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# Evaluation of a cervical cancer surveillance program at a community health center

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EVALUATION OF A CERVICAL CANCER SURVEILLANCE PROGRAM AT A  
COMMUNITY HEALTH CENTER

Presented in Partial Fulfillment of the  
Requirements for the Degree of  
Doctor of Nursing Practice

Nova Southeastern University  
Health Professions Division  
College of Nursing

NaQuita J. Manning  
2016

**NOVA SOUTHEASTERN UNIVERSITY  
HEALTH PROFESSIONS DIVISION  
COLLEGE OF NURSING**

This project, written by NaQuita Jackson Manning under direction of Dr. Eglintine Rigaud, Project Chair, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

**DOCTOR OF NURSING PRACTICE**

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## **Abstract**

**Background:** Cervical cancer is reportedly the easiest gynecologic cancer to prevent, and measures that have the most impact are regular screening and timely follow-up. Although the Papanicolaou (Pap) test used to screen for cervical cancer has been recognized as one of the most valuable clinical preventive service for women, variation in screening and tracking remain a barrier for some women achieving optimal health. Missed opportunities for care in the form of inadequate follow-up is a patient safety and quality of care issue that can be appropriately addressed through implementation of a tool to be used as a component of a cervical cancer surveillance program.

**Purpose:** The purpose of this quality improvement (QI) project was to develop an evidence-based, tracking tool for cervical cytology screening to facilitate surveillance measures in a community health center.

**Theoretical Framework:** The theoretical framework applied was Donebedian's quality of care framework that incorporates the Structure-Process-Outcome model.

**Methods:** The study was conducted in five phases over a period of 14 months. After permission was granted to implement the study, the tracking tool was developed with input from the mentor. The final two phases consisted of training, implementation, and evaluation of tool's effectiveness towards improving practice. A survey questionnaire measuring the staff's opinion of the tool was administered and verbal feedback regarding perception of the tool's capability to impact clinical practice was collected.

**Results:** Informal surveys were performed by asking stakeholders to share their attitudes and opinions of the surveillance tool.

**Conclusion:** Consistent evidence-based practice among those charged with providing care is paramount to helping patients achieve their best outcome. Surveillance is an internal process and improving surveillance is pivotal to the goal of optimizing outcomes. The findings of the QI project indicate that through the provision of this evidence-based practice, clinical resource, quality of care will be improved. Additionally, the surveillance tool will be incorporated into clinical practice and used as the official method for tracking abnormal cervical cancer screenings, scheduling follow up care, and tracking patients until resolution of cervical pathology.

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It is my prayer that I am a source of hope, love, and inspiration to you all.



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## Chapter 1

### **Nature of Project and Problem Identification**

The Centers for Disease Control and Prevention (CDC, 2014b) reported that cervical cancer is the most straightforward gynecologic cancer to prevent, and prevention can be achieved through regular screening and timely follow-up. The human papillomavirus (HPV) is the most common precursor to cervical cancer, and the infection rate can be lowered through use of barrier methods during sexual contact and HPV vaccine (Centers for Disease Control and Prevention [CDC], 2015a). Cervical cancer is treatable and when detected at an early stage women who develop invasive cervical cancer have a 5-year survival rate of 91% (American Cancer Society [ACS], 2015).

Even though evidence and statistics indicate that cervical cancer is highly preventable and treatable, this disease continues to be widespread. Statistical summaries from the National Cancer Institute (NCI, 2012) reported that in the United States alone, in 2012 more than 249,000 women were living with cervical cancer. The most recent projection for 2015 was 12,900 new cases of cervical cancer and approximately 4,100 deaths as a result of this malignancy (NCI, 2015).

Despite the substantial research that has resulted in the development of national recommendations for preventive screening, cervical cancer screening rates continue to be insufficient. Screening has been identified as one of the most valuable underutilized clinical preventive services for this population (U.S. Preventive Services Task Force

[USPSTF], 2014). Through the National Breast and Cervical Cancer Early Detection Program (NBCCEDP), the Centers for Disease Control and Prevention (CDC, 2016b) offered access to screening for low-income, uninsured, and underinsured women. However, data for 2010-2012 indicated that greater than 33% of those eligible were not screened (Tangka et al., 2015).

Reasons for low screening rates varied by state and demographics, but the constant was that screening rates remained low. Healthy People 2020 (2016a) included cervical cancer screening in the objectives and announced a target of 93% cervical cancer screening success rate for women ages 21-65 years of age. Although STIs, including HPV, are largely preventable, they remain a major health concern in the United States. In February 2015, the CDC (2015b) confirmed that nearly 79 million Americans were positive for HPV, with 14 million new HPV infections diagnosed annually.

### **Problem Statement**

The problem is that variances in cervical cancer screening practices exist among healthcare providers and lack of adherence to clinical recommendations for screening decrease opportunities for early detection and treatment for women.

### **Purpose Statement**

The purpose of this quality improvement (QI) project is to develop and implement an updated tracking tool for cervical cytology screening to facilitate surveillance measures in a community health center.

## **Project Objectives**

Five objectives were formulated for this clinical project:

1. Address the gap in practice through application of an in-depth literature review to identify needs and deficiencies.
2. Promote use of nationally recognized clinical practice recommendations when screening and making treatment decisions by establishing relationships with facility stakeholders, implementing a project that will enhance the organization, and obtain their support for project and Institutional Review Board (IRB) approval.
3. Develop a protocol for screening and institute electronic clinical reminder for the electronic medical record (EMR) to facilitate screening practices and documentation.
4. Provide training on protocol and additions to EMR.
5. Evaluate provider utilization and satisfaction with the protocol.

## **Theoretical Framework**

With recognition of the significance of the potential complications young women face as a result of delayed care for HPV infection, the theoretical framework applicable and relevant to this problem is Donabedian's (1969, 1988, 1996) quality of care framework. This framework provides a system for examining available health services and evaluating the quality of care provided (Donabedian 1969, 1988). According to Donabedian (1969), the approach to evaluating quality of care can be categorized into three compartments: structure, process, and outcomes.

### **Structure-Process-Outcome Model**

These three components are now known as the Structure-Process-Outcome (SPO) model. The framework then distinguishes the three components in terms of what Donabedian (1969, 1988) considered as the primary factors of each that comprise the model. The facility, equipment, personnel, and finances are associated with structure; provision of healthcare is the process; and outcome is defined as the achieved result with regard to patient health status (Donabedian, 1969). Donabedian's quality of care framework was applied to this clinical project utilizing the SPO model to implement a program designed to improve quality of care with application to a cervical cancer surveillance program.

### **Application of Theory**

Gardner, Gardner, and O'Connell (2013) used the Donabedian framework to examine quality of nursing services. The study focused on care provided by nurse practitioners (NP) and the impact of innovative measures on the quality of care they provided. Gardner et al. (2013) applied the Donabedian SPO model and considered structure as the setting, process as the clinical service provided, and outcome as correlated to patient outcome that resulted from the NP involvement in patient care. Assessment criteria used for the Gardner et al. (2013) study were applied to three areas: (a) knowledge, skills, and performance of providers; (b) communication and teamwork; and (c) quality and safety of care provided.

With application to the present study, within the construct of the three criteria for SPO, key assessments reviewed that are also critical to improving the quality of care for cervical cancer surveillance are clinical decision making, appropriateness of

interventions, patient involvement, and evidence-based practice (EBP) to set the standard for care delivery (Gardner et al., 2013). Evaluation for quality of care improvement is ongoing. The assumption is that improvement in the process will lead to improvement in quality of care. The desired end result is high quality EBP that narrows the gap between research and practice.

### **Significance of the Project**

Sexually transmitted infections such as the human papillomavirus are generally preventable yet remain the most common STI in the United States (CDC, 2015b). The CDC (2015) update reported 79 million persons in the United States were HPV positive and approximately 14 million new infections occur annually. HPV is so common that it is estimated that the majority of people who engage in sexual activity will acquire the infection (CDC, 2015b). In addition to the millions who will become infected, the CDC reported that cervical cancer will develop in more than 11,000 women as a result of this infection (CDC, 2015). In 2012, the ACS estimated there would be 12,170 new cases of cervical cancer and 4,220 deaths (Siegel, Naishadham, & Jemal, 2012). The ACS statistical projections concurred with those of the NCI for 2015, with an estimate of 12,900 newly diagnosed cases of invasive cervical cancer. Of these, 15% will be in women over the age of 65 and result in 4,100 cervical cancer-related deaths.

Although a marked decline is well documented in the number of cervical dysplasia reports that have progressed to cervical cancer since the introduction of the Papanicolaou (Pap) test, many women are not being screened or are screened inappropriately. The American College of Obstetricians and Gynecologists ([ACOG], 2012a) reported 60% of cervical cancers are discovered in women who were inadequately



screened. The statistical evidence cited previously signifies the importance of cervical cancer screening and surveillance to identify abnormalities and intervention to prevent progression to cancer. In efforts to combat this health disparity and mitigate potential long-term complications, several professional affiliations and expert panels have provided evidence-based clinical recommendations to support providers during their care of this population.

Currently, as summarized in Table 1, the U.S. Preventive Services Task Force, American College of Obstetricians and Gynecologists, American Cancer Society, American Society for Colposcopy and Cervical Pathology (ASCCP), and American Society for Clinical Pathology (ASCP) concur on the criteria and methodology for cervical cancer screening for average-risk women (Centers for Disease Prevention and Control [CDC], 2012; Saslow et al., 2012; USPSTF, 2014). However, these clinical recommendations are not incorporated into the routine practices of many primary care providers. Therefore, opportunities for screening, prevention, and treatment are missed.

One major barrier to following clinical recommendations is confusion due to the recent changes that led to difficulty interpreting guidelines to incorporate them into practice (Schwaiger, Aruda, LaCoursiere, Lynch, & Rubin, 2013). In addition to adherence to clinical recommendations for screening, the functionality of surveillance programs may be an added barrier. Dupuis et al. (2010) noted that it is not enough to simply screen for cervical cancer but to recognize that the successes of screening tests are predicted by the percentages of follow-up for abnormal findings. Dupuis et al. (2010) stated if appropriate intervention does not occur for abnormal results, then the opportunity for prevention is missed, yielding the Pap test ineffective.

Table 1

*Summary of Cervical Cancer Screening Clinical Recommendations*

2012 Update Cervical CA Screening	Initiate Screening	Screening Intervals w/ Cytology Alone	Screening Intervals Cotesting Cytology + HPV	Discontinue Screening
ACS ASCCP ASCP	Age 21	21-29 years of age; screen every 3 years	30-65 years of age; screen every 3 years	Age 66 and older w/ adequate negative history, no history of CIN 2, CIN 3, or CA within last 20 years 3 consecutive negative Pap or 2 negative cotests within last 10 years
USPSTF	Age 21	21-29 years of age; screen every 3 years	30-65 years of age; screen every 3 years	Age 66 and older with adequate screening history, no other risk for cervical CA
ACOG	Age 21	21-29 years of age; screen every 3 years	30-65 years of age; screen every 3 years	Age 66 years and older with adequate prior negative history, no history of CIN 2, CIN 3, or CA

*Note.* CA = Cancer; ACS = American Cancer Society, ASCCP = American Society for Colposcopy and Cervical Pathology, ASCP = American Society for Clinical Pathology, USPSTF = U.S. Preventive Services Task Force; ACOG = American College of Obstetricians and Gynecologists.

Recommendations applicable to women with average risk of developing cervical cancer. Adapted from ACS, USPSTF, and ACOG recommendations for cervical cancer screening (CDC, 2012). The information provided is a general overview of guidelines. An in-depth detail of guidelines is available through any of the above organizations.

## **Missed Opportunities to Screen**

Healthcare providers in various settings are given an opportunity to provide medical management and advocate for health promoting behavior for patients who are at risk for exposure to HPV. Healthy People 2020 (2016a) chose cancer as one of its leading health indicators, and identified a cervical cancer screening target of 93%. However, most cervical cancers occur in women who have gone without screening for more than five years and this rate may be as high as 25% for those without health insurance or primary care providers (CDC, 2014). The Centers for Disease Control and Prevention (CDC) recognize this health disparity, and currently has a long-standing commitment to providing cervical cancer screening services to low-income, uninsured women through the NBCCEDP. In the past 5 years (2006-2011) of the program, the NBCCEDP has screened over 1.1 million women for cervical cancer. However, estimates show that between 2004 and 2006 the NBCCEDP was able to provide Pap tests to only 9% of program eligible women. During this same period, it was estimated that nearly 35% of women eligible for the NBCCEDP did not receive cervical cancer screening from any source (CDC, 2016b; Smith, Wilson, Orians, & Byrd, 2013).

An additional factor contributing to missed opportunities to screen is inefficient surveillance programs. Many healthcare facilities use claims data for tracking for lack of a better method. This tracking method may be sufficient for the insured population, but for centers serving the uninsured, claims data do not capture this population. According to Nadpara, Madhavan, Khana, Smith, and Miller (2012) in their study of population health management, claims data as a surveillance method for cervical cancer screening

rates did not meet the goals set by Healthy People 2010 and hence had little impact on the disparities in incidence and mortality for this demographic.

### **Significance of Cervical Cancer Surveillance**

Cervical cancer surveillance may be accomplished with a manual or electronic tool or tracking system. The method of surveillance may be important for sustainability but not as critical as the process itself. Regardless of the system used, the key is to provide accurate and timely follow-up for patient care and appropriate and correct information for the provision of care. Failure to provide timely preventive care, appropriate follow-up, and necessary treatment can have detrimental effects on patient outcomes and healthcare costs (Benard et al., 2012). The American College of Obstetricians and Gynecologists (ACOG, 2012b) recommended tracking begin at the initial visit with good communication between patient and provider regarding test and potential follow-up. As additional support for surveillance, ACOG (2012b) cited tracking systems as an effective tool to enhance the safety and quality of care, increase screening compliance, and decrease adverse patient outcomes due to delayed diagnosis and treatment.

In response to the significance and the seriousness of this health problem and the evidence reported, this capstone project identified and implemented strategies to be used in the primary care setting. The QI project was designed to develop a surveillance tracking tool to facilitate early detection and timely follow-up of women at risk for cervical cancer.

The target population for this project was staff who provided, coordinated, and assisted with care of women who received cervical cancer screening at a community

health center. Project participants were healthcare providers at the center who supplied care. The project incorporated current evidence-based clinical recommendations and updated cervical cancer screening guidelines to support screening and surveillance for young women within this demographic.

Two measurable objectives to determine impact of study were the percentage of age-appropriate women screened for cervical cancer and time from results to follow-up care before and after implementation. These objectives were not feasible for this project because of the limited time frame of project. Later long-term study will provide the most meaningful results but may be skewed due to the transient population, such as college students and changes in economic status that alter insurance affordability.

In efforts to facilitate a standardized approach in the clinical setting, I proposed the use of a standardized surveillance and documentation tool that may be incorporated into the electronic medical record (EMR). However, the EMR could not be modified to accommodate the tool, therefore it was made available as an excel spreadsheet. The spreadsheet was then uploaded to a shared drive and made accessible to designated women's health staff to have read and edit privileges. Although an accessible tool within the EMR is ideal, a replicable product may also be a valuable instrument that will allow for continued updates to sustain currency with changes in standards of care. The implementation of this program required interdisciplinary coordination with the public health, information technology, and facility support staff and other healthcare providers.

### **Significance to Nursing Practice and Health Outcomes**

The introduction of what is now described as high quality screening, in which liquid based cytology and HPV co-testing for women are utilized as indicated, has led to

a marked decline in mortality and an unprecedented 5-year survival rate of 92% (Saslow et al., 2012). This percentage is strong evidence that cervical cancer surveillance plays a vital role in improved health outcomes. Not only were patient screening rates increased but also timely follow-up and treatment were provided; screening alone has been shown to be less than optimal (Saslow et al., 2012). To ensure a similar positive impact within the community health center, the current cervical cancer surveillance program was modified to improve effectiveness and efficiency, and relevant staff were educated on application of tool. The American Association of Colleges of Nursing (AACN, 2006) in *The Essentials of Doctoral Education for Advanced Nursing Practice* outlined the responsibility of doctorally prepared, advanced practice registered nurses (APRN) on their roles in advancing practice and improving patient outcomes. The healthcare challenge of the high rate of HPV infection in women offers an opportunity to implement plans that have the promise to affect positive change in practice and outcome.

### **Nursing Practice**

Although cervical cancer is preventable and may be a common reason to seek healthcare, the illness places a certain economic burden on society. Esselen and Feldman (2013) reported cervical cancer screening and treatment of HPV-related diseases in the United States was estimated to cost 4.6 billion dollars. Delayed diagnosis is often implicated as a factor in the rising costs of healthcare. Esselen and Feldman (2013) studied the cost effectiveness of cervical cancer prevention and reported a credible measurement of health outcomes in evaluation of life-years saved and quality of life for survivors. Understanding the implications on health and health outcomes regarding cervical cancer related disease, the impact for nursing practice at the community health

center was to exercise due diligence in the role of preventive care. Nursing practice at the community health center accepted the role and worked collaboratively to implement a tool to positively promote cervical cancer surveillance within their facility.

In the current clinical project, the aim was to develop a surveillance tracking tool to facilitate early detection and timely follow-up of women at risk for cervical cancer. To achieve these results, a multifaceted surveillance product was introduced that combines clinical knowledge, strategies tailored to improve tracking, and ongoing evaluation to increase adherence to use of the tracking program. Beyond the scope of this project, continued evaluation is nevertheless imperative to successful implementation of a continuous process improvement initiative. Accordingly, to achieve the desired outcome, implementation of clinical guidelines in a specific clinical site may require adjustment to meet the needs of that particular setting (Schwaiger et al., 2013).

The project's significance to nursing practice constitute the implications for future nursing research, evidence-based practice, and quality improvement. Nursing research is important to generate new knowledge regarding cervical cancer surveillance. The incorporation of evidence-based practice in clinical decision making promotes use of the latest clinical information and encourages data search for best practice. Finally, in effort to answer the clinical question, a spirit of inquiry is cultivated among nurses to develop and implement quality improvement initiatives. According to Mick (2015) clinical projects that apply evidence-based practice as a process have an increased chance of a seamless transition to quality improvement, and less of a leap from research question to research methodology.

After my review of the current literature, discussed in Chapter 2, the need is clear for practice alignment that will achieve the best patient outcome. Tools to facilitate the project are not limited to but include educating providers and staff regarding clinical guidelines, maximizing accessibility of standardized screening recommendations to minimize missed opportunities, and prompts within EMR as permitted. Further, the conducting of periodic analyses of adherence to recommendations is essential through assessment of the surveillance tool.

### **Healthcare Outcomes**

Following program implementation is assessment. Relative to a desired increase in age-appropriate cervical cancer screening, effectiveness may be measured by an increase in ratio of number of patients screened to the number of patient encounters. These findings require long-term follow-up and may not be available during my clinical project time frame. Thus, other measures of process improvement effectiveness were considered and reported. Education was a critical factor that helped determine the success of the project. An organization equipped with tools to educate their population will not only enhance patient care but also patient outcomes.

Implementing interventions designed to improve practice is a QI initiative and should be welcomed. However, challenging providers' autonomy and altering established practice routines may be seen as upsetting and met with resistance. A known and effective means of affecting change is to involve staff in the decision making process (Kettinger, 2013). It is also critical that those involved understand the cause, as well as the desired end result. The goal is improving cervical cancer surveillance to improve health outcomes.



ACOG (2012b) updated its committee opinion also to reflect the need for accurate and effective tracking to improve quality of care that results from prompt diagnosis and early treatment. Overall success of the project was interpreted as improved healthcare outcomes through its impact on number of patients screened, which translates into increased detection, timely treatment, fewer complications, and dollars saved. The patient's role in prevention, detection, and treatment is critical, but it is an external factor. Screening and surveillance are internal factors that may be controlled by healthcare staff and are important steps toward affecting noticeable change in preventing and treating this disease.

Finally, the strategies and interventions discussed are capable of making a difference. Working to establish change in the healthcare setting is pivotal but may be minimally effective if applied independent of patient-related involvement. Promoting a culture of enhanced compliance with clinical recommendations, however, may be the necessary beginning. Implementing a plan with action is the desired goal, and this project, designed to improve surveillance, requires the action of implementation.

### **Significance of Healthcare Delivery and Policy**

Healthcare delivery, governance, and health demands with increasing complexity have changed over the years, and the nursing profession has evolved to meet those demands. The demand for safe, quality, patient-centered, and cost efficient healthcare has led to the call for nurses to fill the gap (Institute of Medicine [IOM], 2011).

Consequently, the demand for cost efficient care without sacrifice of quality has also increased the demand for the APRN to deliver excellent patient care. The IOM (2011) *The Future of Nursing* report recognized that nurses are leaders in healthcare and are

pivotal contributors to the transformation of the healthcare system. Transformation includes the universality of access to healthcare, cost containment of care, and prevention. In the future of nursing, these aspects will be a major focus that directly impacts access and cost (Golden, 2015).

**Healthcare delivery.** Nurses continue to be leaders in healthcare and are believed to be key players in the nation's goal to deliver high quality care. Buppert (2015) concurred that nurses, particularly the APRN, are the new faces of medicine. The nursing profession for too long has been overlooked and underutilized in medical practice, have worked long and hard to claim their rightful place, and now the challenge is to maximize this opportunity.

Advocating for EBP, providing quality care, and continually striving to practice at the highest capacity are only several of the ways that nurses affect care delivery. Specifically, the application and promotion of EBP has resulted in improved quality and safety of healthcare (Eade & Henning, 2013). Eade and Henning (2013) highlighted nurses' roles in EBP in identifying a STI as an important health concern for youth. The researchers described a screening tool to enhance the risk assessment for that population, in which improved assessments maximized opportunities to treat, educate, and enhance outcomes.

In the current project, improvement of cervical cancer surveillance at the community health center is indicative of the innovation needed in healthcare. Kovner and Knickman (2011) discussed healthcare delivery by proposing health systems function proactively and encouraging providers to focus on the maintenance of health instead of reactions to illness. The plan of study for this clinical improvement project was intended

to function in this manner. An efficacious surveillance program included and was led by nursing staff, to incorporate provider input, follow facility protocol, and adhere to clinical recommendations.

**Healthcare policy.** Another critical and significant role that nursing plays in healthcare is policy. Nursing may impact policy from one level to another at the local, state, or national levels. Mund (2012) referenced the IOMs report that called for nursing to seek leadership roles and participate in policy making that impacts the present and future of healthcare. In addition to the 2011 IOM report, the development and implementation of the Affordable Care Act is also a driving force behind the impetus for APRN to elevate their role in the delivery of healthcare and policy (Mund, 2012). Hence, nursing is now preparing the professional nurse who is educated at the Doctor of Nursing Practice (DNP) level to design, influence, and implement healthcare policies (AACN, 2006; Lathrop & Hodnicki, 2014). In response, nurses are working to enact laws and change policy. The improvement of clinical practice within an ambulatory patient care setting, such as the present research site, may not have an impact on national policy but can change policy at the local level.

For this capstone project, successful implementation required changes in facility protocols and standard of practice within the organization. This outcome is congruent with the project goal, to improve upon existing policy that guides screening and to institute new directions where needed. The existing facility protocols are scant in detail and have not been updated to reflect the current clinical recommendations.

Changes and updates should revamp the existing protocols that represent the latest guidelines supported by ACS (2014), ACOG (2012a, 2012b), and USPSTF (2014) and

provide a working document to ease accessibility to information without replicating available literature. Additionally, references were provided within the protocol to guide the search for detail not included in the written protocols. Further, designated review time frames of established protocols were suggested the facility leadership to facilitate maintenance of currency. The purpose for these changes was local policy impact.

Every initiative is not designed to have a global impact but some initiatives provide excellent and exceptional guidance to affect change on a smaller scale. With a positive local impact, however, there is always the potential for best practices to be adopted by other institutions. Hence, this QI project could serve as a model for expansion across various health delivery systems.

### **Summary**

The goal of this QI project is implementation of goals into action that may improve clinical practice and patient outcomes. The application of the theory of Donabedian's (1969, 1988) quality of care framework aided in the analysis of quality through application of Donabedian's Structure-Process-Outcome model. The significance of healthcare practice, outcomes, delivery, and policy were discussed to present a clearer view of the importance and possible contribution of this QI initiative to positive health outcomes for revamping an organization's cervical cancer surveillance process.

A key essential for the Doctor of Nursing Practice student is to collaborate with other healthcare professionals to improve patient and population health. The Patient Protection and Affordable Care Act is a nationally recognized legislation that stipulate nursing as positively affecting healthcare. This legislation is vital to the progress for advanced nursing practice and the realization of the vital role of nurses' in the provision

of care. According to Osborne (2011) the demand for the APRN has been heard, and nurses are poised to meet the demand. The IOM (2010) recommended nurses partner with other healthcare professionals, a recommendation already being followed, as nursing care is a collaborative effort.

As an experienced practicing nurse, I believe that nursing will also continue to have a presence in healthcare policy. Price (2010) wrote that “policies are introduced where a particular sort of change is considered urgent or important enough to prompt more concerted adjustments to practice” (p. 41). Nurses are change agents and, from state to state, they are working towards change that will make a positive difference in healthcare delivery and policy (Osborne, 2011).

## Chapter 2

### **Review of the Literature**

The human papillomavirus is the most common sexually transmitted infection in the United States and the leading cause of cervical cancer (CDC, 2014b). Cervical cancer, once the number one cause of cancer-related deaths among women, is now ranked the 14th leading cause of female cancer-related deaths (CDC, 2014b). In 2012, it was estimated that 12,170 cases of invasive cervical cancer would be diagnosed and an estimated 4,220 women would die (Siegel et al., 2012). This estimate is despite the CDC (2014b) report that cervical cancer is the least problematic gynecologic cancer to prevent. Although documented as preventable, HPV-related disease entities continue to plague women at various stages in their lives. In an effort to combat risks and incidence of cervical cancer, several national organizations collaborated to provide clinical practice guidelines and recommendations to direct screening and treatment (Saslow et al., 2012), as shown in Table 1.

The incidence of the progression to cervical cancer resulting from undiagnosed HPV infection has been attributed to several factors. Infrequency of gynecological screening is a prime contributor to the incidence of cervical cancer and complications resulting from HPV infection (Saslow et al., 2012). Patient education and lack of knowledge regarding the implications for undiagnosed and untreated gynecological disease and infection are also included in the reasons for disease advancement (Fish et al., 2013; Slone et al., 2013).

Additionally, a factor that is not solely the patient's responsibility is follow-up for routine and abnormal clinical results. The focus on disease prevention instead of treatment has shifted some of the responsibility for ensuring that preventive care is achieved to the healthcare provider and practice (Healthy People 2020, 2016a, 2016b). A critical and necessary component for providing safe, quality, and timely care is the utilization of a reliable tracking, patient notification, and reminder system. The purpose of this literature review is to examine factors affecting adherence to screening and follow-up, review implications for loss to follow-up, and identify the significance of effective tracking systems in the provision of safe care.

### **Search Methods**

A review of the literature centering on cervical cancer screening and follow-up was completed using electronic searches of studies through Nova Southeastern University's Alvin Sherman Library, Research, and Information Technology Center. Searches were by database subject, limited to publications from 2010 to 2016, and were conducted in Cumulative Index to Nursing and Allied Health Literature Complete (CINAHL) and ProQuest Nursing & Allied Health Science. Additional searches for current national statistics and national committee and organization opinions were conducted with Google search engine.

The primary search terms and phrases used in various combinations were the following: *cervical cancer, cervical cancer screening and tracking, HPV infection among females, screening practices, Pap test tracking and follow-up, nursing informatics, cervical dysplasia programs, electronic medical record, documentation, Pap notifications, abnormal Pap, adherence to follow-up, and clinical practice guidelines for*

*cervical cancer screening*. Criteria for the search were that articles in English, full text, and in peer-reviewed academic journals. A total of 28 articles were retrieved for this review.

### **Cervical Cancer Screening**

The literature review focused on cervical cancer screening, tracking, and follow-up. In addition to highlighting statistics, prevalence, morbidity, and mortality for cervical cancer among women, the evidence confirmed the need for a standardized process for the clinical management of normal and abnormal screening results (Calhoun, Goode, & Simmons, 2011; Fish et al., 2013; Stone et al., 2013). Although cervical cancer deaths have declined significantly over the past 30 years, the disease has nevertheless had a major impact on women's health, with minority women suffering the greatest risk (American Cancer Society [ACS], 2014). In the United States, Hispanic women have the highest rate of cervical cancer, followed by African-American women (ACS, 2014; Centers for Disease Control and Prevention [CDC], 2014d).

The review emphasized several factors that are acknowledged to have contributed to the decline in cervical cancer-related mortality. The marked decline related, first, to the adoption of the Pap test by the ASCCP. More recently, the decline was attributed to the inclusion of the HPV test at defined screening intervals (Saslow et al., 2012).

### **Adherence to Screening and Follow-Up**

Jalilian and Emdadi (2011) observed that an estimated 500,000 new cases of cervical cancer will be diagnosed worldwide each year making cervical cancer the second most commonly diagnosed cancer in women. The literature reveals that the high incidence of cervical cancer is directly associated with a lack of screening and inadequate



follow-up for abnormal findings (results (Calhoun, Goode, & Simmons, 2011; Fish et al., 2013; Stone et al., 2013). The theme throughout the literature was that adherence to clinical guidelines and recommendations for follow-up by both provider and patient was key to maximizing patient health and positive outcome.

Despite the importance of preventive care, the attention to reports of inconsistencies between medical records and patient accounts of history prevail; these are known gaps in knowledge about HPV and nonadherence to screening recommendations. Dupuis et al. (2010) studied innovation and improvement for tracking abnormal cervical screening and noted that “screening for cervical cancer with a Pap test is only as successful as the follow-up rate for an abnormal result” (p. 575). This is a valuable caution and should alert any clinician and patient that the result of the test is just as important as the test itself.

As a professional healthcare provider, I have never adhered to the principle of “no news is good news” for those in my care. Rather, I have always impressed upon individuals seeking care not to be content until they are informed of the results and have received instructions regarding care and recommendations for any necessary follow-up. Sepulveda and Young (2013) confirmed this outlook in reporting on methods to improve a laboratory information system. The initial goal was to optimize laboratory operations; however, it also proved that clinical care could be improved with appropriate and meaningful management of laboratory information (Sepulveda & Young, 2013). Sepulveda and Young reaffirmed the premise that adequate follow-up for cervical cancer screening is paramount to health and well-being.

### **Implications for Loss to Follow-Up**

The disparities in healthcare are well documented, including the incidence and mortality associated with cervical cancer. Nadpara et al. (2012) addressed population health and noted that even among those with Medicaid provision of full coverage for preventive screenings, these individuals' consistently yielded lower rates for screening. Loss to follow-up was also a result of inaccurate patient accounts and insufficient medical record documentation of patient history.

Further, patients' understanding of the recommendations for follow-up is a significant barrier to their receiving the appropriate level of care at the appropriate time (Slone et al., 2013). Slone et al. (2013) performed an in-depth review of cervical cancer screening programs for 13 health departments in Kentucky, assessing the correlation between patient self-reports and health department records for follow-up. The discrepancy between patients' self-reports of what they understood and what the health department documented in their medical records as follow-up recommendations was 53.8% (Slone et al., 2013). Noting the report was limited to a small population, Slone et al. nevertheless emphasized that what patients hear or interpret may be far from the intended message communicated by the healthcare team.

### **Effective Tracking Systems**

Variances in screening, reporting, and tracking underscore the need to establish and maintain systematic protocols to create and sustain reliable methods for communication between patients and staff. ACOG (2012b) concluded that the tracking process for any patient should begin at the initial visit and continue throughout the care

continuum. The foundation for safe and quality care is the accuracy and timeliness of communication between the healthcare team and patient (ACOG, 2012b).

With regard to the importance of an effective tracking system, seven studies and one discussion article highlighted the potential negative impact delayed reporting had on health outcomes. Anderson, St. Hilaire, and Flinter (2012) suggested that focus be placed on prioritizing program goals that may be identified through the process of survey before and after implementing changes. Although not specific to women's health preventive screening, Awan, Wagenberg, Daly, Safdar, and Nagy's (2011) article on tracking delays was reviewed and was considered relative because the authors pointed out the potential for adverse impact when a tool is relied on without a means of checks and balances. Awan et al. (2011) addressed the quality control and assurance that indicated the clinician was knowledgeable of the technology and that a gap in knowledge would not be problematic for information interpretation. Hence, a reminder that a system of tracking provides value but may also present challenges if the proper training for system use does not occur.

The literature was consistent in recommendations for a preventive care tracking system, whether it tracked one screening or several. The variance revealed was in the type of program; electronic and manual were both classified as appropriate tracking methods. The intent of both methods was to capture the information and develop a consistent manner of communication (Dupuis et al., 2010; Calhoun et al., 2011). Fish et al. (2013) indicated that in addition to a tracking system, adherence to follow-up was improved when coupled with counseling, reminder calls, and written appointment notifications. Tracking via the EMR was proposed by Dupuis et al. (2010) and Calhoun et

al. (2011) as the premier step to improvement of the process of Pap test tracking. Both studies focused on time efficiency and elimination of errors and variance. Systems include reminder prompts for staff, standardized templates, and the potential for cross-system communication with an automated process to capture laboratory and pathology reports (Calhoun et al., 2011; Dupuis et al., 2010).

### **Summary**

The evidence is clear that cervical cancer screening and surveillance is a necessary and valuable tool for early detection and treatment for HPV-related conditions (ACOG, 2012a; Bernard et al., 2012; Saslow et al., 2012; Centers for Disease Control and Prevention [CDC], 2014a). Evidence also supports the use of reminders for clinical staff and patients to improve compliance with clinical recommendations for preventive screenings and follow-up (ACOG, 2012b; Dupuis et al., 2010). Missed opportunities for care in the form of inadequate follow-up and nonadherence to clinical practice recommendations are patient safety and quality of care issues that should be addressed at the local level.

Many of the variances can be rectified with the enforcement of policies and procedures that direct healthcare staff in the expectations for patient care. Policies and procedures may include clinical protocols, standardized processes for communication flow between clinicians and patients, and the understanding that all office staff should follow the defined protocols (ACOG, 2012b). The elements to be tracked are negotiable, however data should be made readily available to all associated staff and should be consistent in language.

As a result of the literature review, additional interventions were suggested as well as a postintervention survey (Anderson, St. Hilaire, & Flinter, 2012). Within the preintervention survey, critical information for successful revamping of a program is identification not only of existing protocols but highlighting of key elements that may be missing. Items to look for during the preintervention survey are defined as timely follow-up guidelines, data collection and tracking methods, patient navigation system, care coordination, and the roles of patient care staff (Anderson, St. Hilaire, & Flinter, 2012). All of these components assist with establishment of a program that maximizes opportunity to effectively track and increase adherence to follow-up care. Defining of roles is also essential to enhancing the probability and opportunity for each level of care provider to perform to the full extent of their scope of practice, thus, defined roles should be outlined in protocols governing cervical cancer surveillance and screening (IOM, 2010).

Finally, the overall goal for evaluating strategies to improve cervical cancer surveillance is to promote quality healthcare and optimal health outcomes (Beydoun, Dail, Tamim, Ugwu, & Beydoun, 2010). With regard to quality and safety, Healthy People 2020 (2016b) identified two goals pertinent to this project: (a) reduction of the number of new cancer cases to include morbidity and mortality caused by cervical cancer, and (b) implementation of effective strategies to prevent sexually transmitted diseases (STDs) and their complications. The evidence shows that with continued focus on preventive care, health literacy, and culturally competent interventions that increase cervical cancer screening rates, the result is less barriers to care and a reduction in cervical cancer related morbidity and mortality (Nardi, Prabhjot, & Selix, 2016).

## Chapter 3

### **Methods**

Sexually transmitted infections such as the human papillomavirus are largely preventable yet HPV remains one of the most common STIs in the United States (CDC, 2014a) and is the most prevalent precursor for cervical cancer. In response to the prevailing statistics and morbidities associated with the HPV infection among women, it is imperative that healthcare providers make every effort to screen, diagnose, treat, and follow until resolution evidence of HPV to help patients achieve their best outcomes. The problem of variances and deficiencies in gynecological preventive health screenings has increased the need and urgency for standardization within healthcare organizations.

Hence, the purpose of this QI project was to develop and implement an updated tracking tool for cervical cytology to facilitate surveillance measures in a community health center. The proportion of inadequately screened women is higher among older, minority women, and minority women suffer the greatest risk and negative impact of cervical cancer and HPV infection (ACS, 2014). In the United States, African-American women have the second highest rate of cervical cancer, surpassed only by Hispanic women (ACS, 2014; CDC, 2014b). The statistics indicate that cervical cancer screening continues to be an underutilized tool for early detection and prevention of disease (USPSTF, 2014).

## **Project Design**

The aim of this QI project was to address gaps in surveillance of cervical cancer screening by implementation of an effective and efficient tracking tool to help mitigate variances in clinical practice and discrepancies in care. The project design used the Stetler (2001) model of research utilization to facilitate evidence-based practice. The 2001 version of the Stetler model discussed the steps of research utilization that enhance application of evidence-based practice and more specifically detailed the concepts of the preparatory and evaluation processes (Stetler, 2001).

## **Setting**

The community health center is an ambulatory healthcare organization that provides medical services to residents living in eight rural counties within North Florida. The community health center has two locations and a mobile unit, with some variation in services available dependent upon the location. Only one location offered gynecological care and that center was chosen for project implementation. The facility utilized for this project is centrally located on the south side of town, has public transportation in close proximity, and offers a range of services to include primary care, obstetrics, gynecology, and dental. The project focused on the women's health department at the selected facility. The center affords access to care, regardless of patient ability to pay, a source of pride to the organization. Thus, uninsured or underinsured individuals within the community have access that might otherwise not be available.

The Florida Department of Health (FDOH) compiled statistics for 2011 that identified the state as second in the nation for cancer burden; cancer was Florida's leading cause of death (FDOH, 2012; Centers for Disease Control and Prevention [CDC],

2014c). Cervical cancer was among the state's top 10 most commonly diagnosed cancers, with 857 new cases and 312 deaths reported in 2010 (NCI, 2012). Additionally, women living in rural counties were estimated to have lower screening rates yet they had a greater number of cervical cancer detected and more detected at an advanced stage.

The NCI (2012) reported 67.6% of African American women were diagnosed at an advanced stage of cervical cancer, compared to 49.3% of Caucasian women. The women who receive care at the community health center are within this population of minority, lower socioeconomic status women, and reside in rural areas. Therefore, community health center is an ideal location for improvement of the quality of care with development of a cervical cancer surveillance tracking tool. This tool should mitigate the occurrences of missed opportunities to provide community residents with this valuable source of preventive care.

## **Participants**

### **Criteria for Inclusion**

The improvement project required participation of management and staff in various positions. Additionally, guidance for inclusion incorporated the clinical recommendations of ACOG, CDC, and USPSTF (Saslow et al., 2012). The major criterion for inclusion was employment at the community health center. Personnel were included because of their roles in policy development and approval, access to policies, procedures, interaction with healthcare providers, interaction with patients, potential impact on documentation, records management, routing diagnostic results, and information technology specialists.



These members were recruited through my solicitation of their support and pointing out the opportunity for improvement in quality of patient care. The recruitment of identified key stakeholders included efforts that provided information on QI initiative, staff education on benefits of program, demonstration of the effectiveness and efficiency of use, and appeal to the healthcare providers' desire to help patients achieve their best outcomes.

### **Criteria for Exclusion**

There were two criterion for exclusion. The first criteria was individuals who were not employed at the community health center location that performed cervical cancer screenings. The second criteria were employees who had no direct patient care roles with cervical cancer surveillance.

### **Participants' Roles**

A total of 10 participants were involved in project implementation. The roles of each participant are summarized in Table 2. The chief medical officer and information technology personnel had key roles in project implementation but were not users of the tool and thus did not complete the survey.

Table 2

*Roles of Project Participants*

Staff Assigned Role	Number of Staff Members
Physician	2
Advanced Registered Nurse Practitioner	2
Registered Nurse	1
Case Manager	1
Medical Assistant	3
Information Technology	1
Total Staff Participated	10

**Ethical Considerations**

Development of this tracking tool did not require contact with patients or access to records that disclose protected health information. A letter of exemption was provided by the Nova Southeastern University IRB on May 28, 2016 (Appendix A). The tool focused on process, flow, continuity, specificity, accessibility, and reliability (ACOG, 2012). The goal for the project was quality improvement of the process, and this goal was accomplished without the use of patient identifying information. Furthermore, the patients' rights to privacy were protected under the Privacy Act of 1974 (U.S. Department of Justice, 2015).

## **Project Phases and Objectives**

This project was implemented in five phases, some which overlapped or took place simultaneously.

**Phase 1:** Phase 1 began with an extensive literature review that provided evidence to support the imperativeness of utilizing an effective surveillance tool for cervical cancer screening (ACOG, 2012). During this phase, the gap in practice at the community center was identified and a request was made to develop a tool that tracked cervical cancer screening rates (CDC, 2014b). The request was made by the center's medical director with the support of the risk manager. There were other stakeholders to consider and efforts were made to present the QI project in a positive manner and highlight the benefits of the initiative.

**Phase 2:** This was approval of the project. The facility agreement to conduct the project was finalized with two letters of approval on August 14, 2015 for the research, and on April 19, 2016 for cervical cancer surveillance only, and the work began on aligning the project goals with those of the stakeholders. The goals were to review the organization's current process for surveillance, engage with staff to assess the needs they had identified regarding surveillance, and develop the tracking tool. Additionally, the facility's annual QI survey that provided statistical data on preventive care for women had not been completed in over 2 years. Thus, the management supported the QI project.

Staff were invited to participate through a flyer (Appendix B) distributed in patient care areas and posted in staff breakroom. Interested participants were sent a letter of participation explaining the study, their roles in participation, the risks and benefits, and confidentiality of their identities (Appendix C). This phase was ongoing, requiring

flexibility to adapt to the needs and requests of the organization. Good working relationships were also important in this phase, requiring collaboration for credible decisions regarding the proposed changes to a process that was familiar to most and did not require them to invest time and attention in learning a new system.

**Phase 3:** This phase was development of the screening tool. This phase consisted of gaining the approval of the course lead, mentor, and medical director for the community health center and making any final amendments prior to implementation. The phase also included presentation of a plan to orient staff to the new way of tracking cervical cytology. Introduction of the completed tool (Appendix D) during a designated time and place for training maximized the learning opportunity and decreased the risk of inadequate training due to competing priorities (Mira et al., 2012).

**Phase 4:** This phase included implementation and staff training on the revised protocol and surveillance tool. The phase incorporated steps to implement a tool that directed surveillance for cervical cancer screening. During this phase, the evidence was translated into practice. Some staff missed the initial training sessions, thus requiring one-on-one or over-the-shoulder onsite training. However, it was anticipated that the majority of those involved would be prepared and equipped with the basic instructions to begin utilizing the tool.

**Phase 5:** In this phase, evaluation took place of staff interpretation of the surveillance tool effectiveness (Appendix E). Completion of the anonymous survey implied consent. The impact of the project on rates of screening and adherence to follow-up could not be determined as part of this project. However, staff interpretation of effectiveness and efficiency compared to the previous program was evaluated. Putting the

plan into action should have decreased the likelihood that patients would be lost to follow-up. The plan-into-action should also have decreased the time staff spent on attempting to use a system that lacked standardization or efficiency. Success at this stage was staff evaluation that the tool improved efficiency and effectiveness of surveillance tracking for cervical cytology among age-appropriate women.

### **Timeline**

The timeline for this project was more dependent upon the host facility than originally anticipated. Initially, the timeline to completion was estimated at 24 weeks. Phase 1 was completed in 4 weeks. Phase 2 was completed in 9 weeks. Phase 2 called for development of a working tool that was revised and revamped to meet needs of the institution. Phases 3 and 4 required education and then practice; thus, allotted time for each was 5 weeks. The remaining 4 weeks were used to evaluate use and efficiency of the tool. To produce the best product possible, creation of a tool independent of stakeholder input would most likely have proved futile. Therefore, the timeline was reasonably adjusted throughout project development and implementation to accommodate participants' necessary feedback.

### **Resource Cost Analysis**

The cost breakdown for this project was estimated at \$2,683. The actual costs were significantly higher than the initial projection for expenditures. Upon calculating the budget, I underestimated travel, and access to the Internet was not included. The resource analysis is provided in Table 3.

Table 3

*Itemized Cost Analysis for Project*

Resource	Cost Projection
<b>Materials</b>	
Copy and Printing	\$100
Printer Paper and Cartridges	\$150
Name Badge	\$10
Lab Coats	\$50
<b>Technology</b>	
Portable Internet Access \$49/month	\$343
<b>Presentations for Tool Implementation</b>	
Refreshments	\$250
<b>Travel</b>	
Air Fare x 2	\$400
POV x 8 average \$110 round trip	\$880
<b>Total Estimated Expenditures</b>	<b>\$2,183</b>

**Outcome Measures**

The goal of prevention instead of treatment prevails and was reiterated in Healthy People 2020 (2016a, 2016b) and the Affordable Care Act (United States Department of Labor, 2009). However, cervical cancer and STIs continue to be diagnosed at alarming rates (Centers for Disease Control and Prevention, 2014e). These statistics and personal contact with affected women daily in practice that spurred my efforts to seek measures to combat this disease burden. Sexually transmitted infections, which include HPV, cost the

American healthcare system nearly \$16 billion each year (Centers for Disease Control and Prevention [CDC], 2013).

As previously mentioned, the aim of this QI project was to address the gap in surveillance and tracking for cervical cancer. Five objectives were established that guided project planning, development, and implementation. The outcome measures are discussed below.

**Objective 1.** Address the gap in practice through application of an in-depth literature review to identify needs and deficiencies.

This objective was met by review of the literature and use of discovered evidence to substantiate the gap in practice and present support for the need of a standardized tracking system for clinical management of cervical cancer screening (Calhoun et al., 2011; Fish et al., 2013; Stone et al., 2013).

**Objective 2.** Promote the use of nationally recognized clinical practice recommendations when screening and making treatment decisions.

This objective was quantified by establishment of relationships with facility stakeholders, implementation of a project to enhance the organization, and obtaining of support for project and IRB approval (Appendices A, B; ACOG, 2012a; Baraitser, Alexander, & Sheringham, 2011). Additionally, the Essentials of Doctoral Education for Advancing Nursing Practice VI. Interprofessional Collaboration for Improving Patient and Population Health Outcomes, and VII. Clinical Prevention and Population Health for Improving the Nation's Health, were applicable and were utilized throughout project implementation (AACN, 2006).

**Objective 3.** Develop protocol for screening, and institute electronic clinical reminder for the EMR to facilitate screening practices and documentation.

This objective was adjusted dependent upon the facilities' ability to make amendments to the EMR. The objective was met through collaboration with stakeholders, to include medical director and advanced registered nurse practitioner, and revamp of existing protocols where applicable to align facility practice with national clinical recommendations. The desired outcome was improved capture of healthcare needs.

**Objective 4.** Provide training on protocols, surveillance tool, and additions to EMR.

Training was ongoing, introduced during Phase 2, and fully implemented in Phase 3. The goal was to provide training during a reserved time in a designated location that had limited distractions (Mira et al., 2012). An example was a lunch-and-learn, a 15-minute group session that allowed for staff attendance and time to complete other competing interests during their lunch break. Several sessions were required with varying presentations to illustrate the roles of the support staff comprised of the case manager and medical assistants. With a knowledgeable staff, patients will reap the benefits. The desired result for this objective was effective education and training that facilitated a smooth transition for the staff in using the new surveillance method. Consequently, user satisfaction and compliance with the tool provided the most valuable feedback for the objective.

**Objective 5.** Evaluate provider utilization and satisfaction with protocols and surveillance tool.



The final objective was accomplished during Phases 3-5 (Appendix E). Evaluation early in the process is important so that timely changes may be made to prevent major problems and dissatisfaction. This objective was met by a satisfaction survey for provider staff regarding satisfaction, use, and effectiveness of the policy changes and tool. Additional evaluation of utilization was accomplished through assessment of tool use, currency of data, and standardization in clinical practice.

### **Summary**

The literature indicates that the variance between clinical recommendations and actual practice has not been resolved. In response to the persisting epidemic of diseases that are largely preventable, such as cervical cancer, the roles of healthcare providers warrant further exploration (CDC, 2014a), especially in the day-to-day interactions with patients. The critical and central component to aid in meeting the objectives of this project is more screening. However, several studies noted provider practice as a significant contributor to missed opportunities to screen and treat HPV infection (Kettinger, 2013; Lanier et al., 2014; National Committee for Quality Assurance, 2011).

It is true that patients may ignore warnings and medical advice. However, the need exists for consistent EBP among those charged with providing care. Whether patients knowingly or unknowingly put themselves at risk, they nevertheless deserve the best information and care that will result in the best outcomes for them. Improving surveillance is pivotal to the goal of optimizing outcomes. Leading with education, providers, staff, and patients are the stakeholders.

An abundance of literature and references exist that may be applied to an ambulatory care setting. Resources and clinical recommendations are constantly

changing; keeping up with the vast number of changes is a difficult task. The patient's role in prevention, detection, and treatment is critical as well but is an external factor for the initiative of a project such as the current one. Surveillance is an internal factor that may be controlled and is an important step towards affecting noticeable change for the disease burden of cervical cancer and the population most at risk.

## Chapter 4

### **Results and Discussion**

Cervical cancer is no longer the leading cause of cancer-related deaths for women in the United States and, according to the Centers for Disease Control and Prevention (CDC, 2016a), the decrease is attributable to the increase of women receiving regular testing via liquid-based cervical cytology screening and high-risk HPV testing. The potential also exists for an even greater decline in cervical cancer disease with the addition of the HPV vaccination. However, although the general health of the population has seen marked improvements, the outcomes for racial minorities continue to fall behind. Health disparities continue for African American women, and particularly those who are economically and educationally disadvantaged. Siegel, Ward, Brawley, and Jemal (2011) reported that potentially 37% of early cancer deaths could have been prevented 10 years ago if race and educational disparities did not exist.

The collaboration of leading health organizations to develop guidelines for cervical cytology screening, follow-up, and treatment was an excellent initiative and provided standardization for care that was long awaited. However, the guidelines are only as useful as the individual provider's interpretation and application in the clinical setting. With the widespread move for standardized care, much variation in practice remains (Darwish-Yassine et al., 2015). Subsequently, if variation exists in screening, the likelihood is high of variations during assessments of the process for tracking test results.

The literature indicates that the variance between clinical recommendations and actual practice has not been resolved (ACOG, 2012b; Darwish-Yassine et al., 2015; Fish et al., 2013). In response to the persisting epidemic of diseases that are largely preventable, such as cervical cancer, the roles of healthcare providers warrant further exploration (CDC, 2014a), especially in the day-to-day interactions with patients. The critical and central component to aid in meeting the objectives of this project is more screening. However, several studies noted provider practice as a significant contributor to missed opportunities to screen and treat HPV infection (Kettinger, 2013; Lanier et al., 2014; National Committee for Quality Assurance, 2011).

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An abundance of literature and references exist that may be applied to an ambulatory care setting. Resources and clinical recommendations are constantly changing; keeping up with the vast number of changes is a difficult task. The patient's role in prevention, detection, and treatment is critical as well but is an external factor for the initiative of a project such as the current one. Surveillance is an internal factor that may be controlled and is an important step towards affecting noticeable change for the disease burden of cervical cancer and the population most at risk.

Throughout the literature, there was a common theme of variation in screening practices, tracking, and innovative measures to improve follow-up once screening was completed (Calhoun, Goode, & Simmons, 2011; ACOG, 2012b; Fish et al., 2013). As a healthcare provider, I understand that a test is only effective if accompanied with intervention. That intervention may be additional testing, treatment, or simply patient education. Thus, a cervical cancer surveillance tool will only be effective if adequately implemented and applied to the clinical setting. To be efficient, the tool needs to be populated, maintained, and used appropriately to track patients to resolution.

### **Results**

After a review of the needs of the community health center and specifically the women's health department, at a meeting with the medical director and nurse practitioner in charge of the women's clinic, the decision was made to develop a product that would enhance tracking of women who had Pap testing at the facility. The next meeting was held with the medical director and risk manager to approve project implementation for the tool at the site and grant permission to access the computer system. This permission led to facilitating integration of the tool into the department's workflow once created and staff trained. Initial approval to conduct the QI initiative and subsequent approval to condense the initiative to cervical cancer surveillance only were provided. These approvals were followed by an exemption letter and approval to proceed with the study from the Nova Southeastern University IRB (Appendix A).

Development of the project through evaluation took place in five phases, guided by the five objectives. The phases were as follows: (a) literature review, (b) project approval by site, (c) development of the surveillance tool, (d) tool implementation, and

(e) evaluation. The timeline established for phases included some overlap, and delays were experienced during Phases 4 and 5, implementation and evaluation, respectively. Implementation, which consisted of staff training, was often met with competing priorities.

Staffing constraints, EMR upgrade, and two accreditation inspections were extenuating factors that impacted the timeline for full implementation. The final phase had to be modified due to dependence upon in-house technology to load the tool onto the computer system. However, evaluation took place with participants using paper completion of the tool and not by electronic survey, as planned. Although the phases of intervention were adapted to meet the constraints of the organization, the objectives were met in accordance with the objective criteria.

**Objective 1:** Address the gap in practice through application of an in-depth literature review to identify needs and deficiencies.

The first objective was met by completion of a thorough review of the literature and conducting of a needs assessment of the clinical site. The components of the literature search are described in Chapter 2. The literature clearly indicated that tracking of Pap test results was critical to preventive care for increasing early detection, which improved timely treatment.

Additional support for substantiation of having met this objective was identification by stakeholders that the QI project would help the organization meet internal and external requirements for its annual QI survey. The survey that provided statistical data on preventive care for women had not been completed in over 2 years. Furthermore, the organization and the women's health department desired to have an

improved method of capturing the Pap test results and follow-up for this patient population.

**Objective 2:** Promote use of nationally recognized clinical practice recommendations when screening and making treatment decisions.

This objective and supporting criteria were also met. Clinical practice recommendations by ACOG, ASCCP, USPSTF, and ACS (Saslow et al., 2012) were shared with all women's health staff, clinical leaders, and nursing supervisors. The guidelines for screening and algorithms for cytology as well as pathology were placed on a shared computer drive available to all clinical personnel. The wide distribution of guidelines was educational and increased accessibility for all interested personnel.

With regard to screening practices, adherence to recommendations improved, and according to the supervising APRN, this improvement may have been attributed to the hiring of an obstetrician and gynecologist (OB/GYN) who helped manage workload and improved the staff's ability to provide timely diagnostic testing. The nurse practitioner expressed concern that prior to the addition of the OB/GYN, the lack of services in-house may have contributed to a higher rate of loss to follow-up. Consequently, sustainment of this objective in the future is dependent upon staff and access to care.

**Objective 3:** Develop protocol for screening, and institute electronic clinical reminder for the EMR to facilitate screening practices and documentation.

This objective was accomplished through modification of the objective, which was improved capture of healthcare needs. The protocol for screening had been last updated in 2014 and was reviewed with the ARNP who authored the protocol. After

review and revision, current clinical recommendations for cervical cancer screening and treatment were included.

In addition, because of proprietary restrictions, changes could not be made to the EMR. However, training did take place on the existing reminders that were part of the EMR and were not being used. Orientation to existing features within the system was twofold: increased use of preventive care reminders that were universal across all clinics, and elimination of the need for creation and staff learning of a system that would be used by only one clinic. As previously stated, staffing was limited. Hence, improving usability of the existing system extended beyond one department but proved beneficial to the organization.

**Objective 4:** Provide training on protocols, surveillance tools, and additions to EMR.

The outcome of this objective was evaluated by targeted staff members who received training on protocol, tracking tool, and embedded reminders within the EMR. The majority of training took place in an on-the-job manner. The original goal of group training did not take place because of time, staff conflicts, and competing priorities. Upon review, this method would not have been the best approach because staff did not have remote access to the computer system. Instead, one-on-one and over-the-shoulder training with no more than two staff allowed for more effective hands-on training, immediate answers to questions, and timely feedback regarding tool's effectiveness.

**Objective 5:** Evaluate provider utilization, satisfaction with protocols, and satisfaction with surveillance tool.



The final project objective was evaluated over several phases. During Phase 3, tool development, the importance of stakeholder input early in the process was recognized. The goal was to ensure that the needs of the organization were considered, as well as the usefulness and efficiency of the tool. Phase 4 implementation was also used as an evaluation period so that adjustments could be made prior to completion of the final product.

The last phase and objective of the project outlined the evaluation process to be accomplished. According to the feedback provided from key staff and personnel, two of three components of the objective were met: satisfaction with protocols and satisfaction with development of surveillance tool. Provider utilization could not be evaluated due to limited access to the electronic tool prior to the end of evaluation period. However, providers did voice satisfaction and appreciation for the development of the tracking program and standardized surveillance tool that they perceived would increase their capacity to provide timely care to the organization's female population.

### **Expected and Unexpected Findings**

All phases of the project revealed expected and unexpected challenges and obstacles. Upon initial presentation of the proposal to conduct the study, the leadership accepted the project. The community health center is a nonprofit agency that operates on a restricted budget and depends heavily upon state and grant funding. Therefore, the opportunity to improve patient outcome in a manner that did not incur cost was appealing to and encouraged by the management. Further, the quality improvement project developed a method that did not previously exist to capture a specific population, filled a

void in patient care, and streamlined the staff workload. Direct and open-ended questions that were asked regarding tool indicated overall satisfaction with end product.

The most unexpected findings were the degree of difficulty with gaining access to IT for support, loading the tool onto the computer system, and staffing constraints that limited personnel available to assume accountability for maintaining the tool. The assumption of ease of implementation of the project was made in error. The IT office department was staffed with one individual who served multiple locations. Therefore, the lack of additional personnel created a hardship with maintenance of scheduled meeting dates and times.

Due to the IT staff member's time and priority conflicts, an official request in writing, supported by the medical director, was made on June 1, 2016, for creation of a password-protected folder that could securely house the surveillance tool. With support of the medical director, I continued requests informally and formally. However, meeting these requests were delayed because of the IT staff member's imperative duties: preparation for inspections, server upgrades, institution of new EMR, and various other concerns that received a higher priority than this project implementation. However, the APRN who supervised the women's health department voiced satisfaction with the surveillance tool and assured me she was invested in ensuring the tool would be accessible electronically and implemented into the department's daily operations.

### **Strengths and Limitations**

A significant strength of the QI project was the ongoing support received from the stakeholders and staff. Two major limitations were the availability of IT support to fully implement project within the established time frame and inability to collect survey

responses. The only staff member who completed survey was a medical assistant. No licensed medical staff completed online survey that was requested through a link that was sent to their work email address. Additional strengths and limitations are outlined below in Table 4 with a Strength, Weakness, Opportunity, and Threat (SWOT) analysis.

### **Implications for Nursing Practice, Outcome, Delivery, and Policy**

A review of the literature supported the finding that although cervical cancer has remained a leading cause of cancer-related death for women, when identified early and managed accordingly, mortality and morbidity are greatly reduced (Peirson, Fitzpatrick-Lewis, Ciliska, & Warren, 2013). Despite barriers to care and documented health disparities, cervical cancer screening continues to be the single most effective preventive care screening for women of all ages, races, and socioeconomic backgrounds. The critical component in this modality of care is the timeliness of intervention, which often makes the difference between disease prevention and disease management.

Table 4

*SWOT Analysis of Project*

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Relationship building</li> <li>• Stakeholder involvement</li> <li>• Development of Pap tracking program</li> <li>• Decrease of loss to follow-up</li> <li>• Improvement of prioritization for patient appointments</li> <li>• Streamlined/standardized Pap surveillance</li> <li>• Improved capability for tracking to resolution</li> <li>• Improved capture of department workload</li> <li>• Provision of data required for organization quality and process improvement programs</li> <li>• Data tracking system to support need for contract OB/GYN</li> </ul>	<ul style="list-style-type: none"> <li>• Limited personnel</li> <li>• Staff view tool as additional duty, increased workload</li> <li>• Resistance to delegating tool maintenance</li> <li>• Limited IT support</li> <li>• Lack of resources</li> <li>• Access to care demand exceeded access availability; staff reported time a factor in training/use of tool</li> <li>• Electronic tool not made available for full implementation, staff access</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Good collaboration/support among stakeholders and key staff</li> <li>• Decreased loss to follow-up care</li> <li>• Decreased time from results to patient notification</li> <li>• Provide data for facility quality improvement and process improvement program evaluation</li> <li>• Standardized tracking program</li> </ul>	<ul style="list-style-type: none"> <li>• Delayed process of tool availability</li> <li>• Staffing hours cut/potential to seek employment elsewhere</li> <li>• Limited access to IT (troubleshoot, address IT concerns)</li> <li>• Time</li> <li>• Limited personnel to sustain program</li> <li>• Limited resources</li> <li>• Resistance to change</li> </ul>

The overarching goal of the QI initiative was to design a tool that would improve quality of care. The process incorporated actions that impacted the practice of care delivered, policy that drove practice, and ultimately patient outcome. The implications for practice are the promotion of interprofessional, quality, and evidence-based practice care.

Modification of the cervical cancer surveillance process directly impacted nursing practice and delivery of care. Professional and unlicensed supportive nursing staff, comprised of APRN and medical assistants were responsible for management of the program, including coordination of care. The tracking tool was implemented as an electronic source, made available to all key personnel, and maintained in a centralized accessible location for pertinent clinical data relevant to cervical cancer screenings. This change in practice improved tracking and capture of patient with abnormal results, and increased opportunity to follow through until resolution of abnormal finding. Furthermore, institution of the tracking program incorporated evidence-based practice to standardize patient care activities and nursing staff workload.

Relative to policy, the quality improvement project drove changes to local policy to support implementation of surveillance tool that not only centralized tracking, but also standardized tracking of Pap results. Prior to approval to conduct the study at the community health center, the Pap policy had last been revised in 2010. Cervical cancer screening for average-risk women was updated in 2012 and subsequently, areas of the policy were not aligned with the new clinical recommendations (CDC, 2012; USPSTF, 2014). The project focus encouraged review of local policy and through collaboration with stakeholders, policy was updated and current clinical guidelines were made available to all involved staff. As a final point, through adherence to the changes made in

policy, access to written guidelines, and knowledge of team members' individual roles, the optimal outcome of improved quality of care should be achieved.

### **Future Research**

Cervical cancer screening has garnered global attention for many years. Various state, national, and worldwide organizations have conducted research and published information on the status of the disease. However, surveillance programs that are unique to cervical cancer have not yielded the same attention. Several studies within the literature review stressed the importance and need for tracking programs that would decrease the concern that accompanies low screening, which is inadequate follow-up (ACOG, 2012b; Stone et al., 2013).

Markossian, Darnell, and Calhoun (2012) reported statistical data that low-income, minority women faced significant barriers to care after abnormal Pap test results and were therefore less likely to receive timely treatment and intervention. Although several extenuating factors impacted timeliness to care, referral to higher levels of care was a top concern. If the appropriate level of care is not accomplished in a timely manner, disease progression could take place, another hurdle to overcome to ensure optimal patient outcomes.

Additional research could be conducted replicating this study with larger populations and at other geographical locations. Results could be compared to the present ones for greater understanding of barriers to and resolutions of timely cervical cancer screening and follow-up. The screening methods of larger healthcare institutions could be studied as well for recommendations.

Additional quantitative studies could be conducted for satisfaction surveys of healthcare staff on use of a tool such as the present one. Studies with larger numbers of staff could help pinpoint deficiencies and enhance strengths of the tool. Revisions to the tool could increase staff use and timely detection.

Qualitative studies could be conducted with staff involved in cervical cancer treatment (e.g., APRN, OB/GYN, clinic managers) for their responses to the efficacy of the tracking tool. Parallel studies could be conducted with patients who have benefited from the timely detection of cervical cancer and subsequent follow-up. As part of these studies, recommendations for improvement by each population could be requested.

Research that focuses on tracking to resolution could improve health for women affected by mitigating the loss to follow-up and decreasing the time from diagnosis to management.

### **Summary**

Healthy People 2020 (2016a, 2016b) selected cancer as one of its primary topics and objectives with a goal to decrease the number of new cases and associated complications on diagnosis. In addition to colorectal and breast cancer, the objective specifically targeted cervical cancer and called for support of efforts to reduce the cervical cancer disease burden in the United States. The prevalence of cervical cancer and the global initiative for preventive care, cancer risk reduction, and disease management reinforce the importance of results tracking.

Women's health care physicians governed by ACOG reaffirmed their opinion of results tracking that stated "practices should establish reliable tracking and reminding systems that improve patient safety, quality of care, and minimize delay in care" (ACOG,

2012b, p. 1). Although useful, a results tracking system is not intended to be a substitute for patient accountability and responsibility for their individual health. However, when properly utilized, a cervical cancer surveillance program is an effective method for helping patients receive the appropriate care, within the appropriate time frame, to achieve optimal health outcomes.



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## Appendix A

## Nova Southeastern University IRB Exemption Letter

**MEMORANDUM**

To: **NaQuita J Manning, MSN**  
**College of Nursing**

From: **Jo Ann Kleier, Ph.D., Ed.D.**  
**Center Representative, Institutional Review Board**

Date: **May 28, 2016**

Re: **IRB #: 2016-205; Title, "EVALUATION OF A CERVICAL  
CANCER SURVEILLANCE PROGRAM AT A COMMUNITY  
HEALTH CENTER"**

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I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review under **45 CFR 46.101(b) (Exempt Category 2)**. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

- 1) **CONSENT:** If recruitment procedures include consent forms, they must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.



2) **ADVERSE EVENTS/UNANTICIPATED PROBLEMS:** The principal investigator is required to notify the IRB chair and me (954-262-5369 and Jo Ann Kleier, Ph.D., Ed.D., respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) **AMENDMENTS:** Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

**Cc: Eglintine Rigaud, Ph.D.**

## Appendix B

## Flyer


**Cervical Cancer Surveillance**
**Quality Improvement Initiative**

**The purpose is to develop a tracking tool for Cervical Cytology to enhance surveillance measures**

*Presented by:*

*NaQuita J. Manning, MSN, WHNP-BC  
Doctor of Nursing Practice Student*

**Significance of the Problem**

Cervical cancer is the easiest gynecologic cancer to prevent, achievable through regular screening and timely follow-up (CDC, 2014). . . When detected at an early stage, women who develop invasive cervical cancer have a 5-year survival rate of 91% (American Cancer Society, 2015). . .

U.S. Preventive Services Task Force, American College of Obstetricians and Gynecologists, American Cancer Society, and American Society for Colposcopy and Cervical Pathology concur on the methodology for cervical cancer screening for average-risk women.

**Implications for Practice**

- Improve cervical cancer surveillance
- Healthcare Outcomes- increase in age appropriate cervical cancer screenings, increase in ratio of number of patients screened for number of patient encounters, and timely follow-up care; early detection, early intervention, and prevention.
- Success equals improved healthcare outcomes

## Appendix C

### Participation Letter

Title of Study: Evaluation of a Cervical Cancer Surveillance Program at a Community Health Center

Principal investigator  
NaQuita J. Manning, MSN

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Site Information  
Community Health Center

**Description of Study:** NaQuita Manning is a doctoral student at Nova Southeastern University engaged in a clinical capstone project for the purpose of satisfying a requirement for a Doctor of Nursing Practice degree. This quality improvement (QI) project involved the assessment of the cervical cancer surveillance program at a community health center that provides care to women of varied age, race, and economic backgrounds. The purpose of this QI project is to develop an evidence-based, updated tracking tool for cervical cytology screening to facilitate surveillance measures in a CHC, contributing to early detection, timely treatment, decrease cost burden associated delay in care, and optimally healthier patient outcomes.

If you agree to participate, you will be asked to complete the attached questionnaire. This questionnaire will help the writer identify the strengths and weakness of the developed cervical cancer tracking tool. The data from this questionnaire will be used to identify the needs of the healthcare providers that use the tool in order to meet the needs of cervical cancer surveillance program. The questionnaire will take approximately five minutes to complete.

**Risks/Benefits to the Participant:** There may be minimal risk involved in participating in this study. There are no direct benefits to for agreeing to be in this study. Please understand that although you may not benefit directly from participation in this study, you have the opportunity to enhance knowledge necessary to develop a usable cervical cancer tracking tool within your institution. If you have any concerns about the risks/benefits of participating in this study, you can contact the investigators and/or the university's human research oversight board (the Institutional Review Board or IRB) at the numbers listed above.

**Cost and Payments to the Participant:** There is no cost for participation in this study. Participation is completely voluntary and no payment will be provided.

**Confidentiality:** Information obtained in this study is strictly confidential unless disclosure is required by law. All data will be secured in a locked filing cabinet. Your name will not be used in the reporting of information in publications or conference presentations.

**Participant's Right to Withdraw from the Study:** You have the right to refuse to participate in this study and the right to withdraw from the study at any time without penalty.

**I have read this letter and I fully understand the contents of this document and voluntarily consent to participate. All of my questions concerning this research have been answered. If I have any questions in the future about this study they will be answered by the investigator listed above or his/her staff.**

**I understand that the completion of this questionnaire implies my consent to participate in this study.**

Appendix D  
Cervical Cancer Surveillance Tool

Patient Information				Pap Test Information		Follow-up Information			
Patient Name	Age	Medical Record #	Provider	Date of Pap	Pap Results	Date Pt Contacted /Staff Initials	Date of F/U GYN Appt	Status of F/U (Kept/Cancelled/No-Show)	Notes: (No Show, Rescheduled, Letter mailed, Referred, Resolved)

**Note: Staff contacting patients will place initials next to date.**

Appendix E  
Cervical Cancer Surveillance Tool  
Satisfaction Survey

1. How would you rate the ease of access to the cervical cancer surveillance/pap smear tracking tool?

- Very Easy
- Easy
- Neutral
- Difficult
- Very Difficult

2. How would you rate orientation use of the surveillance tool?

- Very Good
- Good
- Fair
- Poor
- Very Poor

3. How would you rate the usefulness of the tool for your clinical environment?

- Very Good
- Good
- Fair
- Poor
- Very Poor

4. How would you rate the effectiveness of the tool in meeting your needs as member of the healthcare provider team?

- Very Good
- Good
- Fair
- Poor
- Very Poor

5. How would you rate the information provided within the tool?

- Too much information
- The right amount of information
- Too little information
- The wrong information

6. How would you rate your overall satisfaction with the cervical cancer surveillance/pap smear tracking tool?

- Very Satisfied
- Satisfied
- Neutral
- Dissatisfied
- Very Dissatisfied

7. Comments