

Identifying Barriers to Cervical Cancer Screening in Rural Women

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She has no known conflict of interest to disclose.

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Abstract

Problem Statement & Purpose: Cervical cancer screening rates for a Federally Qualified Health Center (FQHC) in rural Northern Arizona is 78%, which is below the Healthy People 2030 goal of 84.3%. Identification of socioeconomic barriers unique to rural women through the use of an intake survey can improve cervical cancer screening rates. This project was guided by the Social Cognitive Theory (SCT). SCT proposes that behavioral change is determined by environmental, social, personal, and behavioral elements.

Methods: At a one-day well-woman event called, “See, Test, and Treat” hosted by the FQHC, an anonymous intake survey was implemented that identified participant demographics, basic cervical cancer knowledge, and perceived socioeconomic barriers to routine cervical cancer screening. Participants were recruited through the FQHC. Participant inclusion criteria: Arizona resident, uninsured, underinsured, 21-65 years old, English or Spanish speaking.

Results: Descriptive statistics were utilized to evaluate the survey responses, reliability, and validity of responses unknown due to self-reported responses. A total of 18 surveys were completed with a final yield of (n = 10). Surveys didn’t identify barriers to routine cervical cancer screening; however, an unawareness of cervical cancer risk factors including multiple sexual partners (n = 5, 50.00%), sex at an early age (n = 4, 40.00%), and misperception that cervical cancer is genetic (n = 7, 70.00%) was identified.

Implications for Practice: A need for cervical cancer education exists within the surveyed community. Providing rural women with knowledge regarding cervical cancer can improve screening rates.

Keywords: rural women, cervical cancer screening, socioeconomic barriers

Identifying Barriers to Cervical Cancer Screening in Rural Women

Cervical cancer is a prevalent and devastating cancer that primarily affects women between the ages of 35 to 44 (American Cancer Society [ACS], 2021). Approximately 93% of cervical cancer cases can be prevented with cervical cancer screening (Centers for Disease Control and Prevention [CDC], 2020). Cervical cancer screening detects cellular changes in the cervix and the presence of HPV through Papanicolaou (pap) smear testing (The American College of Obstetricians and Gynecologists [ACOG], 2020). Therefore, the U.S. Preventive Services Task Force (USPSTF) recommends cervical cancer screening for women ages 21 to 65 years old. The type of screening and frequency of screening is recommended based on the patient's age (U.S. Preventive Services Task Force [USPSTF], 2018). Overall, increasing cervical cancer screening rates among women can help prevent cervical cancer by detecting abnormal cytology and the presence of HPV (ACOG, 2016).

Background & Significance

Approximately 99% of cervical cancer is caused by the Human Papilloma Virus (HPV), a sexually transmitted disease (World Health Organization [WHO], 2021). There are 15 high-risk types of HPV, with the most prevalent high-risk strains known as HPV 16 and HPV 18 (Beckmann et al., 2019). Additionally, the U.S. cases of cervical cancer are 14,500 women per year and the mortality rate is 4,290 women per year (ACS, 2021). With these statistics in mind, there are several risk factors for cervical cancer. These risk factors include multiple sexual partners, the first age of intercourse below 18 years old, having a male sexual partner who has had a sexual partner with cervical cancer, smoking, HIV, organ transplant, sexually transmitted infection, diethylstilbestrol (DES) exposure, history of cervical cancer, history of high-grade

squamous intraepithelial lesions (HSIL), and infrequent or absent cervical cytology screening tests (Beckmann et al., 2019).

Purpose and Rationale

A national health initiative developed by the CDC provides free breast and cervical cancer screening, diagnostic testing, and treatment to low-income, underinsured, and uninsured women to help bridge the gap in health care access (CDC, 2021). Another national health initiative created to improve cervical cancer screening is Health People 2030. The Healthy People 2030 objective is to increase the proportion of women who receive cervical cancer screening to a baseline of 80.5% and a target goal of 84.3% (USDHHS & ODPHP, 2020).

Currently, the cervical cancer screening rate for the rural Northern Arizona health care organization is 78%, which is below the target goal of 84.3% set by the Healthy People 2030 national initiative (USDHHS & ODPHP, 2020). Improving cervical cancer screening rates can help diminish the rates of cervical cancer through the detection of high-risk HPV, cervical dysplasia, or cervical intraepithelial neoplasia (ACOG, 2016). Overall, identifying socioeconomic barriers to health care access for rural women can promote evidence-based interventions that positively affect cervical cancer screening outcomes.

Internal Evidence

The rural health care organization in Northern Arizona has identified soft data that impacts their routine cervical cancer screening rates. This soft data includes socioeconomic barriers, population education, and provider education. Furthermore, the socio-economic barriers that are the strongest predictors of deficient cervical cancer screening are rural location and insurance coverage (Harper et al., 2020).

Hard data provided by the key stakeholders shows an average cervical cancer screening rate of 78% for the health care organization located in Coconino County, Arizona. Although this rate does not seem significant, the Coconino County health care facility is the only location within the organization that did not see change, positive or negative, in their cervical cancer screening rates within the last year.

PICO

Overall, the soft and hard data identified by the health care organization is clinically significant and identifies potential community barriers to routine cervical cancer screening. Therefore, the data identified by the health care organization has led to the question, “in women dwelling in rural communities (P), how does administering a screening tool that identifies socioeconomic barriers to cervical cancer screening (I), compared to no screening tool (C), affects cervical cancer screening rates (O)?”

Evidence Synthesis

Search Strategy

An exhaustive review of current evidence was utilized to answer the PICOT question. Three databases were used to gather research including PubMed, ProQuest, and Cochrane as well as a review of the grey literature and hand-searching of references. Likewise, the databases were searched using keywords that addressed the components of the PICOT question. Words used to search for the population were combined using the Boolean connectors and included *rural women, United States, cervical cancer, cervical cancer screening, cervical cancer screening rates, and United States rural women*. Intervention search words include *screening tools, screening interventions, screening barriers, and cervical cancer screening barriers*. Filters utilized included publications between the years 2016-2021, English language, and peer-

reviewed journals. Inclusion criteria included rural women and cervical cancer screening.

Exclusion criteria included studies greater than five years old.

Cochrane

An initial search in Cochrane with the keywords *screening tool* and *cervical cancer* produced 4,022 results. To reduce the number of results, keywords *rural women* were added. The final search with these limitations and keywords produced 56 results. These 56 results were further reduced to a final yield of 10 studies through a rapid critical appraisal.

ProQuest

The initial search in ProQuest utilized the database PsychInfo and the keywords *United States rural women, cervical cancer, and screening barriers* with filters placed for results after 2016. This initial search yielded seven results. The final search was done through ProQuest utilizing 58 different databases and the keywords used were the *United States, rural women, cervical cancer screening rates, and screening interventions* which produced 3,920 results. These final results were further reduced through rapid critical appraisal and exclusion of predatory journals. Overall, 15 articles were retained for the applicability to the PICOT questions and their high level of evidence.

PubMed

The initial search in PubMed with the keywords *rural women, United States, and cervical cancer* yielded 283 results with the limits of 2016 or more recent. To narrow results, additional searches were conducted utilizing the keywords the *United States, rural women, cervical cancer screening barriers, and screening tools*. The final search using *cervical cancer rates and screening tools* produced 67 results. Additional searches using the keywords *cervical cancer screening* and *rural women* were utilized to find studies outside of the United States that were

qualitative, cross-sectional, or quantitative as these types of studies were limited in the US studies. The search yielded 363 results. After further appraisal through the rapid critical analysis, six studies were chosen due to the type of study, level of evidence, and validity.

Critical Appraisal

The rapid critical appraisal checklist developed by Melnyk and Fineout-Overholt (2019) was used to determine the quality of the chosen articles. Overall, the quality of the evidence was moderately high due to most studies being qualitative, a systematic review, or cross-sectional surveys without bias. Although the studies had different sample sizes and were conducted over different periods (see Appendix A, Table A1), the sample characteristics were similar. The majority of participants were women in rural settings between 35-65 years of age. All of the studies focused on different factors affecting cervical cancer screening in rural women. Four studies focused on cervical cancer screening barriers, three studies focused on patient knowledge of cervical cancer risks, and three studies focused on cervical cancer screening interventions. All studies produced similar concepts; geographical location correlates with cervical cancer screening uptake and cervical cancer risk knowledge. Studies focusing on interventions showed a significant increase in cervical cancer screening uptake compared to control groups.

Overall, evidence shows that defining and addressing specific socioeconomic barriers unique to rural women will improve cervical cancer screening rates. Common socioeconomic barriers identified in the literature exist at individual, institutional, community, and public policy levels. These themes include decreased cervical cancer screening follow up, negative family and social influences, decreased cervical cancer screening knowledge, fear or embarrassment of screening, convenience, self-efficacy, time, medical mistrust, and cost (Atere-Roberts et al., 2020; Binka et al., 2019; Hall et al., 2018; Liu et al., 2017; McGinnis et al., 2017; Megersa et al.,

2020; Moss et al., 2017; Wang et al., 2019; Weng et al., 2020; Yang et al., 2019). Applying this evidence to rural women in Coconino County by developing a screening tool to identify socioeconomic barriers to cervical cancer screening can pave the way for specific intervention development. Additionally, common interventions identified in the literature utilized to address decreased cervical cancer screening rates include increasing patient education, reducing structural barriers, decreasing costs, and increasing health care provider access (Atere-Roberts et al., 2020; Barrington et al., 2019; Falk et al., 2018; Smith-Gagen et al., 2019).

Theory Application

The outcomes suggested by the evidence apply to the Social Cognitive Theory (SCT) (see Appendix B, Figure 1). SCT proposes that behavioral change is determined by environmental, social, personal, and behavioral elements, and all of the elements influence one another (Bandura, 2004). The main concepts of SCT include self-efficacy and the ability to control health outcomes, outcome expectations such as benefits versus risks of health habits, an individual's health goals, and hindrances to overall health changes (Bandura, 2004). The four studies that identified barriers to cervical cancer screening in rural women had a common theme of self-efficacy, the ability of an individual to believe in themselves and obtain a certain outcome (Bandura, 2004). Likewise, the three studies focused on rural women's concept of cervical cancer risks help promote increased self-efficacy and cervical cancer screening uptake through patient education. Additionally, this self-efficacy can lead to improved cervical cancer screening, which further leads to goals of increased screening compliance. The four studies that reviewed barriers to cervical cancer screening correlate with the impediments portion of SCT (Bandura, 2004). Led to the three studies focused on cervical cancer screening interventions to overcome identified barriers. Overall, all of these studies reinforce the impact of environmental, social,

personal, and behavioral elements on behavioral change, specifically in rural women, and cervical cancer screening rates (Bandura, 2004). Change can be promoted through knowledge of health risks and the implementation of interventions to overcome socioeconomic barriers in rural women.

Only two of the studies explicitly stated the use of SCT. However, the remaining studies infer a health promotion model to better understand the influences of different factors and their impact on cervical cancer screening. Lastly, these factors are considered when developing interventions. For example, geographical location is a negative indicator of cervical cancer screening rates; therefore, interventions developed helped overcome geographical locations by use of patient navigators or telehealth services (Atere-Roberts et al., 2020; Barrington et al., 2019; Falk et al., 2018).

Overall, SCT is an appropriate guiding framework for the proposed evidence-based practice project, developing a screening tool that identifies socioeconomic barriers in rural women. This framework is appropriate because behavioral change is influenced by environmental, social, personal, and behavioral elements (Bandura, 2004). Therefore, evaluating socioeconomic barriers can identify specific barriers that can be addressed and overcome to improve cervical cancer screening rates in rural women as well as other preventive health services.

Implementation Framework

The implementation of this project is guided by the Lean Sigma Six framework (see Appendix B, Figure 2). This framework promotes work standardization and is fact-based and data-driven. The five components of Lean Sigma Six include *defining*, *measuring*, *analyzing*, *improving*, and *controlling* (American Society for Quality [ASQ], 2021). This framework is an

appropriate fit for the evidence-based practice project due to its ability to define socioeconomic barriers to cervical cancer screening in rural women, as well as its ability to define the selected intervention. Next, the framework can measure intervention outcomes, analyze areas of strengths and weaknesses, and provide opportunities for improvement. Finally, once the intervention has been evaluated through the Lean Sigma Six components, it can be fine-tuned until it is efficient and controlled (ASQ, 2021).

The Lean Sigma Six framework components build upon one another and are a process-oriented approach that helps lead providers to develop focused interventions (ASQ, 2021). The first step in this approach defines the socioeconomic barriers faced by rural women in Coconino County, Arizona. Next, these specific socioeconomic barriers can be measured and analyzed to develop an intervention to improve cervical cancer screening. Subsequently, this intervention is also subjected to the SCT and Lean Sigma Six framework to measure and analyze strengths and weaknesses to further refine and adapt the intervention to best address the socioeconomic barriers of rural women in Coconino County and improve cervical cancer screening outcomes (ASQ, 2021).

Methods

Ethical Considerations

Ethical principles should be evaluated when implementing a project to ensure participant and organization rights are protected. The development and utilization of a screening tool to evaluate socioeconomic barriers in rural women require the evaluation of several ethical factors, including intrapersonal, interpersonal, and organizational factors (Boutin-Foster et al., 2013; Stanford University, n.d.). Intrapersonal factors include the participant's knowledge, attitude, and individual behaviors towards cervical cancer screening. Next, interpersonal factors include

potential ethical considerations such as the provider-patient interaction. Developing a screening tool evaluating socioeconomic barriers to cervical cancer screening can promote the ethical principle of beneficence and justice by allowing equal preventive screening to participants despite barriers to health care access. Lastly, organizational factors such as rules and policies will promote non-maleficence by ensuring optimal evidence-based practice is utilized in participant screening and that participant information will be de-identified and stored appropriately according to the facility's requirements (Boutin-Foster et al., 2013; Stanford University, n.d.).

Human Subject Protection

Human subject protection will be ensured through the use of written informed consent (see Appendix C). Written informed consent will be provided before the initiation of the written project survey. This informed consent will outline the purpose of the survey and will ensure the participant that no identifying personal information will be obtained. Likewise, the participant will be assured that they may skip questions or stop the survey at any point. Overall, written informed consent will be provided to participants to provide participants with autonomy in decision-making processes.

Project Setting

The setting for the EBP project is an FQHC in rural Northern Arizona. The health care facility provides several services including behavioral health, care management, dental, diabetes support, lactation & breastfeeding support, OB/GYN, pediatrics, pharmacy, physical therapy, primary care, and virtual visits. A service developed and executed at this facility to address the health needs of the rural and underserved female population is the Well Woman HealthCheck Program (Arizona Department of Health Services [ADHS], 2021). The Well Woman HealthCheck program implements a one-day event called “See, Test, and Treat” that provides

comprehensive services such as clinical breast exams, mammograms, pelvic exams, and cervical cancer screening (ADHS, 2021).

Stakeholders

Key stakeholders for this event include personnel who work for or with the FQHC in Coconino County. This personnel includes program coordinators, program managers, education directors, women's health providers, event participants, and their families, as well as ancillary personnel vital to coordinating and implementing the one-day event.

Participants who are recruited for the one-day event through the health care organization's Well Woman HealthCheck Program must meet certain criteria. Inclusion criteria are women who are Arizona residents, uninsured or underinsured, between the ages of 21 to 65, below the poverty level or economically disadvantaged, and English or Spanish speaking. Exclusion criteria are women who are non-Arizona residents, below 21 years old, are not a participant of the "See, Test, and Treat" event, has Medicare Part B, have Arizona Health Care Cost Containment System (AHCCCS), or is currently diagnosed with cervical cancer.

Project Description

Project Instrument

The survey utilized at the one-day event was developed by Akinlotan et al. (2017). This survey was chosen due to its population and setting similarity to Coconino County. The survey identifies participant demographics, perceived physical and mental health, basic cervical cancer knowledge, perceived socioeconomic barriers to health care, family cancer history, and HPV vaccination knowledge and status (see Appendix D). This survey will be vital to the health care organization to address and overcome barriers to routine cervical cancer screening within their

community, which will ultimately promote practice change and the development of an intervention to overcome identified socioeconomic barriers to routine cervical cancer screening.

Project Timeline

The timeline of project implementation includes the use of the survey developed by Akinlotan et al. (2017) at the “See, Test, and Treat” event on September 18, 2021. This survey will be provided to both English and Spanish-speaking participants through the utilization of Citi-trained interpreters. After the event, the surveys will be analyzed and evaluated to determine statistically significant information that will be provided to the health care organization to determine socioeconomic barriers to routine cervical cancer screening as well as population-specific cervical cancer risk knowledge and the potential need for participant's education.

Data Analysis

A total of 50 participants received cervical cancer screening at the “See, Test, and Treat” event on September 18, 2021. Additionally, 17 project surveys were collected from women who met the inclusion and exclusion criteria. The collected surveys will be analyzed and evaluated through Intellectus to identify statistically significant data that can be utilized by the health care organization to address and improve participant and population outcomes.

“See, Test, and Treat” Event Budget

Cost Reimbursement

<i>Cost Reimbursement (Actual Expenditures)</i>	Approved Budget
<i>Federal Personnel</i>	\$94,000.00
<i>State Personnel</i>	\$30,000.00
<i>Federal Screening</i>	\$60,000.00
<i>Navigation Only</i>	\$6,600.00
<i>State Screening</i>	\$6,000.00
<i>State Other Operating Expenses</i>	\$3,000.00
<i>State Indirect Expenses</i>	\$3,500.00
<i>ADOT Screening</i>	\$12,000.00
<i>Total</i>	\$215,100.00

Approved Grant Supplied by College of American Pathologists

<i>Category</i>	Requested Grant Amount
<i>Medical Equipment</i>	\$0
<i>Exam, Laboratory, and Testing Supplies</i>	\$0
<i>Temporary Program Coordinator</i>	\$4,000.00
<i>Support Personnel</i>	\$4,000.00
<i>Marketing/Promotion</i>	\$2,500.00
<i>Translation Services (print materials and on-site)</i>	\$0
<i>Transportation</i>	\$0
<i>Children’s Activities</i>	\$272.00
<i>Meals</i>	\$2,500.00
<i>Total Requested Amount</i>	\$13,272.00

Funding Sources

<i>Approved Grants</i>	Contribution
<i>National Breast and Cervical Cancer Early Detection Program (NBCCEDP)</i>	NBCCEDP will cover allowable procedures and relevant CPT codes (see Appendix E)
<i>Arizona Department of Health Services</i>	\$215,100.00 (Indirect rate 22.71%)
<i>College of American Pathologists</i>	\$13,272.00
<i>Arizona Complete/Health Care First</i>	Approved – unknown amount

Budget Justification

After the event, the Well Woman Health Check Program provides all the follow-up services for the participants. Likewise, they cover the costs of the screening services provided to the participants as long as the CPT codes fall within the NBCCEDP Allowable Procedures and Relevant CPT Codes (see Appendix E). Lastly, if more services are provided than anticipated, the Arizona Department of Health Services will provide additional funding to cover the negative costs.

Results

Participant Demographics

The sample consisted of rural women ($n = 10$) receiving free breast and cervical cancer screening at a Federally Qualified Health Center in Northern Arizona. The sample consists of adults with the average age of the subjects being 47.50 ($SD = 12.76$) and the ages ranging from 24.00 to 63.00 years. The average Annual Income was 12,514.20 ($SD = 14,442.18$) which ranged from \$0.00 to \$50,000). Most of the sample lived in Coconino County ($n = 9, 90.00\%$). Half of them attended College ($n = 5, 50.00\%$). Also, over half of them were Uninsured ($n = 7, 70.00\%$) or utilized Private Insurance ($n = 3, 30.00\%$) indicating that over 70.00% were low-income. The majority of the sample was White or Caucasian ($n = 5, 50.00\%$), English speaking ($n = 6, 60.00\%$), and Single ($n = 5, 50.00\%$). Frequencies and percentages are presented in Tables 1 & 2 (see Appendix F).

General Health Demographics

The majority of participants answered Yes ($n = 7, 70.00\%$) to “Do you have a health care provider?” Also, the majority of the sample answered <6 months ($n = 7, 70.00\%$) when asked, “When was the last time you visited your provider?” The majority of the sample described their health as Good ($n = 4, 40.00\%$). Frequencies and percentages are presented in Table 3 (see Appendix G).

The participants were provided a Likert scale ranging from 1 to 5, with 1 being “never” and 5 being “always.” The most frequently observed category of “How often do you prepare a list of questions for your doctor?” was Always ($n = 4, 40.00\%$). The most frequently observed category of “How often do you ask questions about the things you want to know and the things you don’t understand?” was Always ($n = 5, 50.00\%$). The most frequently observed category of “How often do you discuss any personal problems that may be related to your illness?” was Always ($n = 4, 40.00\%$). The most frequently observed category of “How confident are you in

filling out medical forms by yourself?” was Always (n = 6, 60.00%). Frequencies and percentages are presented in Table 4 (see Appendix G).

All of the participants (n = 10) answered “How many days in the past month was your physical health not good?” with 0.00. The participants' responses to “How many days in the past month has your mental health not been good?” had a mean response of 1.70, with an SD of 3.13. The range was from 0.00 to 10.00. The summary statistics can be found in Table 5 (see Appendix G).

Pap Smear History

In addition to demographics, the survey asked participants about their pap smear history. When asked “Have you had a hysterectomy?” the majority of participants answered No (n = 9, 90.00%). The majority of participants identified their “Last pap smear” as Within the past 1 year (n = 6, 60%). Additionally, the majority of participants answered No (n = 5, 50.00%) to a history of “Abnormal pap smear.” They also answered False to “Have you or a member of your family had cervical cancer?” (n = 9, 90.00%). Most of the participants answered No to “Are you aware of the 3-part HPV vaccine series?” (n = 6, 60.00%). Similarly, the majority of participants answered No to “Have you received the HPV vaccine?” (n = 8, 80.00%) and “Have you completed the HPV vaccine series?” (n = 9, 90.00%). Frequencies and percentages are presented in Table 6 (see Appendix H).

Cervical Cancer Risk Factors

The participants were provided a 10-item True/False questionnaire to determine cervical cancer risk factor knowledge. Half of the participants responded TRUE (n = 5, 50.00%) to the question “...She has many sexual partners” as a risk factor for cervical cancer. The participant responses were divided, both TRUE and FALSE for the cervical cancer risk factor of “...She

smokes cigarettes” with an observed frequency of (n = 4, 40.00%). Likewise, the risk factor of “...She started having sex at a young age” was also divided between TRUE and FALSE, each with an observed frequency of (n = 4, 40.00%). Nearly half of the participants responded FALSE to the question “...She has unprotected sex” (n = 4, 40.00%). Conversely, the majority of participants responded TRUE to the question “...She does not go for regular pap smear tests” (n = 8, 80.00%), and the majority of responses to “...She has a sexually transmitted disease or virus” was TRUE (n = 7, 70.00%). Nearly half of the participants responded FALSE (n = 4, 40.00%) to the question “...She used birth control pills for a long time.” The responses were majority FALSE (n = 5, 50.00%) for the question of “...She has many children.” Less than half of the participants perceived “...She has a weakened immune system” as a cervical cancer risk factor with a response of FALSE (n = 4, 40.00%). Lastly, the majority of participants considered cervical cancer to have a genetic risk factor with an (n = 7, 70.00%) TRUE response rate to the question “...It runs in her family.” Frequencies and percentages are presented in Table 7 (see Appendix I).

Socioeconomic Barriers to Routine Cervical Cancer Screening

The participants were provided a Likert Scale survey that identified perceived socioeconomic barriers to routine cervical cancer screening. The responses ranged from 1 to 5, with 1 being “Strongly Disagree” and 5 being “Strongly Agree”. The majority of participants Strongly Disagreed that “Feelings of embarrassment” (n = 8, 80.00%), “Fear of finding cancer” (n = 7, 70.00%), “Transportation” (n = 9, 90.00%), “Cost” (n = 5, 50.00%), “Anxiety about procedure” (n = 8, 80.00%), “Lack of knowledge” (n = 9, 90.00%), “Lack of time” (n = 9, 90.00%), “Anticipation of pain” (n = 7, 70.00%), “Forgetting to schedule an appointment” (n = 6, 60.00%), “Other health problems” (n = 8, 80.00%), Language barriers” (n = 7, 70.00%),

and “Male physician” (n = 6, 60.00%) were barriers to routine cervical cancer screening. Frequencies and percentages are presented in Table 8 (see Appendix J).

Impact of Project & Sustainability

Identifying barriers to cervical cancer screening through an intake survey can have a positive impact on patients, providers, the FQHC, and policy development. The intake surveys identified a need for cervical cancer risk factor education within the surveyed community. Providing education can improve patient cervical cancer risk factor awareness, which can promote healthy lifestyle changes such as smoking cessation and increased routine cervical cancer screening. Additionally, healthcare professionals can promote improved cervical cancer education at well-woman exams and following up screening results from the “See, Test, and Treat” event. Lastly, the FQHC can promote the sustainability of the DNP project through a continuation of the intake survey. The survey can be revised and adapted to continue to meet the educational needs of the community identified by the participant responses. Additionally, health policy changes can be developed by the FQHC to develop educational resources and services to promote further learning for the community.

Discussion

Project Strengths & Facilitators

The intake survey has several strengths and facilitators for continuation. First, the survey applies to all rural settings because the survey questions are general and not specific to the FQHC community. Next, the surveys were implemented at a one-day event, allowing participants to have ease of accessibility and promote response uptake. Additionally, the survey was translated into Spanish, so more participants were able to respond to the intake survey. Lastly, the survey identified an unawareness of cervical cancer risk factor knowledge, which will

allow the FQHC to develop population-specific interventions to overcome this lack of cervical cancer risk factor knowledge.

Project Limitations & Barriers

The intake survey had a few limitations and barriers. First, the inclusion and exclusion criteria for the participants were too narrow. Eight survey responses had to be omitted because participants did not fall in the correct age range or had Medicaid. Additionally, the event was open to the public, but attendees who were not enrolled in the Well Woman HealthCheck Program were not able to participate in the intake survey. Having more broad criteria would allow for a greater range of responses that would better reflect the community. Next, the survey respondents were self-reported, which may influence the accuracy of responses. Similarly, participants were recruited by the FQHC, so the participants were intentional about receiving cervical cancer screening, therefore their knowledge of risk factors may not be an accurate depiction of cervical cancer knowledge for the community. Lastly, the survey was not able to be revised by the FQHC before the event, so the language was not evaluated for its inclusivity. For example, one of the questions used the language “male physician” rather than the more appropriate term “male provider.”

Survey Results & Current Literature

The intake survey results correlate with current literature regarding barriers to cervical cancer screening. Although the survey did not identify any socioeconomic barriers to cervical cancer screening, the survey did identify an unawareness of cervical cancer risk factors knowledge. Likewise, the literature identifies education as an influence on cervical cancer screening. The more aware women are of cervical cancer and risk factors, the more likely they

are to receive routine cervical cancer screening (Binka et al., 2019; Liu et al., 2017; Megersa et al., 2020; Weng et al., 2020; Yang et al., 2019).

Future Recommendations

Future recommendations based on the intake survey results include the development of evidence-based interventions to evaluate the impact of education on routine cervical cancer screening. Development of educational interventions can be achieved through the participant, provider, healthcare system, and policy involvement. The healthcare system can develop policy changes to promote educational services and the healthcare providers can facilitate the implementation of the educational services to patients in the community. Evaluation of the educational interventions through a pre and post-test of cervical cancer risk factor knowledge can further evaluate the efficacy of the education and promote further adaptations of education, with the ultimate goal of improving community cervical cancer screening rates.

Conclusion

Designing and implementing a screening tool that identifies socioeconomic barriers to cervical cancer screening in rural women will provide the foundation for future interventions to address the identified barriers to preventive health screenings. Ultimately, if this evidence is utilized to change health practices, it is the goal that cervical cancer screening rates will increase and meet the Healthy People 2030 objective, ultimately improving community health outcomes (USDHHS & ODPHP, 2020). Lastly, it is the future aspiration that the screening tool can be utilized in different populations and adapted to meet different medical conditions to identify and overcome barriers to other health outcomes. Overall, this provides the opportunity to identify and improve multiple barriers to health care services across the healthcare organization, leading to improved patient and community quality of life.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table

Citation	Theory/ Conceptual Framework	Design/Method/ Sampling	Sample/Setting (Describe)	Major Themes Studied/Defini tions	Measurement/I nstrumentation	Analysis	Findings	Decision for Use
(Yang et al., 2019). Barriers to cervical cancer screening among rural women in eastern China: A qualitative study Funding: China Medical Board Open Competition Grant [Grant #CMB14-195]	Inferred HPDPT	Design: QS Purpose: To explore barriers to free CCS among RW in China from the perspective of women, HC providers and husbands	N: 39 n: 21 women n: 14 providers n: 4 husbands Setting: 2 counties in Jining Prefecture of eastern China Sample Demographics: Women: MA: 48 Ages: 37 to 60 years Married: 95.2% EL: primary or below Previous CCS: 52.4%	IV1: Knowledge of CC IV2: Barriers to CC DV: CCS rates	Semi-structured IDI 17-item questionnaire (pretest before interview) FGD	Transcribed IDI & FGD - subjected to thematic analysis All IDI & FGD - digitally recorded	Five major themes: (1) gaps in knowledge of CC and health awareness (2) fear of cancer and screening outcomes (3) cultural barriers (4) influence of close contacts	LOE: VI Strengths: Detailed/in-depth responses Relevant information to policy makers to create interventions for CCS Weaknesses: Purposive sampling: May bias findings Possible social acceptability bias w/FGD QS may limit generalizability for different settings

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

<p>Bias: None recognized</p> <p>Country: China</p>			<p>HC Providers: MA 42.6 EL junior college or greater Medical Practitioners: 50%</p> <p>Husbands: MA: 50.7 All: small-hold farmers</p> <p>Inclusion Criteria: Women, Ages 35-64 Resides in study township UE No CCS or failure to attend FU</p> <p>Attrition: None</p>				<p>(5) inconvenience</p>	<p>Conclusions: This QS identified common themes among RW in China and their perception of CCS</p> <p>F&A pt. population: The themes identified are F&A to RW and may help HC organizations overcome barriers to CCS.</p>
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
<p>(Binka et al., 2019). Barriers to the uptake of cervical cancer screening</p>	<p>Socioecological Model of McLeroy et al.</p>	<p>Design: QS</p> <p>Purpose: To explore the barriers to the uptake of CCS and treatment in</p>	<p>Group 1: N: 15 CC patients who attended the gynecology unit of the Battor Catholic Hospital</p>	<p>IV: Barriers to CCS</p> <p>DV: CCS rates & treatment</p>	<p>Group 1: IDIs</p> <p>Group 2: IDIs</p> <p>FGD</p>	<p>3 RA: Transcribed TRI to English</p> <p>TRI – sent to experts for validity</p>	<p>Barriers: Individual, institutional, community, & policy-level</p>	<p>LOE: VI</p> <p>Strengths: Not explicitly stated. Potential strengths include implementing intervention</p>

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

<p>and treatment among rural women in Ghana</p> <p>Funding: None stated</p> <p>Bias: None recognized</p> <p>Country: Ghana</p>		<p>the North Tongu district of Ghana</p>	<p>in the North Tongu District, Volta Region, Ghana</p> <p>Group 2: N: 10 Women MA 30-65 registered at the Battor Catholic Hospital who have no CCS</p> <p>FGD: N: 30 3 groups Ages 35-65</p> <p>Setting: Battor Catholic Hospital in the North Tongu District of the Volta Region, Ghana</p> <p>Sample Demographics: Group 1: Age 30-50 EL: Secondary ≤</p> <p>Inclusion Criteria:</p>			<p>RQDA</p>	<p>that address the identified barriers</p> <p>Weaknesses: Limited sample sizes and the limited feasibility to apply this study to other HC settings</p> <p>Conclusions: Several barriers were identified that may impact CCS. This includes individual knowledge, and funding for screening/treatment</p> <p>F&A pt. population: Although these specific barriers may apply to other rural HC facilities and women, there may be different personal barriers and specific organizational barriers that may make this study difficult to apply to other HC facilities.</p>
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Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
(Weng et al., 2020). Women's knowledge of and attitudes toward cervical cancer and cervical cancer screening in Zanzibar, Tanzania: A cross-sectional study Funding: National Natural	Inferred HPDPT	Design: XSS Purpose: To describe RW's awareness of CC and to explore the attitudes toward, acceptability of and barriers to CCS (CCS) in Zanzibar	N: 1483 Setting: 5 wards from 10 administrative districts Sample Demographics: Women MA: 32.86, Majority: Muslim & married MP: 2.96 EL: Secondary Previous CCS: 4.83% Inclusion Criteria: Women ages 14-65	IV: Factors associated w/screening DV: CCS	33 item questionnaire: general demographics 3 close-ended questions: attitude towards screening 14 close-ended questions: determine awareness of CC	STATA Pearson Chi-square Fisher's exact tests ANOVA Meta Analyses: Multiple logistic & linear regression model	Women had inadequate knowledge on CCS Screening decision associated with education, family income, and family history of cancer	LOE: V Strengths: Situation-based use of a mixed refinement of previous questionnaires Face-to-face interviews that were double checked The study was conducted in all districts of Zanzibar, including remote rural areas, which could to some extent represent the cognitions of and attitudes toward CC and screening in the general population in Zanzibar

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<p>Science Foundation of China (81701475)</p> <p>Bias: None recognized</p> <p>Country: China</p>			<p>Attrition: 17</p>				<p>The first to indicate that schistosomiasis infection was a significant positive predictor of CCS uptake</p> <p>Weaknesses: The district effect on women’s willingness to participate in free or non-free screening was not checked</p> <p>Cross-sectional studies only show implied correlation</p> <p>Conclusions: This study showed the need for education to promote CCS and diminish misperceptions of CC causes</p> <p>F&A pt. population: This cross-sectional study specifically applies to the 5 wards chosen within the 10 districts, although several of the correlations may pertain to different RW, the outcomes may not be the same.</p>
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Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
<p>Citation (Musa et al., 2017). Effect of cervical cancer education and provider recommendation for screening on screening rates: A SR and meta-analysis</p> <p>Funding: Grant #D43TW009575 from NIH Fogarty International Center and the National Cancer Institute</p> <p>Bias: None recognized</p>	SCF & SEM	<p>Design: SR & Meta-analysis</p> <p>Purpose: To evaluate the effect of CC education and PE on CCS rates</p>	<p>N: 28 studies</p> <p>Setting: Studies were chosen from several countries: Australia, Belgium, Canada, Finland, France, Germany, Italy, Japan, Kenya, Malaysia, Mexico, Sweden, Taiwan, Thailand, and USA</p> <p>Sample Demographics: Women</p> <p>Inclusion Criteria: RCT, cluster RCT, & quasi-experimental designs</p> <p>Attrition: N/A</p>	<p>IV1: CC education Theory-based CC education interventions</p> <p>1. CC education</p> <p>2. Provider recommendation</p> <p>IV2: Provider recommendations</p> <p>DV: Participation in CCS programs</p>	<p>PICO “What is the effect of CC education on CCS rates in women population eligible for CCS?”</p> <p>“What is the effect of provider recommendation for CCS on CCS rates in women population eligible for CCS?”</p>	<p>PRISMA Polling effect: RevMan 5.3 Review Manager software</p> <p>Heterogeneity: Higgins I² statistic.</p> <p>Graphic display: Relevant forest plots</p> <p>Statistical estimates of interventions OR and random effects models meta-analysis</p> <p>Publication bias: funnel plots generated by RevMan 5.3</p>	<p>Theory-based educational interventions significantly increased CCS rates (OR, 2.46, 95% CI: 1.88, 3.21) self-sampling for Human Papillomavirus (HPV) testing increased CCS rates by nearly 2-fold (OR = 1.71, 95% CI: 1.32, 2.22)</p>	<p>LOE: I</p> <p>Strengths: Comprehensive search, study guided by a published SR protocol</p> <p>Weaknesses: No secondary outcome data</p> <p>Conclusions: SR supports the use of theory-based CC education interventions</p> <p>F&A pt. population: The interventions identified in the meta-analysis can be applicable to CC education in developed and developing countries. This information is limited to CC education only.</p>

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Country: USA								
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
<p>Citation (Atere-Roberts et al., 2020). Interventions to increase breast and cervical cancer screening uptake among rural women: a scoping review</p> <p>Funding: None stated</p> <p>Bias: None stated</p> <p>Country: USA</p>	SCF	<p>Design: SR</p> <p>Purpose: To review literature for interventions to increase BCC screening</p>	<p>N: 8</p> <p>Setting: USA</p> <p>Sample Demographics: RW</p> <p>Inclusion Criteria: Peer-reviewed journal, English, published January 2006 to October 2019, provided intervention for cervical or breast cancer, reported outcome data,</p> <p>Attrition: N/A</p>	Interventions include PN strategies, educational outreach programs, peer counseling, and small media initiatives	Scoping review of PubMed to identify BCC screening interviews conducted in rural settings	PRISMA	<p>Group Education: English speaking Latina women showed decreased CCS odd (OR 0.66 (0.47-0.92)) Spanish speaking Latina women showed increased odds (OR 1.64 (1.22-2.20))</p> <p>One on One Education: Increased CCS w/individual lay health advisor</p>	<p>LOE: I</p> <p>Strengths: First study to focus on BCC interventions in rural populations</p> <p>Weaknesses: Search restricted to PubMed, strict inclusion criteria</p> <p>Conclusions: This study reviewed literature that may help promote the development of BCC interventions</p> <p>F&A pt. population: Limited feasibility. Applicable to rural communities in the USA for BCC interventions</p>

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Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
							education (OR 1.70; 1.31, 2.221) Multicomponent Education: No significant changes noted	
Citation (Harper et al., 2020). Three large scale surveys highlight the complexity of cervical cancer underscreening among women 45-65 years of age in the United States Funding:	Inferred HPDPT	Design: 3 National Health Surveys Purpose: To describe predictors of CC underscreening in women 46-65	N: 44,065 BRFSS: n=41,747 HINTS: n=745 HCPC: n=1,573 Setting: USA Sample Demographics: Women, ages 45-65 Inclusion Criteria: women, MA 45-65, without hysterectomy Attrition: N/A	IV: Elderly women & socioeconomic predictors DV: CCS	National Health Surveys BRFSS – telephone survey by each state’s health department HINTS – questionnaire HCPC – one on one interview	Univariate & Multivariate Analysis	Elderly RW locations were less likely to receive CCS	LOE: V Strengths: Description of results from 3 large national surveys Weaknesses: Different survey years, self-reported responses, different sampling frames, different survey sample sizes, changing professional guidelines; limited specified age range Conclusions: CCS for older women is below the 70% national goal. Age, insurance, and education impact CCS

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<p>Michigan Institute for Clinical and Health Research UL1TR0022 40 & The University of Michigan Rogel Cancer Center P30CA0465 92 grants</p> <p>Bias: None stated</p> <p>Country: USA</p>								<p>F&A pt. population: The analysis applies to women ages 45-65 across the USA.</p>
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
<p>Citation (Liu et al., 2017). Assessing knowledge and attitudes towards cervical cancer screening</p>	<p>Inferred HPDPT</p>	<p>Design: XSS</p> <p>Purpose: To assess knowledge and attitude towards CC and screening among rural women</p>	<p>N: 420</p> <p>Setting: 4 counties of Jining</p> <p>Sample Demographics: Women, 30-65yo</p>	<p>IV: Attitudes & knowledge about CC</p> <p>DV: CCS</p>	<p>Face-to-face interviews using questionnaires with trained interviewers</p>	<p>Binary logistic regression</p>	<p>Majority of participants had positive attitudes towards CCS</p> <p>HC providers impact</p>	<p>LOE: V</p> <p>Strengths: None stated</p> <p>Weaknesses: Not generalizable, questionnaire used only analyzed quantitative data, not qualitative</p>

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

among rural women in eastern China			Inclusion Criteria: Women, MA 30-65, without hysterectomy, sexually active				health promotion of CCS Age, level of income, and education impact knowledge of CC	Conclusions: Overall positive attitude towards CC, but limited knowledge on CCS F&A pt. population: Not generalizable, specific to the 4 counties of Jining
Funding: None stated			Attrition: 15					
Bias: None stated								
Country: China								
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
Citation (Megersa et al., 2020) Community cervical cancer screening: Barriers to successful home-based HPV self-sampling in	HBM	Design: QS Purpose: To explore barriers to self-sampling CCS	N: 47 Setting: University of Gondar Sample Demographics: Women, MA 28-40, primarily married, uneducated	IV: Barriers to HPV self-sampling DV: HPV self-sampling rates	IDI, FGD	Audio recorded data transcribed, thematic analysis	Lack of knowledge about CC Common barriers to self-sampling HPV: lack of education, perceived	LOE: VI Strengths: Identified screening barriers Weaknesses: Men’s opinion was not evaluated; study was conducted 2 years after the pilot study

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

<p>Dabat district, North Gondar, Ethiopia. A qualitative study</p> <p>Funding: Open Society Foundation; Baden-Wu"rttemberg Ministry of Science; Research and the Arts; Ruprecht-Karls-Universita"t Heidelberg</p> <p>Bias: None stated</p> <p>Country: Ethiopia</p>			<p>Inclusion Criteria: Women who had participated in a home-based HPV sampling pilot study</p> <p>Attrition: None stated</p>				<p>healthy status, social influence, husband disapproval, religion</p>	<p>Conclusions: This study identified additional barriers to self-sampling</p> <p>F&A pt. population: Feasible to the hospital setting at the University of Gondar due to specific women socioeconomic factors</p>
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
Citation	Inferred HPDPT	Design: Intake survey & 10-	N: 524	IV: SB	10-item questionnaire –	Descriptive & Multivariate	Education attainment	LOE: V

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

<p>(Akinlotan et al., 2017). Cervical cancer screening barriers and risk factor knowledge among uninsured women</p> <p>Funding: Cancer Prevention and Research Institute of Texas (Grant # PP130090)</p> <p>Bias: None stated</p> <p>Country: USA</p>		<p>item true/false questionnaire</p> <p>Purpose: To identify correlations between CC risk factor knowledge and examine SB to screening among a group of low-income uninsured women</p>	<p>Setting: 17 counties in Texas</p> <p>Sample Demographics: uninsured women, race/ethnicity: Black, non-Hispanic white, Hispanic</p> <p>Inclusion Criteria: Women with income below 250% PL, 21 or older, without hysterectomy</p> <p>Attrition: 145</p>	<p>DV: CC risk knowledge</p>	<p>true/false to determine CC risk factor knowledge</p> <p>10-item questionnaire with Likert scale to measure patient's perceived barriers</p>	<p>Chi Square</p>	<p>inversely correlates with risk knowledge</p> <p>3.2% of participants unaware of any CC risk factors</p> <p>70% of participants knew CC correlated w/sexual activity</p> <p>60% knew CC risk correlated w/multiple sex partners</p> <p>64.4% knew CC risk correlated w/being immunocompromised</p> <p>Only 8% knew all risk</p>	<p>Strengths: None stated</p> <p>Weaknesses: Questionnaire was given to women already presenting for CCS</p> <p>Conclusions: Study highlights level of awareness of CC risk factors</p> <p>F&A pt. population: The surveys in this study could be utilized for all women to evaluate CC risk knowledge</p>
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Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

							factors for CC	
Citation	Conceptual Framework	Design/Method	Sample/Setting	Major Variables & Definitions	Measurement	Analysis	Findings	Decision for Use
<p>Citation (Barrington et al., 2019). Patient navigator reported patient barriers and delivered activities in two large federally-funded cancer screening programs</p> <p>Funding: None stated</p> <p>Bias: None stated</p> <p>Country: USA</p>	<p>Inferred HPDPT</p>	<p>Design: XSS</p> <p>Purpose: Characterize PNs within NBCCEDP & CRCCP</p> <p>Collect data directly from PN's within federally funded screening programs</p>	<p>N: 582</p> <p>n: 410 breast & cervical n: 172 colorectal</p> <p>Setting: PN's working for NBCCEDP or CRCCP</p> <p>Sample Demographics: majority female, college education, English, heterosexual, health professional</p> <p>Inclusion Criteria: PN's working for NBCCEDP or CRCCP</p> <p>Attrition: None stated</p>	<p>IV: PN</p> <p>DV: Perceived patient barriers</p>	<p>Online survey</p>	<p>Descriptive statistics z-statistic</p>	<p>Common patient barriers identified were related to SB. Unique findings from PN's included patient transportation and scheduling</p>	<p>LOE: V</p> <p>Strengths: Data from a large nationally represented navigator</p> <p>Weaknesses: Low response to survey</p> <p>Conclusions: Common SB identified by PN's.</p> <p>F&A pt. population: Feasible in rural and underserved communities due to similar SB identified</p>

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

Table A2

Synthesis Table

Study Characteristics	Yan et al.	Binka et al.	Weng et al.	Musa et al.	Atere-Roberts et al.	Harper et al.	Liu et al.	Megersa et al.	Akinlotan et al.	Barrington et al.
Year	2019	2019	2020	2017	2020	2020	2017	2020	2017	2019
XSS			•				•			•
SR				•	•					
QS	•	•						•		
Survey						•			•	
# Participants	39	55	1483	28	8	44,065	420	47	524	582
Theory	Inferred HPDPT	Socioecological Model of McLeroy et al.	Inferred HPDPT	SCF & SEM	SCF	Inferred HPDPT	Inferred HPDPT	HBM	Inferred HPDPT	Inferred HPDPT
Measurement Tools	IDI, Questionnaire, FGD	IDI, FGD	Questionnaire 3 close-ended questions, 14 close-ended questions	PICO	Scoping review of PubMed	3 National Health Surveys	Face-to-face interviews	IDI, FGD	10-item questionnaire true/false & Likert	Online survey
Country	China	Ghana	China	USA	USA	USA	China	Ethiopia	USA	USA
Demographics										
Mean Age	48	30-65	32.86	N/A	N/A	45-65	30-65	28-40	21<	<40
Independent Variables										

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

Knowledge of CC	•						•			
Barriers to CC	•	•								
Factors associated w/screening			•							
CC education				•	•					
Provider recommendation				•						
Peer counseling					•					
Small media initiatives					•					
Socioeconomic predictors						•				
Elderly women						•				
PN					•					•
SB								•		
Barriers to HPV self-sampling								•		
Dependent Variables										
CCS rates	•	•	•		•		•			
CCS treatment		•								
Participation in CCS programs				•						

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

HPV self-sampling rates									•		
CC risk knowledge										•	
Perceived patient barriers											•
Findings											
Gap in CC knowledge & health awareness	•			•							•
Fear of CC & screening outcomes	•										
Cultural barriers	•										
Social influence	•			•					•		
Inconvenience	•										
Organizational barriers			•								
Education increased CCS rates						•			•	•	
Self-sampling HPV increases CCS rates						•			•		
Group education							•				

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

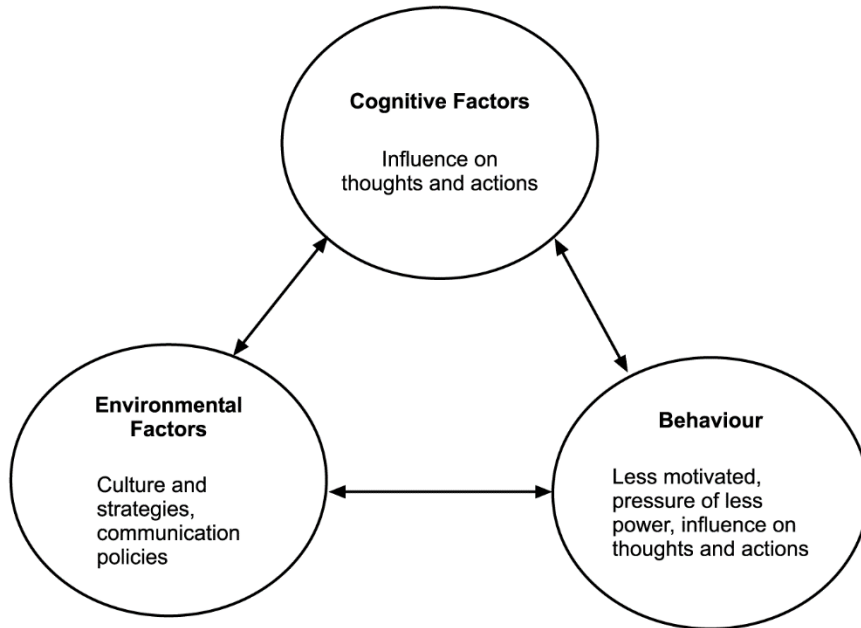
increases CCS rates										
One on one education increases CCS rates					•					
Multicomponent education does not impact CCS rates					•					
Elderly RW have decreased CCS rates						•				
Positive attitude towards CCS							•			
HC providers positively impact CCS rates							•			
SB correlate w/CC knowledge							•			•

Key: ANOVA- analysis of variance; BCC – breast and cervical cancer; BRFSS - Behavioral Risk Factor Surveillance System; CC – cervical cancer; CCS - cervical cancer screening; CRCCP – Colorectal Cancer Control Program; DV – dependent variable; EL – education level; F&A – feasibility and applicability; FGD – focus group discussion; FU – follow-up; HBM – health belief model; HC – health care; HCPS - Health Center Patient Survey; HINTS -Health Information National Trends Survey; HPDPT – Health Promotion Disease Prevention Theory; HPV – Human Papilloma Virus; IDI – In-depth interview; IV – independent variable; LOE – level of evidence; MA – mean age; MP – mean parity; N – number of participants; N/A – not applicable; NBCCEDP – National Breast and Cervical Cancer Early Detection Program; OR – odds ratio; PE – provider education; PICO – population, intervention, comparison, outcome; PL – poverty level; PN – patient navigator; PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-analysis; pt – patient; QS – qualitative study; RA – research assistants; RCT – randomized control trial; RQDA - R programming language package for Qualitative Data Analysis; RW – rural women; SB – socioeconomic barriers; SCF – social cognitive framework; SEM – social ecological model; SR – systematic review; TRI – tape recorded interviews; UE – unemployed; USA – United States of America; XSS – cross-sectional survey

Appendix B

Figure 1

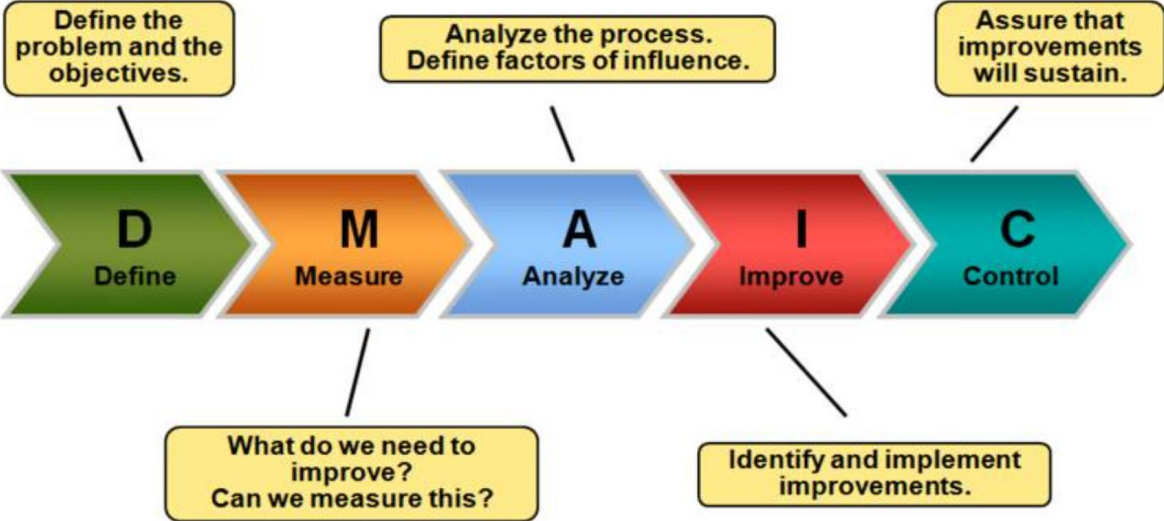
Social Cognitive Theory



Vancouver et al. (2002).

Figure 2

Lean Sigma Six Model



Rastogi (2021).

Appendix C

Written Informed Consent

Socioeconomic Barriers in Rural Women and Cervical Cancer Screening: A Gap Analysis

I am a graduate student under the direction of Dr. Patricia Janicek in the Women's Health Nurse Practitioner program in the Edson College of Nursing and Health Innovation at Arizona State University. I am conducting a research study to identify socioeconomic barriers in rural women that prevent routine cervical cancer screening.

I am inviting your participation, which will involve 20 to 30 minutes in completing a survey that identifies demographic information, basic cervical cancer knowledge, and perceived barriers to routine cervical cancer screening. You have the right not to answer any question, and to stop participation at any time.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be 21 or older to participate in this study.

Your responses to the survey will be used to identify socioeconomic barriers that impact routine cervical cancer screening which can lead to the development of interventions to overcome the identified socioeconomic barriers. There are no foreseeable risks or discomforts to your participation.

Your responses will be anonymous and no identifiable participant information will be collected. The results of this study may be used in reports, presentations, or publications but your name will not be used.

If you have any questions concerning the research study, please contact the research team at: ltparkma@asu.edu or PatriciaJanicek@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788. Please let me know if you wish to be part of the study.

Appendix D

Project Survey

Age: _____

As of today, how many people live in your household (including yourself)? _____ # of people.

Insurance status: Uninsured Medicare Medicaid Private Insurance

What is your family yearly income? _____

What is your county of residence? Apache Cochise Coconino Gila Graham
 Green Lee La Paz Maricopa Mohave Navajo
 Pima Pinal Santa Cruz Yavapai Yuma
 Other (please specify): _____

Sex: Male Female

What is your primary language? English Spanish English/Spanish

What is your home address' zip code? _____

What is your current marital status? (Please check only one). Single Married Living with partner

What is the highest level of education you completed? (Please check only one).
 None Kindergarten Middle School High School Vocational College College Graduate school

Are you Hispanic or Latino? Yes No Don't know/Not sure Prefer not to answer

Which of the following would you say best describes your race?
 American Indian or Alaskan Native Asian Black or African American
 Native Hawaiian or other Pacific Islander White or Caucasian Other (please specify): _____

How did you first hear about our screening program?
 Community event Physician/health care provider Family member/friend
 Other (please specify): _____

Do you have a regular doctor or healthcare provider? Yes No

When was the last time you visited your healthcare provider? <6 months 6 months-1 year > 1 year

When you visit your doctor or healthcare provider, how often do you do the following (please circle):

	Never	Rarely	Sometimes	Often	Always
Prepare a list of questions for your doctor....	1	2	3	4	5
Ask questions about the things you want to know and things you don't understand about your treatment...	1	2	3	4	5
Discuss any personal problems that may be related to your illness...	1	2	3	4	5
How confident are you filling out medical forms by yourself?	1	2	3	4	5

Would you say that in general your health is: (Please check only one).
 Excellent Very Good Good Fair Poor

Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? _____ Days.

Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good? _____ Days.

“A pap test is a procedure where a physician scrapes for cells from the cervix or vagina to check for cervical or vaginal cancer. If you have had a hysterectomy to remove the uterus, you no longer need a pap test.”

Have you had a hysterectomy? Yes No Not sure

If answer is no, skip to T/F questions.

When was your last pap test Never had Within past 1 year 1-2 years >2years Not sure

Have you ever had an abnormal result from a pap test? Yes No Not sure

Did a doctor or healthcare provider refer you here today? Yes No

Who referred you here today? Self Doctor/health care provider Other

Name of doctor/healthcare provider if applicable: _____

Name of clinic or agency/organization name if applicable: _____

“We want to know what you know now, so we can figure out how best to help you with information.”

At what age should people start having a pap test?

“Please answer True or False to the following statements: A woman is more likely to have cervical cancer if...”

...she has had many sexual partners. True False Not sure

...she smokes cigarettes. True False Not sure

...she started having sex at a young age. True False Not sure

...she has unprotected sex. True False Not sure

...she does do not go for regular (Pap) smears/tests. True False Not sure

...she has a sexually transmitted disease or virus. True False Not sure

...she used birth control pills for a long time. True False Not sure

...she has many children. True False Not sure

...she has a weakened immune system (e.g. because of HIV/AIDS, immunosuppressant drugs or having a transplant). True False Not sure

...it runs in her family. True False Not sure

“In the past, to what extent were the following items barriers (obstacles) to your receiving a pap test?”
(please circle **one** number for each question):

	Strongly Disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree
Feelings of embarrassment	1	2	3	4	5
Fear of finding cancer	1	2	3	4	5
Transportation	1	2	3	4	5

Cost	1	2	3	4	5
Anxiety about procedure	1	2	3	4	5
Lack of knowledge	1	2	3	4	5
Lack of time	1	2	3	4	5
Anticipation of pain	1	2	3	4	5
Forgetting to schedule an appointment	1	2	3	4	5
Other health problems	1	2	3	4	5
Language barriers	1	2	3	4	5
Male physician	1	2	3	4	5
<i>Family/Personal History</i>					
Have you or any member of your family (mother, sister, daughters) had cervical cancer?					
<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> Not sure					
Are you aware that there is a 3-part vaccine that can protect against most forms of cervical cancer					
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure					
If yes, have you ever received an HPV vaccine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure					
If yes, was the 3-part series completed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure					

Appendix E

2021 NBCCEDP Allowable Procedures and Relevant CPT Codes

2021 NBCCEDP Allowable Procedures and Relevant CPT® Codes

Listed below are allowable procedures and the corresponding suggested Current Procedural Terminology (CPT) codes for use in the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) under these general conditions:

- Grantees are required to be responsible stewards of the NBCCEDP funds and use screening and diagnostic dollars in an efficient and appropriate manner.
- When questions arise regarding the appropriateness to use a specific CPT code, the grantee should discuss with their local medical consultants and CDC to determine appropriateness.
- The CPT codes listed are not all-inclusive and grantees may add other, including temporary, CPT codes for an approved procedure.

CPT Code	Office Visits	End Note	Professional Component (-26)	Technical Component (-TC)	Total
G2025	Telehealth visit.				\$ 99.45
99202	New patient; medically appropriate history/exam; straightforward decision making; 15-29 minutes.				\$ 71.64
99203	New patient; medically appropriate history/exam; low level decision making; 30-44 minutes.				\$ 110.42
99204	New patient; medically appropriate history/exam; moderate level decision making; 45-59 minutes.	1			\$ 165.29
99205	New patient; medically appropriate history/exam; high level decision making; 60-74 minutes.	1			\$ 218.34
99211	Established patient; evaluation and management, may not require presence of physician; presenting problems are minimal.				\$ 22.18
99212	Established patient; medically appropriate history/exam; straightforward decision making; 10- 19 minutes.				\$ 55.12
99213	Established patient; medically appropriate history/exam; low level decision making; 20-29 minutes.				\$ 89.83
99214	Established patient; medically appropriate history/exam; moderate level decision making; 30-39 minutes.				\$ 127.59

CPT Code	Office Visits	End Note	Professional Component (-26)	Technical Component (-TC)	Total
99385	<i>Initial</i> comprehensive preventive medicine evaluation and management; history, examination, counseling and guidance, risk factor reduction, ordering of appropriate immunizations and lab procedures; 18 to 39 years of age.	2			\$ 110.42
99386	Same as 99385, but 40 to 64 years of age.	2			\$ 110.42
99387	Same as 99385, but 65 years of age or older.	2			\$ 110.42
99395	<i>Periodic</i> comprehensive preventive medicine evaluation and management; history, examination, counseling and guidance, risk factor reduction, ordering of appropriate immunizations and lab procedures; 18 to 39 years of age.	2			\$ 89.83
99396	Same as 99395, but 40 to 64 years of age.	2			\$ 89.83
99397	Same as 99395, but 65 years of age or older.	2			\$ 89.83

CPT Code	Screening and Diagnostic Procedures	End Note	Professional Component (-26)	Technical Component (-TC)	Total
Various	To include any pre-operative testing procedures medically necessary for the planned surgical procedure (e.g., complete blood count, urinalysis, pregnancy test, pre-operative CXR, etc.).				
G0279	Diagnostic digital breast tomosynthesis, unilateral or bilateral.	4	\$ 29.43	\$ 24.22	\$ 53.66
10004	Fine needle aspiration biopsy without imaging guidance, each additional lesion.				\$ 50.78
10005	Fine needle aspiration biopsy including ultrasound guidance, first lesion.				\$ 134.41
10006	Fine needle aspiration biopsy including ultrasound guidance, each additional lesion.				\$ 60.12
10007	Fine needle aspiration biopsy including fluoroscopic guidance, first lesion.				\$ 303.11
10008	Fine needle aspiration biopsy including fluoroscopic guidance, each additional lesion.				\$ 161.27
10009	Fine needle aspiration biopsy including CT guidance, first lesion.				\$ 464.76
10010	Fine needle aspiration biopsy including CT guidance, each additional lesion.				\$ 275.10
10011	Fine needle aspiration biopsy including MRI guidance, first lesion.	8			\$ 464.76

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CPT Code	Screening and Diagnostic Procedures	End Note	Professional Component (-26)	Technical Component (-TC)	Total
10012	Fine needle aspiration biopsy including MRI guidance, each additional lesion.	8			\$ 275.10
10021	Fine needle aspiration biopsy without imaging guidance, first lesion.				\$ 101.52
19000	Puncture aspiration of cyst of breast.				\$ 106.27
19001	Puncture aspiration of cyst of breast, each additional cyst, <i>used with 19000</i> .				\$ 26.77
19081	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; stereotactic guidance; first lesion.	6			\$ 564.38
19082	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; stereotactic guidance; each additional lesion.	6			\$ 450.60
19083	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; ultrasound guidance; first lesion.	6			\$ 564.72
19084	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; ultrasound guidance; each additional lesion.	6			\$ 442.50
19085	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; magnetic resonance guidance; first lesion.	6			\$ 866.35
19086	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; magnetic resonance guidance; each additional lesion.	6			\$ 684.87
19100	Breast biopsy, percutaneous, needle core, not using imaging guidance.				\$ 156.49
19101	Breast biopsy, open, incisional.				\$ 340.24
19120	Excision of cyst, fibroadenoma or other benign or malignant tumor, aberrant breast tissue, duct lesion, nipple or areolar lesion; open; one or more lesions.				\$ 513.87
19125	Excision of breast lesion identified by preoperative placement of radiological marker; open; single lesion.				\$ 566.59
19126	Excision of breast lesion identified by preoperative placement of radiological marker, open; each additional lesion separately identified by a preoperative radiological marker.				\$ 159.97
19281	Placement of breast localization device, percutaneous; mammographic guidance; first lesion.	7			\$ 243.14
19282	Placement of breast localization device, percutaneous; mammographic guidance; each additional lesion.	7			\$ 172.97

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CPT Code	Screening and Diagnostic Procedures	End Note	Professional Component (-26)	Technical Component (-TC)	Total
19283	Placement of breast localization device, percutaneous; stereotactic guidance; first lesion.	7			\$ 268.23
19284	Placement of breast localization device, percutaneous; stereotactic guidance; each additional lesion.	7			\$ 204.03
19285	Placement of breast localization device, percutaneous; ultrasound guidance; first lesion.	7			\$ 423.18
19286	Placement of breast localization device, percutaneous; ultrasound guidance; each additional lesion.	7			\$ 356.55
19287	Placement of breast localization device, percutaneous; magnetic resonance guidance; first lesion.	7			\$ 726.40
19288	Placement of breast localization device, percutaneous; magnetic resonance guidance; each additional lesion.	7			\$ 572.91
57452	Colposcopy of the cervix.				\$ 123.59
57454	Colposcopy of the cervix, with biopsy and endocervical curettage.				\$ 167.03
57455	Colposcopy of the cervix, with biopsy.				\$ 158.68
57456	Colposcopy of the cervix, with endocervical curettage.				\$ 148.92
57460	Colposcopy with loop electrode biopsy(s) of the cervix.				\$ 317.94
57461	Colposcopy with loop electrode conization of the cervix.				\$ 354.18
57500	Cervical biopsy, single or multiple, or local excision of lesion, with or without fulguration (separate procedure).				\$ 152.38
57505	Endocervical curettage (not done as part of a dilation and curettage).				\$ 145.10
57520	Conization of cervix, with or without fulguration, with or without dilation and curettage, with or without repair; cold knife or laser.				\$ 346.38
57522	Loop electrode excision procedure.				\$ 298.01
58100	Endometrial sampling (biopsy) with or without endocervical sampling (biopsy), without cervical dilation, any method (separate procedure).				\$ 101.29
58110	Endometrial sampling (biopsy) performed in conjunction with colposcopy (List separately in addition to code for primary procedure).				\$ 50.33

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CPT Code	Screening and Diagnostic Procedures	End Note	Professional Component (-26)	Technical Component (-TC)	Total
76098	Radiological examination, surgical specimen.		\$ 15.40	\$ 25.85	\$ 41.25
76641	Ultrasound, complete examination of breast including axilla, unilateral.		\$ 35.30	\$ 69.32	\$ 104.62
76642	Ultrasound, limited examination of breast including axilla, unilateral.		\$ 33.22	\$ 53.06	\$ 86.28
76942	Ultrasonic guidance for needle placement, imaging supervision and interpretation.		\$ 30.88	\$ 26.18	\$ 57.06
77046	Magnetic resonance imaging (MRI), breast, without contrast, unilateral.	5	\$ 69.64	\$ 163.86	\$ 233.50
77047	Magnetic resonance imaging (MRI), breast, without contrast, bilateral.	5	\$ 76.87	\$ 163.20	\$ 240.07
77048	Magnetic resonance imaging (MRI), breast, including CAD, with and without contrast, unilateral.	5	\$ 101.49	\$ 270.05	\$ 371.53
77049	Magnetic resonance imaging (MRI), breast, including CAD, with and without contrast, bilateral.	5	\$ 111.09	\$ 268.72	\$ 379.81
77053	Mammary ductogram or galactogram, single duct.		\$ 17.47	\$ 36.80	\$ 54.27
77063	Screening digital breast tomosynthesis, bilateral.	3	\$ 29.43	\$ 24.22	\$ 53.66
77065	Diagnostic mammography, unilateral, includes CAD.		\$ 39.08	\$ 86.91	\$ 125.99
77066	Diagnostic mammography, bilateral, includes CAD.		\$ 48.33	\$ 111.13	\$ 159.47
77067	Screening mammography, bilateral, includes CAD.		\$ 37.01	\$ 91.89	\$ 128.89

CPT Code	ASC Rates with Relevant CPT Codes	End Note	Facility Price (for Provider)	Facility Fee	
19000	Puncture aspiration of cyst of breast		\$ 42.89	\$ 106.27	
19081	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; stereotactic guidance; first lesion		\$ 163.86	\$ 564.38	
19083	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; ultrasound guidance; first lesion		\$ 154.90	\$ 564.72	
19084	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; ultrasound guidance; each additional lesion		\$ 77.15	\$ 442.50	
19085	Breast biopsy, with placement of localization device and imaging of biopsy specimen, percutaneous; magnetic resonance guidance; first lesion		\$ 179.78	\$ 866.35	
19100	Breast biopsy, percutaneous, needle core, not using imaging guidance		\$ 69.21	\$ 156.49	
19101	Breast biopsy, open, incisional		\$ 222.11	\$ 340.24	
19120	Excision of cyst, fibroadenoma or other benign or malignant tumor, aberrant breast tissue, duct lesion, nipple or areolar lesion; open; one or more lesions		\$ 413.65	\$ 513.87	
19125	Excision of breast lesion identified by preoperative placement of radiological marker; open; single lesion		\$ 458.08	\$ 556.59	
CPT Code	Pathology	End Note	Professional Component (-26)	Technical Component (-TC)	Total
Various	Pre-operative testing; CBC, urinalysis, pregnancy test, etc. These procedures should be medically necessary for the planned surgical procedure.				
87426	COVID-19 infectious agent detection by nuclei acid DNA or RNA; amplified probe technique.				\$ 35.33
87635	COVID-19 infectious agent antigen detection by immunoassay technique; qualitative or semiquantitative				\$ 51.31
88365	In situ hybridization (e.g., FISH), per specimen; initial single probe stain procedure.		\$ 43.25	\$ 134.99	\$ 178.24
88364	In situ hybridization (e.g., FISH), per specimen; each additional single probe stain procedure.		\$ 34.35	\$ 104.16	\$ 138.51

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CPT Code	Pathology	End Note	Professional Component (-26)	Technical Component (-TC)	Total
88366	In situ hybridization (e.g., FISH), per specimen; each multiplex probe stain procedure.		\$ 61.45	\$ 219.61	\$ 281.06
88373	Morphometric analysis, in situ hybridization, computer-assisted, per specimen, each additional probe stain procedure.		\$ 25.85	\$ 44.80	\$ 70.64
88374	Morphometric analysis, in situ hybridization, computer-assisted, per specimen, each multiplex stain procedure.		\$ 43.37	\$ 293.31	\$ 336.68
88367	Morphometric analysis, in situ hybridization, computer-assisted, per specimen, initial single probe stain procedure.		\$ 33.40	\$ 77.95	\$ 111.35
88368	Morphometric analysis, in situ hybridization, manual, per specimen, initial single probe stain procedure.		\$ 40.96	\$ 90.86	\$ 131.82
88369	Morphometric analysis, in situ hybridization, manual, per specimen, each additional probe stain procedure.		\$ 32.02	\$ 81.60	\$ 113.62
88377	Morphometric analysis, in situ hybridization, manual, per specimen, each multiplex stain procedure.		\$ 63.72	\$ 342.39	\$ 406.10
87624	Human Papillomavirus, high-risk types.	9			\$ 35.09
87625	Human Papillomavirus, types 16 and 18 only.	9			\$ 40.55
88141	Cytopathology, cervical or vaginal, any reporting system, <i>requiring interpretation by physician.</i>				\$ 21.32
88142	Cytopathology (liquid-based Pap test) cervical or vaginal, collected in preservative fluid, automated thin layer preparation; manual screening under physician supervision.				\$ 20.26
88143	Cytopathology, cervical or vaginal, collected in preservative fluid, automated thin layer preparation; manual screening and rescreening under physician supervision.				\$ 23.04
88164	Cytopathology (conventional Pap test), slides cervical or vaginal reported in Bethesda System, manual screening under physician supervision.				\$ 15.12
88165	Cytopathology (conventional Pap test), slides cervical or vaginal reported in Bethesda System, manual screening and rescreening under physician supervision.				\$ 42.22

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CPT Code	Pathology	End Note	Professional Component (-26)	Technical Component (-TC)	Total
88172	Cytopathology, evaluation of fine needle aspirate; immediate cytohistologic study to determine adequacy of specimen(s), first evaluation episode.		\$ 35.33	\$ 18.88	\$ 54.21
88173	Cytopathology, evaluation of fine needle aspirate; interpretation and report.		\$ 69.94	\$ 81.23	\$ 151.17
88174	Cytopathology, cervical or vaginal, collected in preservative fluid, automated thin layer preparation; screening by automated system, under physician supervision.				\$ 25.37
88175	Cytopathology, cervical or vaginal, collected in preservative fluid, automated thin layer preparation; screening by automated system and manual rescreening, under physician supervision.				\$ 26.61
88177	Cytopathology, evaluation of fine needle aspirate; immediate cytohistologic study to determine adequacy of specimen(s), each separate additional evaluation episode.		\$ 21.59	\$ 6.97	\$ 28.56
88305	Surgical pathology, gross and microscopic examination.		\$ 37.09	\$ 32.16	\$ 69.24
88307	Surgical pathology, gross and microscopic examination; requiring microscopic evaluation of surgical margins.		\$ 81.90	\$ 196.65	\$ 278.54
88331	Pathology consultation during surgery, first tissue block, with frozen section(s), single specimen.		\$ 61.37	\$ 40.12	\$ 101.49
88332	Pathology consultation during surgery, each additional tissue block, with frozen section(s).		\$ 30.51	\$ 22.86	\$ 53.37
88341	Immunohistochemistry or immunocytochemistry, per specimen; each additional single antibody stain procedure (List separately in addition to code for primary procedure).		\$ 28.14	\$ 62.05	\$ 90.19
88342	Immunohistochemistry or immunocytochemistry, per specimen; initial single antibody stain procedure.		\$ 34.68	\$ 67.33	\$ 102.01
88360	Morphometric analysis, tumor immunohistochemistry, per specimen; manual.		\$ 41.57	\$ 78.61	\$ 120.18

CPT Code	Pathology	End Note	Professional Component (-26)	Technical Component (-TC)	Total
88361	Morphometric analysis, tumor immunohistochemistry, per specimen; using computer- assisted technology.		\$ 43.40	\$ 76.29	\$ 119.69
99070	Supplies and materials (except spectacles), provided by the physician over and above those usually included with the office visit or other services rendered (list drugs, trays, supplies, or materials provided).				Various

HCPS Code	Transportation Services (AHCCCS Rates)	End Note	Amount
A0080	Non-emergency transportation, per mile, volunteer		\$ 0.44
A0160	Non-emergency transportation, per mile, case worker		\$ 0.44
A0100	Taxicab, base rate, per client		\$ 1.04
S0215	Taxicab, rate/ per mile, urban		\$ 1.28
A0100	Taxicab base rate, per client		\$ 1.04
S0215	Taxicab, rate/ per mile, rural		\$ 1.53
A0120	Ambulatory Van, urban base rate per client		\$ 6.64
S0215	Ambulatory Van, urban rate/ per mile		\$ 1.28
A0120	Ambulatory Van, rural base rate per client		\$ 7.27
S0215	Ambulatory Van, rural rate/ per mile		\$ 1.53
A0130	Wheelchair Van, urban base rate per client		\$ 11.15
S0209	Wheelchair Van, urban rate/ per mile		\$ 1.54
A0130	Wheelchair Van, rural base rate per client		\$ 12.21
S0209	Wheelchair Van, rural rate/ per mile		\$ 1.66

CPT Code	Approved Pre-Operative Codes (ADHS Use Only)	End Note	Professional Component (-26)	Technical Component (-TC)	Total
36415	Lab Draw				\$ 3.00
80048	Basic Metabolic Panel				\$ 9.40
85025	Blood Count				\$ 8.63

85610	Pro Thrombin				\$ 4.37
85730	Thromboplastin				\$ 6.67
81003	Urinalysis				\$ 2.49
71046	Radiological examination, CHEST - 2 Views		\$ 10.63	\$ 22.20	\$ 32.83
93005	EKG				\$ 6.27
81025	Pregnancy Test				\$ 8.61
Various	Pre-operative testing; CBC, urinalysis, pregnancy test, etc. These procedures should be medically necessary for the planned surgical procedure.				

CPT Code	Anesthesia	End Note	Professional Component (-26)	Technical Component (-TC)	Total
00400	Anesthesia for procedures on the integumentary system, anterior trunk, not otherwise specified				\$ 32.12
99156	Moderate anesthesia, 10-22 minutes for individuals 5 years or older				\$ 75.96
99157	Moderate anesthesia for each additional 15 minutes	10			\$ 62.50
CPT Code	Procedures Specifically Not Allowed	End Note			
Any	Treatment of breast carcinoma in situ, breast cancer, cervical intraepithelial neoplasia and cervical cancer.				
77061	Breast tomosynthesis, unilateral.	11	X	X	X
77062	Breast tomosynthesis, bilateral.	11	X	X	X
87623	Human papillomavirus, low-risk types.		X	X	X

End Note	Description
1	All consultations should be billed through the standard “new patient” office visit CPT codes 99201–99205. Consultations billed as 99204 or 99205 must meet the criteria for these codes. These codes (99204–99205) are typically <u>not</u> appropriate for NBCCEDP screening visits. However, they may be used when provider spends extra time to do a detailed risk assessment.
2	The type and duration of office visits should be appropriate to the level of care needed to accomplish screening and diagnostic follow-up within the NBCCEDP. While some programs may need to use 993XX- series codes, Preventive Medicine Evaluation visits are not covered by Medicare and not appropriate for the NBCCEDP. The 9938X codes shall be reimbursed at or below the 99203 rate, and 9939X codes shall be reimbursed at or below the 99213 rate.
3	List separately in addition to code for primary procedure 77067.
4	List separately in addition to 77065 or 77066.
5	Breast MRI can be reimbursed by the NBCCEDP in conjunction with a mammogram when a client has a BRCA gene mutation, a first-degree relative who is a BRCA carrier, or a lifetime risk of 20% or greater as defined by risk assessment models such as BRCAPro that depend largely on family history. Breast MRI also can be used to assess areas of concern on a mammogram, or to evaluate a client with a history of breast cancer after completing treatment. Breast MRI should never be done alone as a breast cancer screening tool. Breast MRI cannot be reimbursed for by the NBCCEDP to assess the extent of disease in a woman who has just been newly diagnosed with breast cancer in order to determine treatment.
6	Codes 19081–19086 are to be used for breast biopsies that include image guidance, placement of a localization device, and imaging of specimen. They should not be used in conjunction with 19281–19288.
7	Codes 19281–19288 are for image guidance placement of a localization device without image-guided biopsy. These codes should not be used in conjunction with 19081–19086.
8	For CPT 10011 use the reimbursement rate for CPT code 10009. For CPT 10012 use the reimbursement rate for CPT code 10010.
9	HPV DNA testing is not a reimbursable procedure if used as an adjunctive screening test to the Pap for women under 30 years of age.
10	Example: If procedure is 50 minutes, code 99156 + (99157 x 2). No separate charge allowed if procedure <10 minutes.
11	These procedures have not been approved for coverage by Medicare.

Note: all procedures over \$2,500.00 must have prior authorization.

Appendix F

Participant Demographic Variables

Table 1

Frequency Table for Demographic Variables

Variable	<i>n</i>	%
Marital Status		
Single	5	50.00
Married	3	30.00
Living with Partner	2	20.00
Race		
American Indian or Alaskan Native	2	20.00
White or Caucasian	5	50.00
Other	3	30.00
County		
Coconino	9	90.00
Yavapai	1	10.00
Education		
College	5	50.00
High School	2	20.00
Vocational College	1	10.00
Middle School	1	10.00
Graduate School	1	10.00
Insurance		
Private Insurance	3	30.00
Uninsured	7	70.00
Primary Language		
English	6	60.00
Spanish	4	40.00
Hispanic or Latino		
No	6	60.00
Yes	4	40.00

Table 2*Summary Statistics Table for Age, Annual Income, and Household Size*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max
Age	47.50	12.76	10	24.00	63.00
Annual Income	12,514.20	14,442.18	10	0.00	50,000.00
Household	2.58	1.26	10	1.00	5.00

Appendix G
General Health Demographic Variables

Table 3
Frequency Table for General Health Demographic Variables

Variable	<i>n</i>	<i>%</i>
Do you have a health care provider?		
Yes	7	70.00
No	3	30.00
When was the last time you visited your provider?		
<6 months	7	70.00
>1 year	2	20.00
6 months - 1 year	1	10.00
General Health		
Good	4	40.00
Fair	2	20.00
Excellent	2	20.00
Very Good	2	20.00

Table 4
Frequency Table Likert Scale General Health Demographics Variables

Variable	
How often do you prepare a list of questions for your doctor?	
Always	0.00
Often	0.00
Rarely	0.00
Sometimes	0.00
Never	0.00
How often do you ask questions about the things you want to know and the things you don't understand?	
Always	0.00

Table 4

Frequency Table Likert Scale General Health Demographics Variables

Variable	
Sometimes	0.00
Often	0.00
Rarely	0.00
How often do you discuss any personal problems that may be related to your illness?	
Always	0.00
Sometimes	0.00
Often	0.00
Rarely	0.00
How confident are you in filling out medical forms by yourself?	
Always	0.00
Often	0.00
Sometimes	0.00
Rarely	0.00

Table 5

Summary Statistics General Health Demographic Variables

Variable	<i>M</i>	<i>SD</i>
How many days in the past month was your physical health not good?	0.00	0.00
How many days in the past month was your mental health not good?	1.70	3.13

Appendix H
Pap Smear History

Table 6*Frequency Table for Pap Smear History*

Variable	<i>n</i>	<i>%</i>
Have you had a hysterectomy?		
No	9	90.00
Yes	1	10.00
Last pap smear		
1-2 years	1	10.00
Not sure	3	30.00
Within past 1 year	6	60.00
Abnormal pap smear		
No	5	50.00
n/a	4	40.00
Yes	1	10.00
Have you or a member of your family had cervical cancer?		
FALSE	9	90.00
TRUE	1	10.00
Are you aware of the 3-part HPV vaccine series?		
Yes	3	30.00
Not sure	1	10.00
No	6	60.00
Have you received the HPV vaccine?		
Yes	1	10.00
No	8	80.00
Not sure	1	10.00
Have you completed the HPV vaccine series?		
Yes	1	10.00
No	9	90.00

Appendix I
Cervical Cancer Risk Factors

Table 7*Frequency Table for Cervical Cancer Risk Factors*

Variable	<i>n</i>	<i>%</i>
...She has many sexual partners		
TRUE	5	50.00
Not sure	3	30.00
FALSE	2	20.00
...She smokes cigarettes		
FALSE	4	40.00
TRUE	4	40.00
Not sure	2	20.00
...She started having sex at a young age		
Not sure	2	20.00
TRUE	4	40.00
FALSE	4	40.00
...She has unprotected sex		
TRUE	3	30.00
Not sure	3	30.00
FALSE	4	40.00
...She does not go for regular pap smear tests		
TRUE	8	80.00
Not sure	1	10.00
FALSE	1	10.00
...She has a sexually transmitted disease or virus		
TRUE	7	70.00
Not sure	1	10.00
FALSE	2	20.00
...She used birth control pills for a long time		
FALSE	4	40.00
TRUE	3	30.00
Not sure	3	30.00
...She has many children		
FALSE	5	50.00
TRUE	1	10.00
Not sure	4	40.00

...She has a weakened immune system

TRUE	3	30.00
Not sure	3	30.00
FALSE	4	40.00

...It runs in her family

TRUE	7	70.00
Not sure	1	10.00
FALSE	2	20.00

Appendix J

Socioeconomic Barriers to Routine Cervical Cancer Screening

Table 8

Frequency Table for Socioeconomic Barriers to Routine Cervical Cancer Screening

Variable	<i>n</i>	%
Feelings of embarrassment		
Strongly Disagree	8	80.00
Disagree	1	10.00
Neither Agree nor Disagree	1	10.00
Fear of finding cancer		
Strongly Disagree	7	70.00
Disagree	1	10.00
Agree	2	20.00
Transportation		
Strongly Disagree	9	90.00
Agree	1	10.00
Cost		
Strongly Disagree	5	50.00
Strongly Agree	1	10.00
Disagree	4	40.00
Anxiety about procedure		
Strongly Disagree	8	80.00
Neither Agree nor Disagree	1	10.00
Disagree	1	10.00
Lack of knowledge		
Strongly Disagree	9	90.00
Disagree	1	10.00
Lack of time		
Strongly Disagree	9	90.00
Disagree	1	10.00
Anticipation of pain		
Strongly Disagree	7	70.00
Disagree	2	20.00
Neither Agree nor Disagree	1	10.00
Forgetting to schedule an appointment		

Table 8*Frequency Table for Socioeconomic Barriers to Routine Cervical Cancer Screening*

Variable	<i>n</i>	%
Strongly Disagree	6	60.00
Neither Agree nor Disagree	2	20.00
Agree	1	10.00
Disagree	1	10.00
Other health problems		
Strongly Disagree	8	80.00
Disagree	2	20.00
Language barriers		
Strongly Disagree	7	70.00
Neither Agree nor Disagree	1	10.00
Agree	1	10.00
Disagree	1	10.00
Male physician		
Strongly Disagree	6	60.00
Strongly Agree	1	10.00
Neither Agree nor Disagree	2	20.00
Disagree	1	10.00