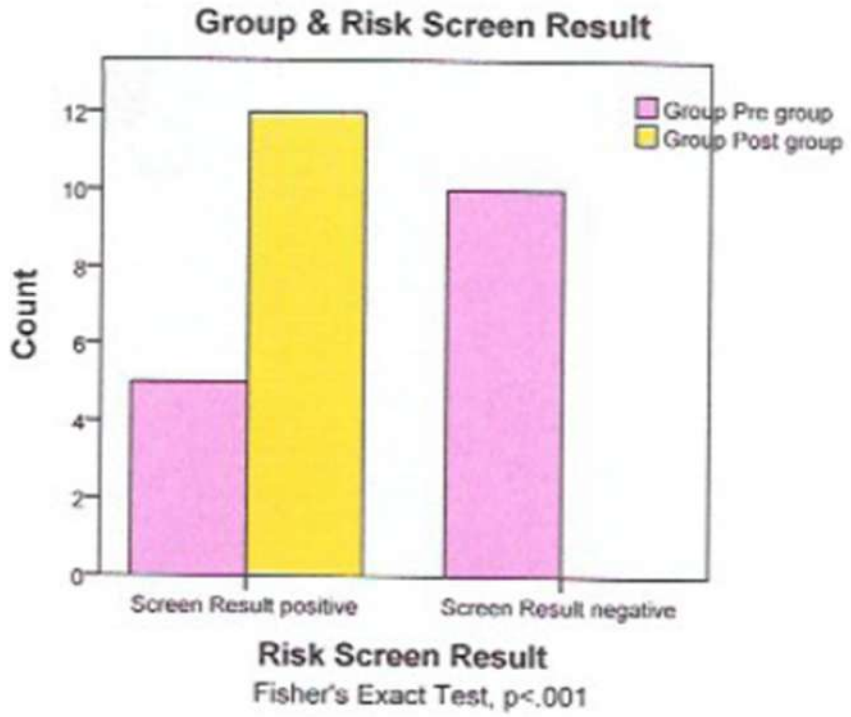
Symmetric Measures

		Value
Nominal by Nominal	Phi	.[a]
N of Valid Cases		27

a. No statistics are computed because Risk Screen is a constant.

Group * Screen Result

		Screen Result	
		positive	negative
Group	Pre group	5	10
	Post group	12	0



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.706[a]	1	.000		
Continuity Correction[b]	10.008	1	.002		
Likelihood Ratio	16.499	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	12.235	1	.000		
N of Valid Cases	27				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.44.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.686	.000
	Cramer's V	.686	.000
N of Valid Cases		27	

Group * Risk,Diet,Exercise

Crosstab

			Risk,Diet,Exercise		
			Yes	No	Total
Group	Pre group	Count	13	2	15
		Expected Count	13.9	1.1	15.0
		% within Risk,Diet, Exercise	52.0%	100.0%	55.6%
	Post group	Count	12	0	12
		Expected Count	11.1	.9	12.0
		% within Risk,Diet, Exercise	48.0%	0.0%	44.4%
Total		Count	25	2	27
		Expected Count	25.0	2.0	27.0
		% within Risk,Diet, Exercise	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.728[a]	1	.189		
Continuity Correction[b]	.331	1	.565		
Likelihood Ratio	2.479	1	.115		
Fisher's Exact Test				.487	.299
Linear-by-Linear Association	1.664	1	.197		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .89.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.253	.189
	Cramer's V	.253	.189
N of Valid Cases		27	

Group * Risk,Substance

Crosstab

			Risk, Substance	
			Yes	Total
Group	Pre group	Count	15	15
		Expected Count	15.0	15.0
		% within Risk, Substance	55.6%	55.6%
	Post group	Count	12	12
		Expected Count	12.0	12.0
		% within Risk, Substance	44.4%	44.4%
Total		Count	27	27
		Expected Count	27.0	27.0
		% within Risk, Substance	100.0%	100.0%

Chi-Square Tests

	Value
Pearson Chi-Square	.[a]
N of Valid Cases	27

a. No statistics are computed because Risk,Substance is a constant.

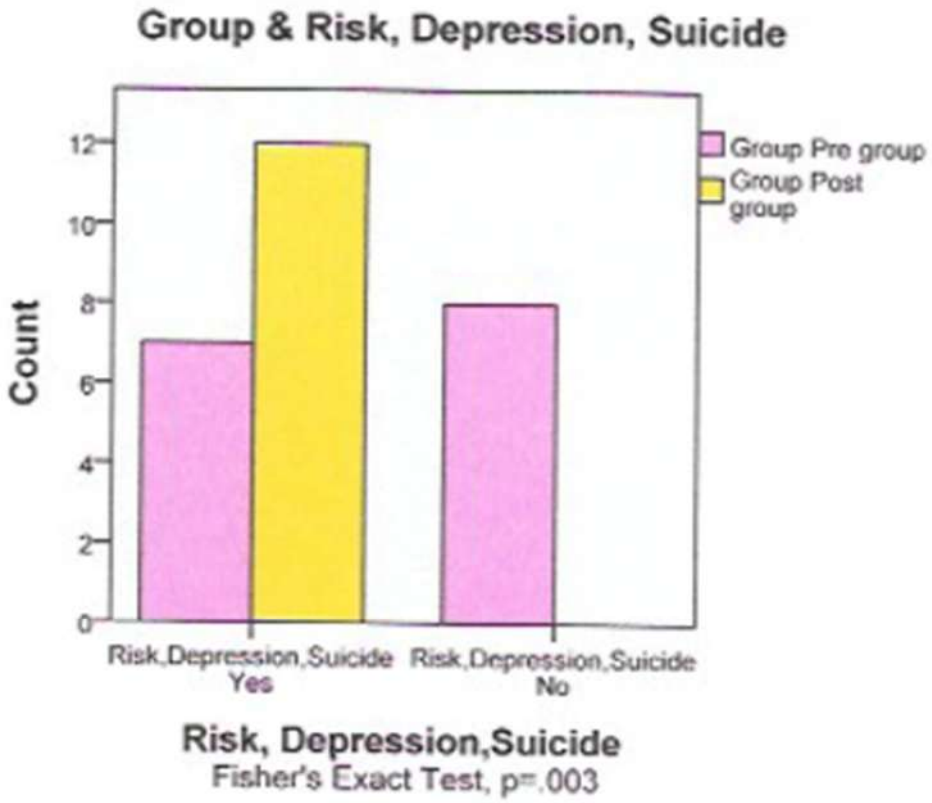
Symmetric Measures

		Value
Nominal by Nominal	Phi	.[a]
N of Valid Cases		27

a. No statistics are computed because Risk,Substance is a constant.

Group * Risk,Depression,Suicide

		Risk,Depression,Suicide	
		Yes	No
Group	Pre group	7	8
	Post group	12	0



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.095[a]	1	.003		
Continuity Correction[b]	6.717	1	.010		
Likelihood Ratio	12.088	1	.001		
Fisher's Exact Test				.003	.003
Linear-by-Linear Association	8.758	1	.003		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.56.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.580	.003
	Cramer's V	.580	.003
N of Valid Cases		27	

Group * Risk,Violence,Safety

Crosstab

			Risk,Violence,Safety		
			Yes	No	Total
Group	Pre group	Count	12	3	15
		Expected Count	13.3	1.7	15.0
		% within Risk, Violence,Safety	50.0%	100.0%	55.6%
	Post group	Count	12	0	12
		Expected Count	10.7	1.3	12.0
		% within Risk, Violence,Safety	50.0%	0.0%	44.4%
Total		Count	24	3	27
		Expected Count	24.0	3.0	27.0
		% within Risk, Violence,Safety	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.700[a]	1	.100		
Continuity Correction[b]	1.055	1	.304		
Likelihood Ratio	3.825	1	.050		
Fisher's Exact Test				.231	.156
Linear-by-Linear Association	2.600	1	.107		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

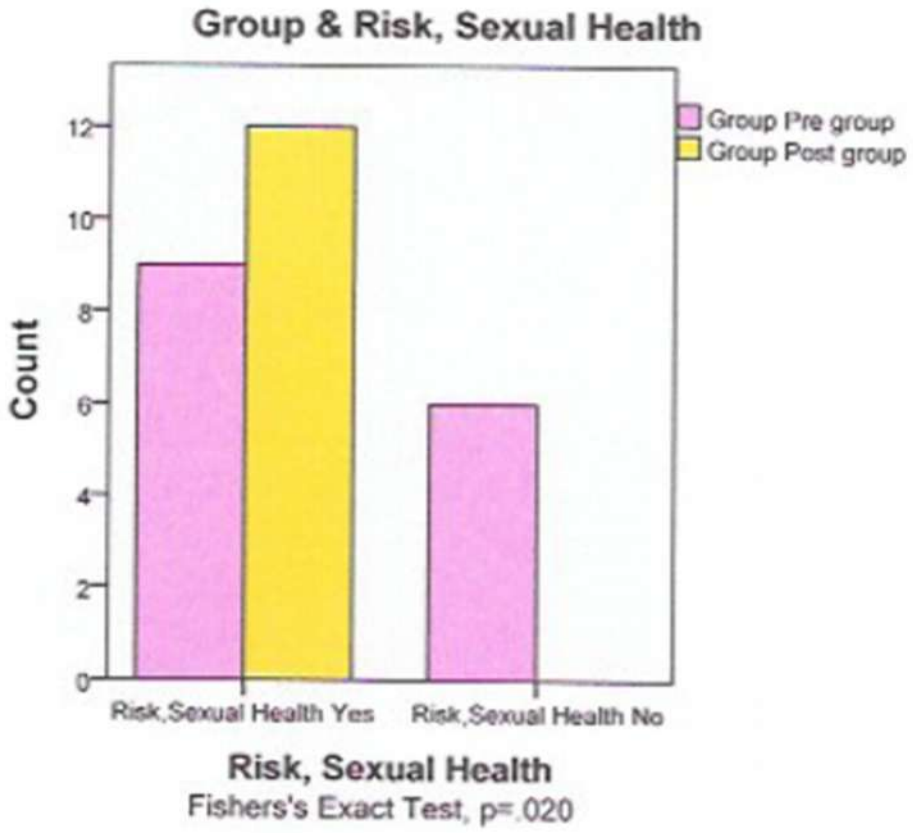
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.316	.100
	Cramer's V	.316	.100
N of Valid Cases		27	

Group * Risk,Sexual Health

		Risk,Sexual Health	
		Yes	No
Group	Pre group	9	6
	Post group	12	0



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.171[a]	1	.013		
Continuity Correction[b]	4.074	1	.044		
Likelihood Ratio	8.414	1	.004		
Fisher's Exact Test				.020	.017
Linear-by-Linear Association	5.943	1	.015		
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.67.

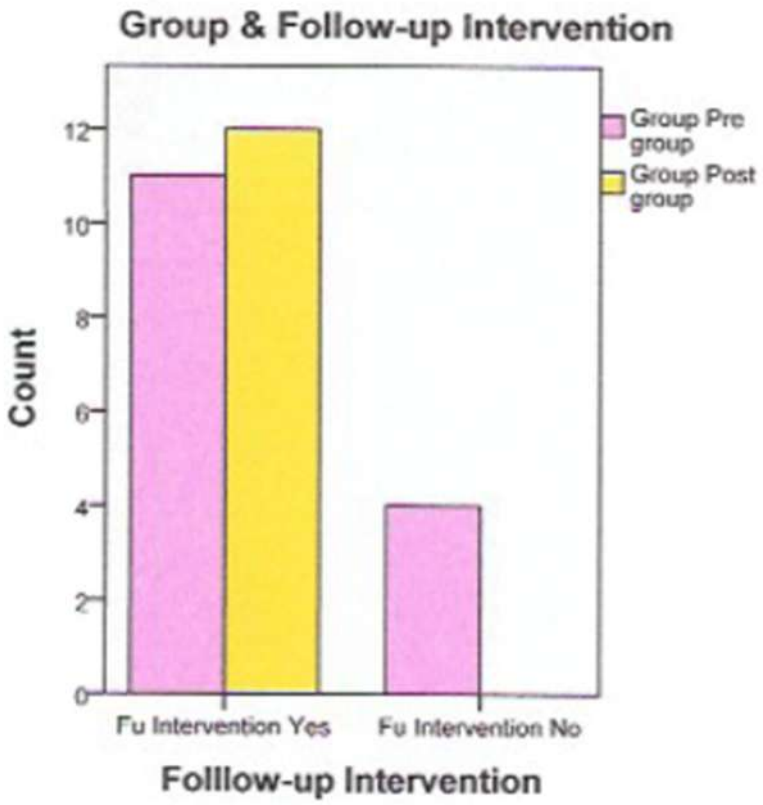
b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.478	.013
	Cramer's V	.478	.013
N of Valid Cases		27	

Group * Fu Intervention

		Fu Intervention	
		Yes	No
Group	Pre group	11	4
	Post group	12	0



Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.757[a]	1	.053		
Continuity Correction[b]	1.941	1	.164		
Likelihood Ratio	5.255	1	.022		
Fisher's Exact Test				.106	.078
Linear-by-Linear Association	3.617	1	.057		
N of Valid Cases	27				

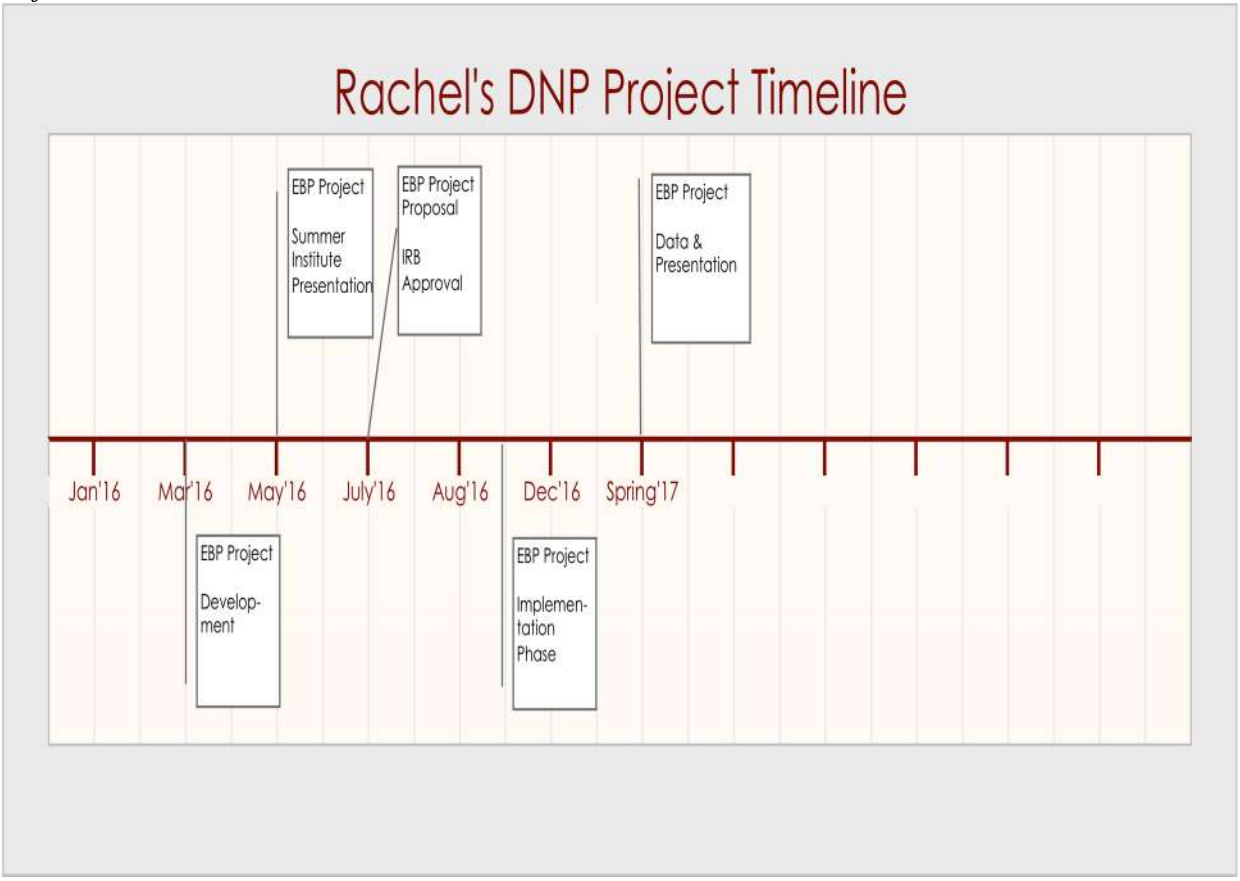
a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.78.

b. Computed only for a 2x2 table

Appendix K

Graph 1

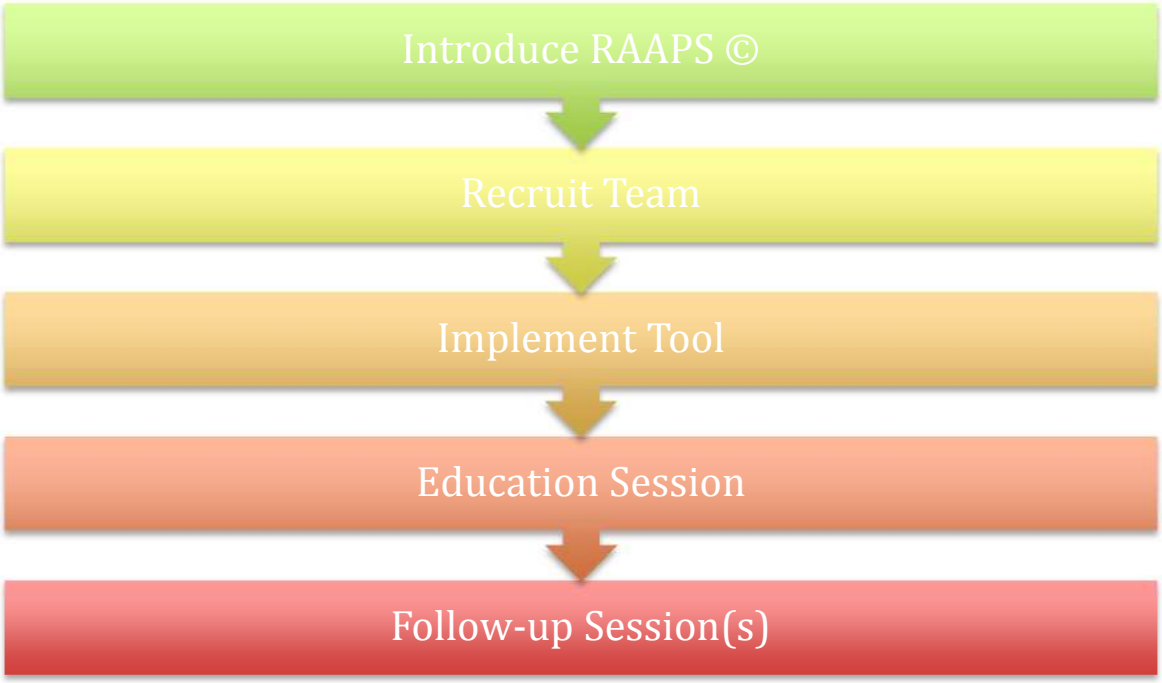
Project Timeline



Appendix L

Diagram 2

Intervention Flow, Procedure



Appendix M

Model 1

Logic Model for DNP Project

Inputs	Intervention(s) *Activities*	Outputs *Participation*	Outcomes -- Impact *Short*	*Medium*	*Long*
Evidence, sub-topics Preventive health services & screening Adolescent behavior Evidence based practice recommendations **Major Facilitators or Contributors** Clinic Staff including providers Faculty mentor DNP student **Major Barriers or Challenges** Organizational barriers- Lack of support, limited resources, economic and workload impact Staff- lack of knowledge, weak beliefs about EBP value, negative attitudes, lack of mentors	**EBP intervention which is supported by the evidence in the Input column** Provide education to the providers on the use of the RAAPS screening tool **Major steps of the intervention** 1. Establish team 2. Disseminate evidence 3. Develop tool and processes 4. Implement project intervention 5. Follow timeline 6. Celebrate success with team	**The participants (subjects)** Providers **Site** Swope Health (or other primary care site) **Time Frame** Three months **Consent Needed or other** None needed **Person(s) collecting data** DNP student-self **Others directly involved** Faculty mentor Clinic staff	**(Completed as student)** **Outcome(s) to be measured with valid & reliable tool(s)** Increase in adolescent preventive health screening using the RAAPS tool **Statistical analysis to be used** 1. Frequency distributions- if normal use paremetric analyses, if not normal, transform variables, if unable, use non-parametric analyses; 2. Descriptive Analyses- ex. Mean, percentage, range, etc. (nominal data- Dichotomous)	**(after student DNP)** **Outcomes to be measured** Increase in prescribed interventions for positive screens including counseling, referral, and treatment with medications.	**(after student DNP)** **Outcomes that are potentials** Reduction in adolescent preventable injury morbidity and mortality rates

Appendix N

Material 3

RAAPS© Measurement Tool Link

Copy & Paste one of the following links into browser:

Download the standard RAAPS Assessment

http://www.possibilitiesforchange.com/raaps/download_survey.html

Appendix O

Material 4

RAAPS© Permission

Ariel Cribbins [redacted]

To: Lessor, Rachel E.

Cc: Jennifer Salerno [redacted]

Monday, June 06, 2016 3:09 PM

- You replied on 6/8/2016 9:08 PM

My apologies, Rachel!

I am happy to inform you that Dr. Salerno has approved your use of the **paper version only** of RAAPS for your project with no fee. She asked me to share the restrictions on use of the tool in your research and get your confirmation that you will follow these restrictions.

You may use RAAPS survey in your research project, in paper format only, by administering it on paper to your research participants. You may not publish a reproduction of the survey in any format. We ask that you keep us informed of any significant changes in design and scope of your project.

The RAAPS survey may not be added or scanned into to any computerized administration system or electronic record system. This includes, but is not limited to, electronic health record systems or any kind of system used to administer and/or record surveys.

Any and all **electronic use** of RAAPS surveys and related products may only be accessed through our system after signing a license agreement and paying the annual licensing fee.

We wish you the best of luck with your project and encourage you to keep in touch with us. Please reply to this email, acknowledging that you understand the restrictions on the use of the RAAPS survey tool in your research.

Thank you,

Ariel Cribbins

Appendix P

Material 5

UMKC SoNHS Proposal Approval Letter

UMKC School of Nursing and Health Studies

July 29, 2016

Members of UMKC Institutional Review Board
University of Missouri-Kansas City
Kansas City, MO 64108

UMKC IRB,

This letter serves to provide documentation regarding Rachel Lessor's Doctor of Nursing Practice (DNP) Project proposal. Ms. Lessor obtained approval for her project proposal, Using Rapid Assessment for Adolescent Preventive Services © (RAAPS) Tool for Improving Detection and Follow-up Rates, from the School of Nursing DNP faculty committee on July 29, 2016.

If I can provide any further information, please feel free to contact me.

Sincerely,

Susan J. Kimble

Susan J. Kimble, DNP, RN, ANP-BC, FAANP
Clinical Associate Professor
DNP Programs Director
UMKC School of Nursing and Health Studies
816-235-5962
kimbles@umkc.edu