Reframing the Pap Test as an Act of Self-Care: Cervical Cancer Screening Among the Gender Diverse

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I have no known conflicts of interest to disclose.

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Abstract

Cervical cancer is a preventable disease by routine screening and is a significant health concern for individuals with a cervix, including transgender men and others within the gender minority. Despite the importance of cervical cancer screening, transgender men are less likely to be screened for cervical cancer than cisgender women. This project implements evidence-based health promotion strategies to increase awareness and discuss the importance of cervical cancer screening specifically for those within the gender diverse community. For this project, staff at a community health clinic in the urban southwest distributed informational brochures within the community and the clinic. Five participants consented to complete a survey to determine if there was a knowledge change regarding cervical cancer, Human Papillomavirus (HPV), the examination, and transgender considerations after reading the brochure. Human subject participants were protected through Institutional Review Board (IRB) approval. Descriptive statistics were completed. Results indicate success in enhancing understanding and engagement with cervical health practices among brochure recipients. This project contributes valuable insights to the limited body of research in this area, shedding light on the efficacy of targeted interventions for improving cervical cancer awareness and preventive behaviors among the transgender population. The findings hold implications for future public health initiatives aiming to address the unique healthcare needs of transgender individuals.

Keywords: transgender men, assigned female at birth, gender minority, cervical cancer screening, human papillomavirus

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Among those within the gender minority community with female reproductive organs, preventative cervical cancer screening rates remain low despite continued efficacy of their ability to identify cancer in its early stages. Research on increasing compliance with recommended preventative health screenings is upcoming and shows some promising interventions to increase adherence.

Problem Statement

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States and accounts for 99.7% of cervical cancers (Centers for Disease Control and Prevention [CDC], 2021; Deutsch et al., 2020). The incidence and prevalence of HPV were 13 million and 42.5 million, respectively, and cost $775 million in direct medical costs (CDC, 2019, 2021). Members of the LGBTQIA2S+ community, specifically, Transgender men (TM) and nonbinary individuals, or those assigned female at birth (AFAB) whose gender identity does not align with their anatomical gender, are at an increased risk for cervical cancer related to lower rates of cervical cytology screenings (Dhillon et al., 2020). The American College of Obstetricians and Gynecologists (ACOG, 2021) defines TM as "someone with a male gender identity and female birth assigned sex" (p. e76). The prevalence and incidence of HPV infection and cervical cancer rates among TM and AFAB individuals are limited because cancer and infection surveillance programs do not collect sexual and gender identity data (Piróg et al., 2022).

Numerous health initiatives and organizations have recommendations for the initiation and frequency of cervical cancer screenings and funding opportunities to cover the cost. The

United States Preventative Services Task Force (USPSTF, 2018), ACOG (2021), and the University of California, San Francisco's (UCSF) Transgender Care and Treatment Guidelines (Center of Excellence for Transgender Health, 2016) recommend beginning cervical cytology screening at age 21 through age 65 every three to five years. Most professional organizations often do not contain gender-neutral terminology; these recommendations' lack of gender inclusivity creates barriers to preventative health care in TM and AFAB individuals. ACOG (2021) and USCF's (Center of Excellence for Transgender Health, 2016) guidelines are targeted explicitly at transgender and gender-diverse individuals. The USPSTF cervical cancer screening recommendation defined the population as "women" without identifying TM or AFAB persons (2018). The Title X service grants funded by the Office of Population Affairs (OPA) provide full coverage for cervical cancer screenings for qualified individuals (United States Department of Health & Human Services, n.d.).

Purpose and Rationale

Papanicolaou (Pap) tests are performed in the clinical setting to test cervical cytology and the presence of high-risk strains of HPV. Pap tests are performed during a pelvic exam and are a crucial insight into abnormal cytology, HPV infection, and future cervical cancer. These tests are widely available in primary care and gynecology settings, yet cervical cancer screening rates among gender minority groups remain low. The purpose of this paper is to identify the barriers TM and AFAB individuals experience when accessing preventative cervical cancer screenings and current evidence-based strategies to promote adherence to recommendations.

Background/Significance

A review of current literature focused on TM and those AFAB identifies barriers and facilitators to accessing care and current interventions that improve current recommendation

adherence rates. Research on new interventions has shown success in increasing the number of cervical cancer screenings among the gender minority group.

Transgender Men and AFAB Individuals

Although TM and those AFAB are at an increased risk for gynecological cancers and HPV infection, TM are 37% less likely to be current with their Pap test compared to their cisgender, or those whose gender identity aligns with anatomical gender, counterparts (ACOG, 2021; Deutsch et al., 2020; Gatos, 2018; Harb et al., 2019). Contributing risk factors for infection include sex with partners across the gender spectrum, multiple concurrent partners, condomless receptive vaginal and anal sex, increased rates of STIs, and lack of personal education and perceived risk (Deutsch et al., 2020; Piróg et al., 2022; Weyers et al., 2021). Androgen therapy is vital in transitioning to masculinity, and 71% of TM have received this gender-affirming hormone therapy (GAHT; Weyers et al., 2021). The vaginal and cervical atrophy caused by GAHT explains why TM are ten times more likely to have an inadequate Pap test and wait five times longer to follow-up for inadequate specimens, related to the pain associated with a pelvic examination (Deutsch et al., 2020; Dhillon et al., 2020; Harb et al., 2019; Piróg et al., 2022).

A lack of education among patients on perceived risk and knowledge of anatomically appropriate testing contributes to the gender minority gap (Harb et al., 2019; Piróg et al., 2022; Weyers et al., 2021). Lack of knowledge results in decreased condom use and, consequently, higher rates of HPV infection (Piróg et al., 2022). Since many of the current recommendations include “women” instead of “people with a cervix”, it creates patient and provider confusion (Deutsch et al., 2020, p. 48). A lack of gender-inclusive training for healthcare professionals is another barrier for TM and AFAB individuals. Harb et al. (2019) report that 80% of gynecologists and obstetricians had not received training on transgender patients, and only 29%

reported feeling comfortable treating TM. Deutsch et al. (2020) described that one in seven TM reported being denied cervical cancer screening by their provider. This lack of education, low comfort level, and reported discrimination contribute to the incompetence perceived by patients.

Interventions to Increase Screening Uptake

Numerous studies have identified strategies and facilitators to improve preventative healthcare services for TM and AFAB individuals. Dhillon et al. (2020) identify reframing the Pap smear as "an affirmation of self-care" or as a masculine or gender-neutral test can decrease the anxiety of gender dysphoria associated with a feminine examination (p. 5). Applying an estrogen-based vaginal cream one to two months before a Pap test or topical lidocaine to the vaginal introitus to address vaginal atrophy improved patient adherence and comfort (Gatos, 2018; Weyers et al., 2021). Another solution to the hesitancy to receive care was establishing a trusting relationship between the healthcare professional and the patient (Dhillon et al., 2020). A training curriculum focused on transgender and other gender-nonconforming individuals improved nursing students' confidence to care for and assess transgender patients from 35% to 84% (Weyers et al., 2021).

Reisner et al. (2018) conducted a one-time study comparing self-collected vaginal HPV DNA swabs to the "gold standard" clinician-collected cervical HPV swab. The study included 131 TM aged 21 to 64 with a cervix sexually active within the last three years. Each patient collected their sample, and a physician or nurse practitioner collected a specimen. The self-collected and provider-collected vaginal specimens had a sensitivity of 71.4% and 85.7%, respectively. Of the study participants, 90% preferred self-swabbing versus provider-collected samples; thus, this procedure could potentially decrease disparities among the gender minority group. Self-collection of HPV testing may present a reasonable alternative to traditional

screening and promote patient empowerment (Reisner et al., 2018). ACOG (2021) and the UCSF guideline support self-collection of HPV testing when patients may otherwise avoid preventative screenings (Center of Excellence for Transgender Health, 2016).

Current Practice

Mohr et al. (2021) reported that 48% of transmen avoid preventative health care screenings. In combination with the avoidance of healthcare screenings, the Pap test, commonly called Pap smear, has been deemed a feminine examination by many TM and those AFAB (Dhillon et al., 2020). The feminine nature of the Pap test can create feelings of anxiety and gender dysphoria, which leads to reported avoidance. Since only 14% of TM have had a hysterectomy and do not need Pap tests, a vast gap in care remains between getting patients their preventative screening, detecting high-risk cervical cytology changes early, and preventing cancer diagnosis (Piróg et al., 2022; Weyers et al., 2021).

Increase Preventative Cancer Screenings

The desired outcome of addressing the gap in cervical cancer screenings among individuals in the gender minority group is an increase in the uptake of cervical cancer screenings as outlined by current recommendations and decreasing the burden of disease (ACOG, 2021; USPSTF, 2018). The ideal situation would include meeting Healthy People 2030's goal of increasing the uptake of cervical cancer among eligible women or those with a uterus (n.d.). Implementing evidence-based interventions is crucial to increasing the number of TM and those AFAB screened for cervical cancer at the recommended intervals.

Common Themes

Overall, the literature supports pain, dysphoric feelings, lack of education, and decreased perceived risk factors as internal factors for the avoidance of Pap tests (Harb et al., 2019; Prióg et

al., 2022; Weyers et al., 2021). External factors include a need for more competent providers and recommendations with gender-neutral terminology (Deutsch et al., 2020; Harb et al., 2019). The self-swabbing method for the detection of high-risk HPV subtypes, reframing the Pap test as an act of self-care, and providing gender-competent education to providers are promising interventions (Dhillon et al., 2020; Goldstein et al., 2020; Reisner et al., 2018; Weyers et al., 2021).

Internal Evidence

A community-centered health clinic in the urban southwest aims to provide inclusive primary care and other health services within the community, particularly the LGBTQIA2S+ community. This health center receives Title X funding, which covers cervical cancer screenings and other reproductive healthcare. The Director of Clinical Services and the Title X Project Manager wish to increase the utilization of this funding by their transgender population, particularly for preventative healthcare. The Director of Clinical Services provides direct care to patients and reports a decreased uptake in cervical cancer screenings among TM and others AFAB. Increasing cervical cancer screenings, Title X usage, and decreasing the burden of disease associated with a cancer diagnosis is crucial to improving the community's health and increasing their allotted funding from the Title X service grant.

PICOT Question

A review of the literature led to the clinically relevant PICOT question: “Among transgender men and non-binary individuals assigned female at birth (P), how do health promotion strategies (I) compared to cisgender-targeted education (C), affect the rates of cervical cancer screenings (O)?” and led to the following exhaustive search.

Search Strategy

The literature review included a search of the following databases: PubMed, the Cumulative Index of Nursing and Allied Health Literature (CINAHL), and the Academic Search Premier Database. Keywords included: *transgender men, nonbinary, assigned female at birth, female-to-male, Papanicolaou test, cervical cancer screening, health promotion,* and *education.* The initial search using transgender men AND cervical cancer screening AND health education yielded 314 results on PubMed, 14 on CINAHL, and 59 on Academic Search Premier. A majority of the articles within this first yielded search included transgender women and cisgender men and did not apply to the chosen population. To decrease results, limits were set to publication dates between 2017 – 2023, full text availability, and English language. This search resulted in a yield of 307 results on PubMed, three results on CINAHL, and 19 results on Academic Search Premier. PubMed results were narrowed further by limiting articles to randomized controlled trials and systematic review article types. The final result yielded 18 results on PubMed, three on CINAHL, and 19 on Academic Search Premier.

After reviewing the abstract and titles of the final yield, inclusion criteria comprised of articles addressing cervical cancer screening for transgender men and others within the gender minority with a cervix. Rapid critical appraisals were completed for 17 articles, and the final ten articles were chosen for the literature review (see Appendix A, Tables A1, A2). Preference was given to the higher levels of evidence when selecting the final ten. Exclusion criteria included articles written prior to 2017, articles aimed focused solely on cisgender women, and articles that addressed anal swabbing for HPV.

Critical Appraisal & Synthesis of Evidence

Melnyk and Fineout-Overholt's (2019) rapid critical appraisal process was used to determine the quality and strength of the selected articles. Overall, the quality of evidence was

low and included: two quasi-experimental, one systematic review, and seven qualitative studies (see Appendix A, Table A3). Variability was noted regarding the study settings. Three were conducted outside the United States, and the remaining seven utilized an urban setting. Of the 10 articles, five were low risk for bias. Nine of the articles' samples were specific to transmen and those assigned AFAB, while one focused on healthcare providers treating these individuals. Generally, the sample sizes were small; four articles had sample sizes larger than 100 participants. Overall, the sample characteristics were homogenous; while some contained a small number of ethnic minority groups, others were a majority of non-Hispanic whites. When reported, the mean age of the sample groups was reproductive-aged transmen.

Four of the studies included research on a self-swab method for HPV, and the remaining studies measured barriers and facilitators of cervical cancer screening uptake. In addition to screening uptake, Lorenzi et al. (2019), Maza et al. (2020), McLarty et al. (2019), and Reisner et al. (2018) measured the patient's acceptability of self-swabbing. The remaining articles used qualitative methods to differentiate barriers and facilitators for patients, providers, and the examination itself (Connolly et al., 2020; Kerr et al., 2022; Peitzmeier et al., 2017; Peitzmeier et al., 2020; Rahman et al., 2018; Roznovjak et al., 2023; Shires et al., 2019).

Conclusions

Health promotion strategies have the potential to increase screening rates among those AFAB within the gender minority. Many research articles measure barriers to screening in detail and present an opportunity that empowers patients who may otherwise avoid cervical cancer screenings. Facilitators to cervical cancer screening uptake include a competent provider well versed in transgender health, reframing the Pap test as a gender-neutral exam or act of self-care,

increased knowledge of cervical cancer risk and HPV, and flexibility during speculum examination to decrease discomfort.

Theory Application

Self-efficacy theory, proposed by psychologist Albert Bandura (1977), applies to the outcomes extracted from the evidence. Confidence in one's ability to perform a task influences their motivation and determines the level of effort put into the task. Self-efficacy is influenced by four primary sources: personal experiences, vicarious experience, social persuasion, and physiological feedback (Bandura, 1977) Personal experiences involve past successes and failures in similar tasks. Vicarious experience refers to the observation and imitation of other's behaviors. Social persuasion involves feedback and encouragement from others, while physiological feedback refers to how an individual's emotions and physical state affect their self-efficacy. Bandura (1977) suggests that individuals with high self-efficacy are more likely to set challenging goals, persist in facing obstacles, and ultimately achieve their goals.

While none of the research articles explicitly use the self-efficacy theory, in the case of transgender men getting cervical cancer screenings, self-efficacy plays a vital role in determining whether or not they will seek out essential preventive healthcare services. Transgender men, who may have had negative experiences in healthcare settings, such as pain, discomfort, or feelings of dysphoria during a pelvic exam, may lack confidence in their ability to access and navigate the healthcare system to receive recommended screenings. However, if they have a high level of self-efficacy, they may feel more empowered to seek out these services and overcome any barriers they may face. By providing a supportive and non-judgmental environment, offering clear and accurate information, and engaging in shared decision-making, healthcare providers can empower transgender men to take an active role in their healthcare and increase their self-

efficacy. By understanding and addressing the sources of self-efficacy, healthcare providers can support transgender men in accessing this vital aspect of their health and early detection of cervical cancer.

Implementation Framework

The implementation of this project will be guided by Rosswurm and Larrabee's (1999) Model for Evidence-Based Practice. This linear model consists of six steps to guide the integration of evidence-based practices into the clinical setting. These steps include assessing the patient to identify their healthcare problem, concerns, and preferences. Once the patient's healthcare problem has been identified, healthcare providers should ask a clear and focused clinical question based on the patient's healthcare problem. They should then acquire the best available research evidence related to the clinical question and appraise the quality and relevance of the evidence. The next step is to apply the evidence by integrating it with clinical expertise and patient preferences to make a clinical decision. Finally, healthcare providers should evaluate the outcomes of their clinical decision and make any necessary changes to ensure the best possible care for their patients.

In summary, Russwurm and Larrabee's (1999) Model for Evidence-Based Practice can be used to guide a quality improvement project to increase cervical cancer screening in transgender men. Assessing transgender men would involve identifying their specific healthcare needs, including their history of hormone therapy and any surgeries, such as hysterectomy, they may have undergone. It is also vital to assess their concerns and preferences regarding cervical cancer screening, as they may have specific fears or reservations about the process. The clinical question might involve the effectiveness of different screening methods, such as Pap tests versus hr-HPV tests, in this patient population. Acquiring and appraising evidence will include the

success of current screening methods and guidelines from professional organizations. Finally, the intervention will be designed, produced, and implemented in a theory-guided manner, followed by an assessment of effectiveness within the gender minority group.

Implications for Practice Change

Evidence shows that implementing health promotion strategies to increase patient knowledge can increase the rates of cervical cancer screenings within the gender minority (see Appendix A, Table A3). Identifying barriers to screening is critical to increasing screening rates, including lack of knowledge and the gender dysphoria associated with a Pap test. Facilitating comfort and affirmation of gender by providers and patient self-advocacy promotion is crucial to building a trusting relationship between the patient and provider.

Stakeholders in addressing this clinical care gap include patients, providers, the organization, the United States Government, and patients' caregivers and family members. By increasing the utilization of Title X funding through screening methods, the patients will benefit from recommended screenings. Providers, patients, family members, and the United States Government will also benefit by decreasing the disease burden of a cervical cancer diagnosis. Informational brochures will be created and given to patients at LGBTQIA2S+ community outreach events. They will contain evidence-based information on cervical cancer, HPV, the Pap test exam, and transgender considerations, such as the role of GAHT.

Methods

Setting and Stakeholders

A community-centered health clinic in the urban southwest aims to provide inclusive primary care and other health services within the community, particularly the LGBTQIA2S+ community. This health center receives Title X funding covering cervical cancer screenings and

other reproductive healthcare. Stakeholders within this organization include the patients, caregivers, and family members of patients, as early detection of cervical dysplasia to prevent future cancer diagnosis will eliminate the mental, emotional, physical, and financial strain on patients and their families. Additional stakeholders include the organization, providers, and the United States government, as prevention of cervical cancer diagnosis and increased screening rates will result in better patient outcomes and increased utilization of Title X funding within the clinic. Providers are at the front line of recommending, educating on, and performing a Pap test, which requires building rapport with patients and encouraging preventative healthcare.

Participants and Recruitment

Participants for this intervention included TM and those AFAB between the ages of 21 and 65, as this is the current age guideline for cervical cancer screening (ACOG, 2021). Inclusion criteria was the presence of a cervix and AFAB, while exclusion criteria was a personal history of hysterectomy. If a participant does not have a cervix, current guidelines do not recommend screening for cervical dysplasia and HPV (ACOG, 2021). Recruitment for the intervention occurred at local community gatherings targeted at the gender minority group and within the clinic itself. Providing educational materials, in the form of an English and Spanish accordion style brochure, at these outreach events specified current recommendation guidelines, the importance of preventative screenings, and information on scheduling an appointment for the Pap test.

Intervention

The first step in implementation was to assess the current rates of cervical cancer screening, which was found to be low, evidenced by decreased utilization of Title X funding by this gender minority group. The next step was the development of educational materials in the

form of patient deliverables. The deliverables were created and submitted to the organization's approval process through their Title X funding management and the Institutional Review Board (IRB). After initial approval, a certified translator translated the materials to Spanish, which was submitted again for IRB approval. With the materials created and approved, the educational materials began to be given to patients at local community outreach events and within the clinic from December 2023 through March 2024. These actions and the resulting short, medium and long-term outcomes are outlined within the logic model (see Appendix B, Figure B1).

Data Collection and Analysis

To determine the efficacy of the educational brochure on increasing knowledge surrounding the Pap test, post-intervention data was collected. Participants were given the brochure and the study flyer within the clinic and at local community gatherings. If participants scanned the QR code within the study flyer, they were directed to an online form consisting of an informed consent, a collection of deidentified data, including age, gender assigned at birth, gender identity, race/ethnicity, educational level, insurance type, and a knowledge check directly from facts within the brochure. The knowledge check instrument was developed by the DNP student and determined if participants were able to answer questions about information within the brochure, meaning an increase in knowledge after reading the deliverables. The data extracted from the online survey was organized into electronic Excel forms. No identifiable data was collected, and the online survey forum protected patient confidentiality by assigning each patient a subject number.

Data analysis was performed using Intellectus, an online statistics software, with data from the post-intervention online survey. Descriptive statistics determined if implementing an

educational brochure increased cervical cancer knowledge for participants. Statistical and clinical significance was determined from the data analysis.

Ethical Considerations

Four ethical principles will guide this project: autonomy, beneficence, non-maleficence, and justice. Autonomy is the right of a person to exercise their capacity for self-determination (Varkey, 2021). This project will adhere to this principle by obtaining consent to collect de-identified demographic information and to determine if the patient received the brochure. Non-biased, evidence-based information on cervical cancer screening will be given to patients to read and understand in a health literacy appropriate for an eighth-grade education to increase their knowledge base and aid them in informed decision-making. Beneficence is acting to benefit the patient (Varkey, 2021). The project will adhere to this principle by protecting and defending the patient's rights and addressing health concerns that can cause harm (Varkey, 2021). Increasing the rate of Pap tests will address abnormal cervical cytology and avoid a cervical cancer diagnosis. Non-maleficence is the ethical principle observed by healthcare providers not to cause harm to patients (Varkey, 2021). The project will adhere to this principle by ensuring we do not harm, cause pain or suffering, or offend any individual (Varkey, 2021). Offering educational materials specific to those within the gender minority is a low-risk intervention for harm to a person. Therefore, non-maleficence will be maintained throughout the entirety of the project implementation. Justice is the final principle and is defined as fairness, equity, and appropriate treatment of individuals (Varkey, 2021). The project will adhere to this principle by ensuring each patient receives equitable care according to their specific needs and without bias, regardless of their insurance status, sexual orientation, race, ethnicity, financial status, gender, and religion (Varkey, 2021). Justice will be implemented throughout this project by carefully considering

each patient's social determinants of health and incorporating these principles into their care plan. The project's methodology will be reviewed by faculty mentors and the Institutional Review Board (IRB).

Budget

There are no external funding sources for this project. The organization costs are estimated to be $989 (see Appendix C). Personal expenses for the projected director are estimated at $242 (see Appendix C). In-kind expenses for the project are estimated at $22,652 (see Appendix C). Participants will not be compensated for their participation. The benefits of the educational brochure include the following potential cost savings: The Papanicolaou test could provide a preventative measure to reduce costs associated with the treatment of cancer caused from HPV (see Appendix D). Long-term outcomes of the intervention would include a decrease in diagnosis of cervical cancer those AFAB, earlier diagnosis of cervical dysplasia, earlier initiation of intervention, decrease in costs associated with HPV treatment, and fewer healthcare appointments associated with HPV.

Results

Intellectus Statistics ™ was used to store, analyze, and report the data. The sample consisted of cisgender women (n=5) who received the brochure within the primary care clinic or at local community outreach events. The average age of the participants was 29 years old (SD=6.44; see Table 1). The ages ranged from 22 to 38 years old. All participants were cisgender, accessed the English survey, and did not use translation services. A majority of the participants were white/Caucasian (n=3, 60%). The remainder of the sample were Black/African American or Hispanic (n=2, 40%; see Table 2). A majority of the sample had private health insurance (n=4, 80%) and one utilized Medicaid (n=1, 20%; see Table 2).

Table 1

Summary of Project Age Demographic

Variable	*M*	*SD*	*n*	Min	Max
Age	29.00	6.44	5	22.00	38.00

Table 2

Summary of Project Race/Ethnicity and Health Insurance Demographic

Variable	*n*	*%*
Race/Ethnicity		
White or Caucasian	3	60.00
Black or African American	1	20.00
Hispanic	1	20.00
Health Insurance		
Private Insurance	4	80.00
Medicaid	1	20.00

The average score on the knowledge survey about HPV, cervical cancer screening, and transgender considerations was 4.8 (SD=0.45; see Table 3). The scores range from four to five correct. All of the participants reported that the brochure was helpful (n=5, 100%; see Table 4). When asked what a participant would change about the brochure, one participant stated, "*I'd like to know how often one should get additional screening if they do have an abnormality show up on their pap*". Another participant suggested, "*Maybe bullet points instead of paragraphs?*". Another participant stated, "*Possibly include the ability to 'self-swab' for HPV if the person is absolutely adamant about avoiding a speculum exam. Inform patients this is not as accurate as a speculum exam and swab performed by the provider.*"

Table 3

Knowledge Survey Scoring

Variable	*M*	*SD*	*n*	Min	Max
Knowledge Survey	4.80	0.45	5	4.00	5.00

Table 4

Summary of Brochure Helpfulness

Variable	*n*	*%*
Helpful		
Yes	5	100.00

Significance

While the sample was small and statistical significance was not achieved, the clinical significance is clear. A brochure that caters to the unique needs of the selected population is available to those who encounter the project site. Cervical cancer screening is a necessity for those AFAB, and having a transgender person pictured on the brochure may encourage other transmen or nonbinary individuals to pick up the brochure and learn more about screening. Over 200 copies of this brochure were distributed within the community, and it will continue to be used by the project site indefinitely.

Sustainability

The Director of Clinical Services is the site champion within the organization. They have direct contact with and oversee the other practitioners in the clinical and administrative settings. Additionally, they are available as a resource regarding the clinical practice guidelines of cervical cancer screening and can answer questions from patients and other providers. During the project, they will ensure that the brochure and study flyer are in the clinic lobby and given to patients who present for cervical cancer screening.

The patient feedback regarding the likes and dislikes of the brochure were taken into consideration before ordering more prints of the brochure. These changes will ensure that patient feedback is valued and considered when making a brochure that discusses cervical cancer screening, human papillomavirus, and the considerations for those within the gender diverse. Now that the DNP student has completed the project, the organization will be left with an educational brochure that meets the needs of its patients. Addressing the lack of education contributing to low cervical cancer screenings among the gender diverse will increase screening rates and patient knowledge base (Piróg et al., 2022). This increase will result in greater utilization of Title X funding, which will result in increased funding in the future, therefore, cultivating sustainability while decreasing the burden of a cervical cancer diagnosis.

TM and others AFAB within the gender minority group are at an increased risk for cervical cancer related to lower rates of cervical cancer screenings compared to their cisgender counterparts (Dhillon et al., 2020). Implementing evidence-based health promotion strategies is vital to increasing cervical cancer screening rates and patient knowledge surrounding HPV and the Pap test. Bandura's (1977) Self-Efficacy Theory will guide the development of the intervention, and the Model for Evidenced-Based Practice will guide the implementation (Rosswurm & Larrabee, 1999). Following IRB approval and distribution of materials to patients, the outcome will be measured within the clinic by determining if the materials were instrumental in increasing the patient's knowledge base surrounding cervical cancer screening.

Discussion

An educational brochure that is specific to those AFAB within the gender-diverse community may increase reader's knowledge of HPV, cervical cancer screening, and transgender considerations. A lack of gender-neutral professional recommendations contributes to the gap in

screening for this population. Therefore, a brochure catered to this population specifically, in theory, should increase knowledge and screening rates while addressing external factors that contribute to screening hesitancy.

Limitations

This project has many limitations. The first challenge is the small number of participants and difficulty recruiting. The timeline was delayed by several months due to the approval processes required to introduce a new brochure within the clinic. An additional challenge is the lack of research and epidemiologic data available on transgender men, nonbinary individuals, and cervical cancer screening. This population is understudied, and few gender-neutral guidelines currently exist. Finally, one of the most significant limitations is that the sample consisted of only cisgender women. While all were AFAB, the sample did not have any individuals in the leading target group of transmen or nonbinary individuals.

Future Recommendations

A longitudinal study with more participants is needed to determine if the resulting knowledge increase within this project was related to the gender-neutral terminology. A pre and post-test intervention would more accurately determine if the knowledge directly resulted from the brochure; additionally, if participants who identify themselves as both AFAB and transgender or nonbinary should be the population of focus. If the project leader attended the events where the brochure was distributed, they may be able to encourage further participation and increase the sample size. Assessment of Pap test rates before and after implementation of anew educational brochure would aid in determining of the brochure increased screening rates. In general, more research is critical to identify the internal and external factors that contribute to a trans individual's willingness or unwillingness to be screened for cervical cancer. Since current

data on rates cervical cancer screening rates among transmen and nonbinary individuals are not readily available as in cisgender women, surveillance groups need to gather information on gender identity to understand this gap of care further.

In conclusion, this gender minority group faces health inequities, especially related to gynecologic and other biologically necessary female-related care. Cervical cancer screening can detect dysplasia in its early stages and prevent cancer diagnoses and related morbidity and mortality. However, transgender men and others AFAB who do not identify as women remain under-screened compared to their cisgender counterparts due to a multitude of internal and external factors. More research is needed to determine if gender-neutral educational resources can increase the uptake of screening and knowledge surrounding cervical cancer.

References

American College of Obstetricians and Gynecologists. (2021). Committee opinion number 823: Health care for transgender and gender diverse individuals. *Obstetrics & Gynecology*, *137*(3), e75–e88. https://doi.org/10.1097/AOG.0000000000004294

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Center of Excellence for Transgender Health. (2016). *Guidelines for the primary and gender-affirming care of transgender and nonbinary people* (2nd ed.). University of California, San Francisco. https://transcare.ucsf.edu/sites/transcare.ucsf.edu/files/Transgender-PGACG-6-17-16.pdf

Centers for Disease Control and Prevention. (2019). *Leading cancers by age, sex, race and ethnicity.* Retrieved January 27th, 2023, from https://gis.cdc.gov/Cancer/USCS/#/Demographics/

Centers for Disease Control and Prevention. (2021). *Sexually transmitted infections prevalence, incidence, and cost estimates in the United States.* Retrieved January 27, 2023, from https://www.cdc.gov/std/statistics/prevalence-2020-at-a-glance.htm

Connolly, D., Hughes, X., & Berner, A. (2020). Barriers and facilitators to cervical cancer screening among transgender men and non-binary people with a cervix: A systematic narrative review. *Preventive Medicine*, *135*, 106071–106071. https://doi.org/10.1016/j.ypmed.2020.106071

Deutsch, M. B., Reisner, S. L., Peitzmeier, S., Potter, J., Pardee, D., & Hughto, J. M. W. (2020). Recent penile sexual contact is associated with an increased odds of high-risk cervical

human papillomavirus infection in transgender men. *Sexually Transmitted Diseases*, *47*(1), 48–53. https://doi.org/10.1097/OLQ.0000000000001072

Dhillon, N., Oliffe, J. L., Kelly, M. T., & Krist, J. (2020). Bridging barriers to cervical cancer screening in transgender men: A scoping review. *American Journal of Men's Health*, *14*(3), 155798832092569–1557988320925691. https://doi.org/10.1177/1557988320925691

Gatos, K. C. (2018). A literature review of cervical cancer screening in transgender men. *Nursing for Women's Health*, *22*(1), 52–62. https://doi.org/10.1016/j.nwh.2017.12.008

Goldstein, Z., Martinson, T., Ramachandran, S., Lindner, R., & Safer, J. D. (2020). Improved rates of cervical cancer screening among transmasculine patients through self-collected swabs for high-risk human papillomavirus DNA testing. *Transgender Health*, *5*(1), 1–17. https://doi.org/10.1089/trgh.2019.0019

Harb, C. Y. W., Pass, L. E., De Soriano, I. C., Zwick, A., & Gilbert, P. A. (2019). Motivators and barriers to accessing sexual health care services for transgender/genderqueer individuals assigned female sex at birth. *Transgender Health*, *4*(1), 58–67. https://doi.org/10.1089/trgh.2018.0022

Healthy People 2030. (n.d.). *Increase the proportion of females who get screened for cervical cancer – C-09*. Retrieved on January 27th, 2023 from https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-females-who-get-screened-cervical-cancer-c-09

Kerr, L., Fisher, C. M., & Jones, T. (2022). Improving cervical screening in trans and gender-diverse people. *Cancer Nursing, 45*(1), 37-42. https://doi.org/10.1097/NCC.0000000000000890

Maza, M., Meléndez, M., Herrera, A., Hernández, X., Rodríguez, B., Soler, M., Alfaro, K., Masch, R., Conzuelo-Rodríguez, G., Obedin-Maliver, J., & Cremer, M. (2020). Cervical cancer screening with Human Papillomavirus self-sampling among transgender men in El Salvador. *LGBT Health*, *7*(4), 174–181. https://doi.org./10.1089/lgbt.2019.0202

Melnyk, B. M., & Fineout-Overholt, E. (2019). Evidence-based practice in nursing and healthcare: A guide to best practice (4th ed.). Wolters Kluwer.

Mohr, S., Gygax, L. N., Imboden, S., Mueller, M. D., & Kuhn, A. (2021). Screening for HPV and dysplasia in transgender patients: Do we need it? *European Journal of Obstetrics & Gynecology and Reproductive Biology*, *260*, 177–182. https://doi.org/10.1016/j.ejogrb.2021.03.030

Peitzmeier, S. M., Agénor, M., Bernstein, I. M., McDowell, M., Alizaga, N. M., Reisner, S. L., Pardee, D. J., & Potter, J. (2017). "It can promote existential crisis": Factors influencing pap test acceptability and utilization among transmasculine individuals. *Qualitative Health Research*, *27*(14), 2138–2149. https://doi.org/10.1177/1049732317725513

Peitzmeier, S. M., Bernstein, I. M., McDowell, M. J., Pardee, D. J., Agénor, M., Alizaga, N. M., Reisner, S. L., & Potter, J. (2020). Enacting power and constructing gender in cervical cancer screening encounters between transmasculine patients and health care providers. *Culture, Health & Sexuality*, *22*(12), 1315–1332. https://doi.org/10.1080/13691058.2019.1677942

Piróg, M., Grabski, B., Jach, R., Zmaczyński, A., Dutsch-Wicherek, M., Wróbel, A., & Stangel-Wójcikiewicz, K. (2022). Human papillomavirus infection: Knowledge, risk perceptions and behaviors among SMW and AFAB. *Diagnostics*, *12*(4), 843–854. https://doi.org/10.3390/diagnostics12040843

Rahman, M., Li, D. H., & Moskowitz, D. A. (2018). Comparing the healthcare utilization and engagement in a sample of transgender and cisgender bisexual+ persons. *Archives of Sexual Behavior*, *48*(1), 255–260. https://doi.org/10.1007/s10508-018-1164-0

Reisner, S. L., Deutsch, M. B., Peitzmeier, S. M., White Hughto, J. M., Cavanaugh, T. P., Pardee, D. J., McLean, S. A., Panther, L. A., Gelman, M., Mimiaga, M. J., & Potter, J. E. (2018). Test performance and acceptability of self- versus provider-collected swabs for high-risk HPV DNA testing in female-to-male trans masculine patients. *PloS One*, *13*(3), e0190172. https://doi.org/10.1371/journal.pone.0190172

Rosswurm, M. A., & Larrabee, J. H. (1999). A model for change to evidence-based practice. *Journal of Nursing Scholarship, 31*(4), 317–322. https://doi.org/10.1111/j.1547-5069.1999.tb00510.x

Roznovjak, D., Petroll, A. E., Lakatos, A. E. B., Narayan, R., & Cortina, C. S. (2023). Perceptions of transgender and nonbinary persons toward breast and cervical cancer development, screening, and potential impact on gender-affirming hormone therapy. *Journal of Clinical Oncology, 19*(5), e794-e800. https://doi.org/10.1200/OP.22.00681

Shires, D. A., Prieto, L., Woodford, M. R., Jaffee, K. D., & Stroumsa, D. (2019). Gynecologic health care providers' willingness to provide routine care and Papanicolaou tests for transmasculine individuals. *Journal of Women's Health, 28*(11), 1487-1492. https://doi.org/10.1089/jwh.2018.7384

United States Department of Health & Human Services. (n.d.). *About Title X service grants*. Retrieved January 27, 2023, from https://opa.hhs.gov/grant-programs/title-x-service-grants/about-title-x-service-grants

United States Preventative Services Task Force. (2018). Screening for cervical cancer: US preventive services task force recommendation statement. *JAMA, 320*(7), 674-686. https://doi.org/10.1001/jama.2018.10897

Varkey, B. (2021). Principles of clinical ethics and their application to practice. *Medical Principles and Practice*, *30*(1), 17–28. https://doi.org/10.1159/000509119

Weyers, S., Garland, S. M., Cruickshank, M., Kyrgiou, M., & Arbyn, M. (2021). Cervical cancer prevention in transgender men: A review. *BJOG, 128*(5), 822–826. https://doi.org/10.1111/1471-0528.16503

Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to Practice/ Generalization
Goldstein et al., (2020), Improved rates of cervical cancer screening among transmasculine patients through self-collected swabs for high-risk human papillomavirus DNA testing. **Country:** US **Funding:** Mount Sinai Health System **Bias:** Researcher served on Endo Pharmaceutical advisory panel	None stated; Inferred: Self-Efficacy Model	**Design:** Retrospective Chart Review, Quasi-Experimental **Purpose:** To determine if offering transmen or nonbinary individuals with a cervix a self-collected hr-HPV test improve rates of CCS if the standard pelvic exam with cervical cytology is declined	**N**= 394 **CG:** n=121 **IG:** n=193 **Mean age:** 34 **Pt. Type:** Transgender men or non-binary assigned female at birth at primary care clinic **Setting:** Transgender patients at the Center for Transgender Medicine and Surgery (CTMS) at Mount Sinai in New York City **Exclusions:** Hysterectomy (without a cervix) **Attrition:** **CG:** 75% (declined pelvic exam)	**IV:** Self-swab for hr-HPV **DV:** CCS rate	**Tools:** Papanicolaou (Pap) cervical cytology HPV self-swabbing **Validity/ Reliability:** Pap: sensitivity 55.4%, specificity 96.8% HPV testing: sensitivity 94.6%, specificity 94.1%	**Statistical Tests Used:** Welch two sample *t*-test	**DV – CCS Rates:** Baseline (CG): 25% Postintervention (IG): 51% ***P*** value = <0.001 *t*= -4.8624 df= 281.71 CI of 95% (-0.36 to -0.15)	**Level of Evidence:** III **Strengths:** Low risk intervention **Weakness:** Large attrition rate; non-randomization; invasive intervention; sample already involved in primary care; utilized convenience sample; clinician bias to increase vigilance of screening and surveillance during intervention; high attrition rates **Feasibility:** Recommended when gold standard Pap is declined **Application:** Alternative to increase uptake of

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			IG: 49% (declined pelvic exam and self-testing)					screenings in under screened and underserved populations
Reisner et al., (2018), Test performance and acceptability of self- versus provider-collected swabs for high-risk HPV DNA testing in female-to-male trans masculine patients. **Country:** US **Funding:** Patient-Centered Outcomes Research Institute (PCORI) **Bias:** None stated	None stated; Inferred: Self-Efficacy Model	**Design:** Quasi-Experimental **Purpose:** To assess the test performance and acceptability of self-collected vaginal specimens to provider-collected cervical swabs for hr-HPV DNA detection in TM	**N**= 131 **Mean age:** 27.4 **Pt. Type:** Transgender men AFAB, aged 21 to 64 years, sexually active within the last three years **Setting:** Trans Masculine Sexual Health Collaborative at Fenway Health in Boston, MA **Exclusions:** Hysterectomy (without a cervix) **Attrition:** 12.6% did not complete both self- and provider-collected sampling, or had inadequate sampling	**IV1:** Self-collected hr-HPV swab **IV2:** Provider-collected hr-HPV swab **DV1:** Test performance of self-collected swab compared to gold standard provider-collected	**Tools:** Papanicolaou (Pap) cervical cytology HPV self-swabbing **Validity/ Reliability:** Pap: sensitivity 55.4%, specificity 96.8% HPV testing: sensitivity 94.6%, specificity 94.1%	**Statistical Tests Used:** Breslow-Day test Post-hoc analysis	**DV – Test Performance:** IV1: Sensitivity 71.4% (95% CI: 0.60, 1.00) Specificity 98.2% (95% CI: 0.94, 1.00) IV2: Sensitivity 85.7% (95% CI: 0.42, 1.00) Specificity 100% (95% CI: 0.92, 1.00) Concordance between sampling methods: Kappa = 0.75, 95% CI = 0.59, 0.92, P<0.0001	**Level of Evidence:** III **Strengths:** Low risk intervention; statistically significant concordance sampling between exams; 90% acceptability rate among patients; negative predictive value of self-swab was 95%; large sample for specific population **Weakness:** Small sample size; self-collected swabs detected fewer cases of hr-HPV compared to provider-collected **Application:** Reasonable, patient-centered, empowerment-based alternative for transmen who avoid healthcare or are unwilling or unable to undergo a pelvic exam

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Table A2

Evaluation Table for Qualitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/Themes	Level of Evidence; Design for/ Application to Practice; Generalization
Connolly et al., (2020), Barriers and facilitators to cervical cancer screening among transgender men and non-binary people with a cervix: A systematic narrative review **Country:** United Kingdom **Funding:** None stated **Bias:** None stated	None stated	**Design:** Systematic review **Purpose:** Identify literature on barriers and facilitators to a successful cervical screening program for gender minority people AFAB	**# of Studies:** 27 **Study Types:** 20 quantitative, 4 qualitative, 3 mixed-methods **Data Bases:** Embase, Medline, PsychInfo, Global Health **Inclusion:** Discussion of disparities in CCS between cisgender women and gender minorities AFAB, patient-specific factors influencing behavior, clinician experience and education, and influence of screening modality; English language	**RQ1:** Service-user factors **RQ2:** Provider factors **RQ3:** Technique preferences **Definitions:** Trans man: "Someone AFAB but identifies and lives as a man (p. 2)" Non-binary: "Umbrella term for people whose gender identity doesn't sit comfortably with 'man' or 'women' (p. 2)"	**Data Collection:** PRISMA	Content analysis by 2 authors	(1) Paucity of trans-specific resources and evidence-based guidance; experiences of gender dysphoria; inadequate Pap tests and the role of androgen therapy (2) Value of a "culturally competent" provider (p. 11); provider comfort caring for gender minorities; provider flexibility during speculum exam (3) Alternative screening options to speculum exam; primary hr-HPV testing	**Level of Evidence:** I **Strengths:** Inclusion of studies worldwide; utilization of PRISMA checklist; formal quality of screening literature for gender minorities **Weakness:** Small sample sizes of qualitative studies included **Application:** Identification of a screening disparity in screening uptake for the gender minority; clinician encouragement to present a variety of techniques for screening; further exploration of the acceptability and efficacy of hr-HPV swabs

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Kerr et al., (2022), Improving cervical cancer screening in trans and gender-diverse people **Country:** Australia **Funding:** None **Bias:** None	None stated	**Design:** Case study **Method:** Online questionnaire **Purpose:** Explore issues with CCS participation, awareness, and healthcare provider recommendation for trans and gender-diverse people	**Sample:** Trans and gender-diverse people (n=537) **Demographics:** 20+ years old; Australian residency; self-identify as trans/gender-diverse; cervix **Setting:** Community promotion; Facebook recruitment **Attrition:** 64% (did not have a cervix)	**RQ1:** Healthcare provider recommended cervical screening **RQ2:** Ever had cervical screening **RQ3:** Reasons for never having attended cervical screening	**Data Collection:** Likert scale questionnaire **Data Dependability:** 88-90% reliability	Descriptive analyses; multiple-regression analyses	(1) 45% never offered; 30% once offered (2) 48% never screened; 30% once/rarely screened (3) 55% emotional trauma; 38% inability to find healthcare provider with whom they felt comfortable with; 31% never had sex; 14% physical pain; 11% previous bad experiences	**Level of Evidence:** VI **Strengths:** Large, national sample of a minority population **Weakness:** Participant self-selected to participate; online only recruitment **Application:** Gender diversity training for healthcare providers; promotion of cervical screening participation within the trans and gender-diverse community
Maza et al., (2020), Cervical cancer screening with Human Papillomavirus self-sampling among transgender men in El Salvador. **Country:** El Salvador **Funding:** Einhorn Family Charitable Trust	None stated	**Design:** Case study **Method:** Questionnaire **Purpose:** Test the feasibility of self-sampled HPV test to increase access for CCS among transgender men in El Salvador	**N**=24 **Mean Age:** 29.3 **Setting:** Basic Health International **Exclusion:** Refusal, unwilling to provide informed consent, do not identify as a transman, uncertain of gender identity	**RQ1** Overall acceptability **RQ2** Instruments felt comfortable **RQ3** Pain **RQ3** Discomfort during sampling	**Data Collection:** Likert scale questionnaire **Data Dependability:** 88-90% reliability	Content analysis	(1) 96% reported they would use self-sampling again in the future (2) On a scale (1=least, 5=most) mean score was 3.6 felt the instruments were comfortable (3) On a scale (1=least, 5=most) mean score was 1.3 for pain (4) On a scale (1=least, 5=most) mean score	**Level of Evidence**: VI **Strengths**: Low risk intervention; decreased pain compared to provider-collected sample **Weakness**: Small sample size; may not be generalized to population outside of El Salvador **Application**: Self-sampled HPV testing

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Bias: 1 researcher was partially supported by a grant from the National Institute of Diabetes and Digestive and Kidney Diseases			**Attrition:** 4% (declined self-sampling)				was 1.5 for discomfort during sampling	is an alternative screening method that circumvents pelvic examination and offers a degree of privacy
Peitzmeier et al., (2017), "It Can Promote an Existential Crisis": Factors influencing pap test acceptability and utilization among transmasculine individuals **Country:** US **Funding:** Harvard Medical School Center for Primary Care; Open Gate Foundation **Bias:** None	None stated	**Method:** In-depth interview **Purpose:** Examine the factors influencing Pap tests utilization among transmasculine individuals to inform evidence-based interventions to promote regular CCS	**Sample:** Transgender men (n=32) **Demographics:** 21-64 years old; transmasculine identity; cervix; AFAB **Setting:** Fenway Health, LGBT-focused urban community health center; local community-based organization serving transgender individuals; social media; 2013 Boston Pride festival **Attrition:** 0	**RQ1:** Perceptions of HPV and cervical cancer risk and prevention **RQ2:** Experiences obtaining Pap tests **RQ3:** Interactions with health care providers **RQ4:** Gender identity	**Data Collection:** In-depth interview **Data Dependability:** Interviews were conducted by a cisgender woman with master's level training in public health and qualitative research; interviewer had experience working with transgender populations	Guided by principles of grounded theory	(1) Felt importance of screening; hesitancy due to lack of information about androgen therapy effects on cervical cancer risk (2) Threats to identity; personal privacy and vulnerability; threats to the body: physical pain (3) Importance of an established, trusting relationship with a skilled, gender-affirming provider (4) Gender incongruence	**Level of Evidence:** VI **Strengths:** Low-risk intervention **Weakness:** Sample included individuals who felt comfortable sharing their experiences, not those who do not; LGBT-focused clinical may not be applicable to other clinics **Application:** Understanding how to Pap test may cause emotional and physical discomfort among TM patients; importance of a trusting patient-provider relationship
Peitzmeier et al., (2020), Enacting power and constructing	None stated	**Design:** Case study	**Sample:** Patients (n=32), Healthcare providers (n=15)	**RQ1:** Affirming or constraining patient choice	**Data Collection:** In-depth interview	Guided by principles of	(1) Establish informed consent as an ongoing process; perceived	**Level of Evidence:** VI **Strengths:** Sample included both patient

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gender in cervical cancer screening encounters between transmasculine patients and health care providers **Country:** US **Funding:** Harvard Medical School Center for Primary Care; Open Gate Foundation **Bias:** None		**Method:** Interview, focus group **Purpose:** Understand patient and provider roles in power and gender dynamics	**Demographics:** Patients: AFAB, cervix, 21-64 years old; Providers: possess advanced nursing or medical degree, performed a Pap on one TM **Setting:** Health, LGBT-focused urban community health center; local community-based organization serving transgender individuals; social media; 2013 Boston Pride festival **Attrition:** 0	**RQ2:** Mitigating or exacerbating vulnerability **RQ3:** Naming patients and their bodies **RQ4:** De-gendering/Re-gendering Pap tests **Definitions:** Affirming – provider protecting ongoing/freely given consent of Pap; Constraining – medical gatekeeping to coerce a Pap; Mitigating – provider recognition of Pap invasiveness and acting to mitigate it; Exacerbating – refusing to make modifications	**Data Dependability:** None stated	grounded theory	"gatekeeping" from gender-affirming care (2) Physical touch and verbal communication affect patient's sense of vulnerability; commentary on medically irrelevant characteristics increased feelings of scrutiny (3) Anatomical terminology used during examination may undermine the patient's identity; preference for use of masculine or gender-neutral alternative terms for body parts (4) Reframe Pap as gender-neutral or masculine	and providers; low risk intervention **Weakness:** Data dependability unclear; lack of racial/ethnic and class diversity **Application:** Gender-affirming and patient-empowering processes that occur during CCS have a profound impact on patient experiences, patient-provider relationships, and health care utilization
Rahman et al., (2018), Comparing the healthcare utilization and engagement in a sample of transgender and cisgender bisexual+ persons **Country:** US	None stated	**Method:** Cross-sectional survey **Purpose:** Intersection of being both bisexual and transgender and utilization of	**Sample:** (n=148): Ciswomen (n=87), Transwomen (n=34), TM (n=27); all identified as bisexual, pansexual or queer **Demographics:** Sexually active,	**RQ1:** HPV knowledge scale **RQ2:** Proactivity toward health **RQ3:** Comfort with provider	**Data Collection:** Likert scale questionnaire **Data Dependability:** 88-90% reliability	Chi-square analyses; ANOVA	(1) TM had significantly less correct knowledge about HPV relative to ciswomen (2) No difference regarding proactivity toward their health care (3) TM reported lower comfort	**Level of Evidence:** VI **Strengths:** Explores sexual and gender minority individuals **Weakness:** Relied on participants to recall experiences; recruitment through convenience sampling online; recall bias; many

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Funding: Division of Health Behavior and Community Health at the School of Health Sciences & Practice, New York Medical College **Bias:** None		health services	English-speaking, 18 years old+ **Setting:** Survey posted on social media (e.g., Reddit, Twitter) **Attrition:** 0					scales used have not been previously validated **Application:** Healthcare providers should receive training on sexual history-taking for bisexual and transgender patients; clinical assessment of the intersection of sexuality and gender orientations and how they are applied toward individuals' health
Roznovjak et al., (2023), Perceptions of transgender and nonbinary persons toward breast and cervical cancer development, screening, and potential impact on gender-affirming hormone therapy **Country:** US **Funding:** Gilead Sciences	None stated	**Design:** Case study **Method:** Survey **Purpose:** Assess transgender and nonbinary persons' perceptions on breast and cervical cancer development, screening knowledge and practices, and attitude	**Sample:** (n=86): transwoman (n=21), TM (n=37), nonbinary (n=17), other (n=11) **Demographics:** AFAB (62%); 30 years old or younger (62%); non-Hispanic white (86%) **Setting:** Froedtert and Medical College of Wisconsin LGBTQ+ Inclusion Clinic in	**RQ1:** Concern for developing cervical cancer **RQ2:** Awareness of CCS guidelines **RQ3:** Up to date with CCS **RQ4:** Reasons for avoiding CCS **Definitions:**	**Data Collection:** Likert scale questionnaire **Data Dependability:** 88-90% reliability	Chi-squared tests	(1) 47% concerned about cervical cancer (2) 56% not aware of CCS guidelines (3) 51% had a Pap test within the past 5 years (4) Gender dysphoria and health care anxiety	**Level of Evidence:** VI **Strengths:** Low risk intervention **Weakness:** Younger cohort of participants; single study from an LGBT+ specialty clinic **Application:** Provider and patient education is needed to increase CCS rates in TM with an intact cervix

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Bias: Gilead Sciences funded research of author AEP		toward GAHT in the setting of hormone receptor-positive breast cancer diagnosis	Milwaukee, Wisconsin **Attrition:** 0					
Shires et al., (2019), Gynecologic health care providers' willingness to provide routine care and Papanicolaou tests for transmasculine individuals **Country:** US **Funding:** None stated **Bias:** None	None stated	**Design:** Case study **Method:** Questionnaire **Purpose:** Exam gynecologic health care providers' willingness to provide routine care and Pap tests to transmasculine individuals	**Sample:** Attending physicians, advanced practitioners, residents (n=60) **Demographics:** Female (68%); white (73%) **Setting:** Women's Health department of a large health system in Detroit, Michigan **Attrition:** 0	**RQ1:** Barriers and facilitators **RQ2:** Factors associated with willingness to provide Pap tests for transgender men	**Data Collection:** Likert scale questionnaire; Kiersma-Chen Empathy Scale **Data Dependability:** 88-90% reliability	Descriptive analyses; chi-square tests; *t*-tests	(1) 72% report lack of training on transgender health; 38% report lack of knowledge about transgender care; 74% report lack of familiarity with guidelines (2) Political views: 87% liberals, 100% moderate, 44% conservative; 89.4% previously met transgender person, 67% not previously met transgender person; lower transphobia associated with increased willingness	**Level of Evidence:** VI **Strengths:** High response rate **Weakness:** Small sample size; inability to perform multivariate analysis **Application:** Providers' willingness was not associated with barriers relating to training or knowledge – only personal biases and experiences; transgender-inclusive health care training that addresses personal attitudes should be a routine part of training

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Table A3

Synthesis Table

Article Overview										
Author	Connolly	Goldstein	Kerr	Maza	Peitzmeier	Peitzmeier	Rahman	Reisner	Roznovjak	Shires
Year	2020	2020	2022	2020	2017	2020	2018	2018	2023	2019
Country	UK	US	Australia	El Salvador	US	US	US	US	US	US
Study Design	SR	QE, RCV	Qual	Qual	Qual	Qual	Qual	QE	Qual	Qual
LOE	I	III	VI	VI	VI	VI	VI	III	VI	VI
Study Specifics										
Sample/# of Studies	27 studies	394	537	24	32	32	148	131	86	60
Age (Mean)	N/A	(34)	20+ Years	(29.3)	21-64 Years	21-64 Years	18+ Years	(27.4)	Not stated	Not stated
TM		**X**		**X**	**X**		**X**	**X**		
Attrition	N/A	62%	34%	4%	0	0	0	12.6%	0	0
Bias	None	LR	None	LR	LR	LR	None	None	LR	None
Intervention										
HPV Self-Swab Method		**X**		**X**				**X**		
Uptake of CCS		↑		↑				↑		
Acceptability				↑				↑		
Provider Factors										
Competency in Transgender Health	**X**		**X**							**X**
Provider-Patient Relationship	**X**		**X**		**X**	**X**	**X**			
Transphobia										**X**
Flexibility with Examination	**X**									

Key: **CCS** Cervical Cancer Screening, **HPV** Human Papillomavirus, **LOE** Level of Evidence, **LR** Low Risk, **QE** Quasi-Experimental, **Qual** Qualitative, **RCV** Retrospective Chart Review, **SR** Systematic Review, **TM** Transgender Men, **X** Discussed/Implemented, ↑ Increased

Patient Factors										
Physical Pain	**X**		**X**	**X**	**X**					
Emotional Pain	**X**		**X**		**X**	**X**		**X**	**X**	
Lack of CCS/HPV Knowledge					**X**	**X**	**X**	**X**	**X**	
Examination Factors										
Previous Bad Experience			**X**							
Feminine-Associated Exam	**X**				**X**	**X**		**X**	**X**	
Lack of Specific Screening Recommendations	**X**								**X**	**X**
Alternative Screening Options	**X**	**X**		**X**				**X**		

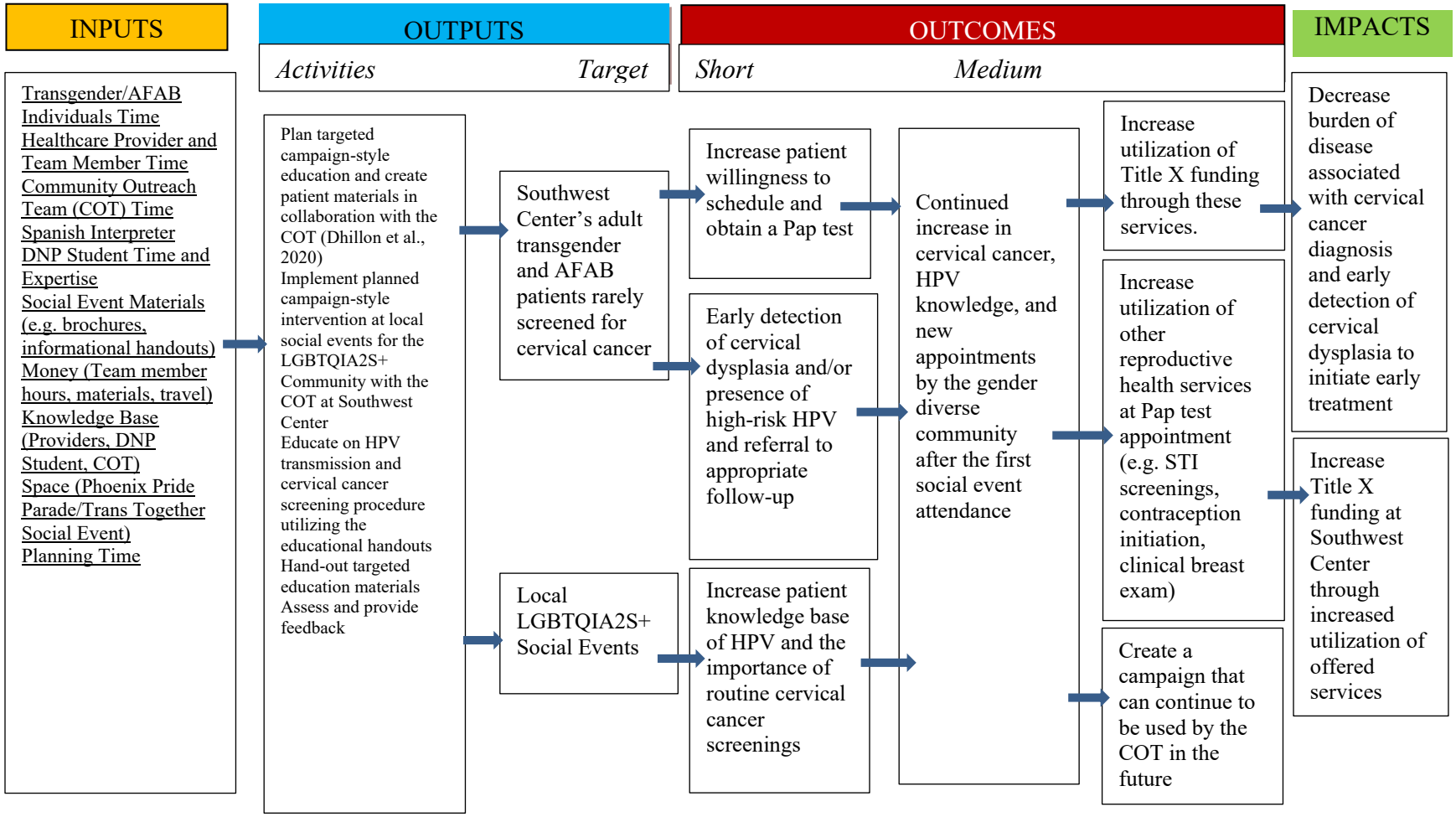
Key: **CCS** Cervical Cancer Screening, **HPV** Human Papillomavirus, **LOE** Level of Evidence, **LR** Low Risk, **QE** Quasi-Experimental, **Qual** Qualitative, **RCV** Retrospective Chart Review, **SR** Systematic Review, **TM** Transgender Men, **X** Discussed/Implemented, ↑ Increased

Appendix B

Figure B1

Pap Tests are Self-Care: Educational Intervention for the Gender Diverse

Goals: The purpose of this evidenced-based project is to increase the number cervical cancer screenings among transgender men and other individuals assigned female at birth (AFAB) at an LGBTQIA2S+ focused urban southwestern health clinic through health promotion strategies.



Assumptions: The patients will attend the local LGBTQIA2S+ social events. The patients will learn from the educational handouts and materials. The patients will schedule an appointment for cervical cancer screening. The Spanish interpreter will accurately translate the education intervention. The education interventions will result in scheduling of appointments for cervical cancer screenings. The patients will understand the importance of early detection of cervical dysplasia, frequency of screenings, and steps of the procedure.

Appendix C

Table C1

Budget

Category	Activities	Cost	Organization Expenses	In-Kind Expenses	Personal Expenses
Personnel	Project Director DNP Student June 2022 to May 2023	$40/hr 9 hrs/week for 11 months		$15,840	
	Project Mentor – Dr. Patricia Janicek	$65/hr 2 hrs/week for 11 months		$5,720	
	Project Site Champion	$45/hr 1hr/week for 6 months		$1,092	
	Community Outreach Team Members	$15/hr 4 hrs total 8 team members	$480		
Materials & Supplies	Design and print educational materials	$250	$250		
	Printed study flyer	$0.08 per paper ~120	$9.60		
	Printed consent form and follow-up questions	$0.08 per paper ~120	$9.60		
	Hire certified Spanish translator	$125			$125
	Online survey access (Survey Sparrow)	$39/month			$117
	Room utilization for Pap education to Community Outreach Team	$35 for 45min	$0*		
Introduction and Conclusion of Project to Staff	Project introduction meeting (room utilization)	$24 for 30min	$0*		
	Project completion report meeting (room utilization)	$24 for 30min	$0*		
Evaluation	Intellectus Statistics software	$59/month 3 months			$0*
		Total Project Cost	**Organization $989**	**In-Kind $22,652**	**Personal $242**

Appendix D

Budget Justification

1) Personnel
   a) Project Director- The DNP student designs the evidence-based practice project, applies for IRB approval, implements the project, evaluates data, and provides recommendations for integrating and maintaining the intervention.
   b) Project Mentor- The project mentor provides guidance to the project director through routine meetings.
   c) Project Site Champion- A leader within the organization that supports the evidence-based practice project. They are available as a resource for others within the organization, provide direct patient care, and can answer questions from patients and other providers regarding the Pap test.
   d) Community Outreach Team Members- The team is present at the community outreach team and are in direct contact with the selected population. They will be passing out the education materials and answering questions.
2) Materials & Supplies
   a) The educational materials will be designed electronically first, submitted to the IRB, and printed upon IRB approval. It will be a double-sided accordion style brochure, with one side in English, and one side in Spanish. This is an estimate based on past brochures at the organization.
   b) The consent form will consist of information about the intervention and collection of de-identified data, including an open-ended question for feedback. The patient will consent by checking a box regarding receiving the brochure upon presenting for a cervical cancer screening at the clinic.
   c) The study flyer will act as the main recruitment method of participants, as well as provide access to the online survey for feedback and a knowledge check of the brochure.
   d) The certified Spanish translator will take the IRB-approved English version and translate it to Spanish.
   e) Room utilization for Pap education to Community Outreach Team in preparation for community outreach events. *The room is available within the organization for no cost if scheduled ahead of time.
3) Introduction and Conclusion of Project to Staff
   a) The room will be utilized to present an introduction about the evidence-based practice project to the staff. *The room is available within the organization for no cost if scheduled ahead of time.
   b) The room will be utilized to present provide the data and outcomes of the evidence-based practice project to the staff. *The room is available within the organization for no cost if scheduled ahead of time.
   c) Project completion report meeting (room utilization)

4) Evaluation
    a) Intellectus Statistics software is necessary to run the data analysis. *Intellectus is available at no cost to graduate students through Arizona State University.
5) Funding
    a) There is no external funding for this project.
    b) The organization costs are estimated to be $989.
    c) Personal expenses for the project director are estimated at $242.
    d) In-kind expenses for the project are estimated to be $22,652.
6) Potential Benefits/Cost Savings
    a) The Papanicolaou test could provide a preventative measure to reduce costs associated with the treatment of cancer caused from HPV.
    b) Long-term outcomes of the intervention would include a decrease in diagnosis of cervical cancer those AFAB, earlier diagnosis of cervical dysplasia, earlier initiation of intervention, decrease in costs associated with HPV treatment, and fewer healthcare appointments associated with HPV.