

Reducing Cervical Cancer Disparities in Black Cisgender Women of Mecklenburg County

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The ARMS Task Force is an organization that battles cervical cancer by working with community partners through health promotion and preventative services (Edwards et al., 2022). Specifically, the task force supports minority populations in Mecklenburg County that are at a higher risk of developing cervical cancer. For this program, the focus will be on Black cisgender women from the ages of 18-44. The program will be implemented in the 28212 zip code because it has around 10,000 Black cisgender women, a large population that would be eligible for the program (ONE Charlotte Health Alliance, 2022a). The 28212 zip code is also likely to have reduced access to health care. Within this area, the average income for a Black household is around \$15,000 less than the average for the county, and 28% of all adults are uninsured (ONE Charlotte Health Alliance, 2019, 2022b).

In Mecklenburg County, Black women are disproportionately affected by cervical cancer. The incidence rate for Black women is 7.3 per 100,000 people compared to 6.3 in their white counterparts (Center for Disease Control and Prevention, 2019). Black women also experience a higher rate of death than white women in Mecklenburg County due to cervical cancer. In 2019, Black women had a lower case total than white women at 73 and 105 respectively (CDC, 2019). However, the two groups experienced nearly the exact same amount of total deaths. This may be explained by the fact that Black women have a rate of diagnosis during late stage cancer of 3.3 per 100,000 people, while white women have a rate of 2.7 (National Cancer Institute, 2018). Without intervention, this disparity will continue to have a catastrophic impact. Currently, only about 77% of eligible Black women in North Carolina receive recommended pap tests (NCI, 2020). There are also cultural aspects among Black women in the Southeastern United States that affect use of preventive measures. An example found through qualitative research was the

association of the HPV vaccine with promiscuity or sexual activity (Sundstrom et al., 2019). This highlights the need for more education about preventive services and will be considered throughout the proposed program for a better understanding of the target population.

Behaviors and Social Determinants of Health to be Addressed

Due to the disproportionate rates of late stage diagnoses and death in Black women, this program will focus on encouraging preventive measures in the target population. The first behavior that will be addressed is human papillomavirus (HPV) vaccination. Out of over 100 types of HPV an individual can contract, 14 types are considered to be cancer-causing. However, two of these high-risk HPV types are responsible for 70% of cervical cancers alone, making HPV the number one cause of cervical cancer (Wang et al., 2020). Despite this, cultural concerns often stop women from getting the HPV vaccine as adolescents. For instance, a qualitative study was done in South Carolina by thoroughly interviewing 66 women about their perceptions surrounding cervical cancer. Among their 23 Black participants, researchers found common themes of low perceived susceptibility, vaccine mistrust, association with sexual activity or promiscuity, cost, and being uninsured as barriers to using preventive measures against cervical cancer (Edwards et al., 2022). To increase the uptake of the HPV vaccine, the ARMS Task Force will reduce barriers associated with access to health care and social integration that affects perception of this vaccine's purpose.

The second behavior this program will address is cervical cancer screening through Pap tests. In the United States at large, higher incidence and death rates for cervical cancer are found in areas where there is limited access to cervical cancer screening. Reducing barriers to screening can have an incredible impact on death rates, as patients found to have precancerous lesions have a nearly 100% 5-year survival rate (Kessler, 2017). Guidelines for Pap tests include those

between the ages of 21 and 29 receiving a Pap test every three years, and everyone over the age of 30 receiving them every five years (Kessler, 2017). In 2018, 84.2% of women ages 21-65 in zip code 28212 had received a Pap test in the past 3 years (ONE Charlotte Health Alliance, 2018). While this number is encouraging, 28212 has the second lowest Pap test rate out of 29 zip codes in Charlotte, NC. To increase this percentage, the ARMS Task Force will again address the determinant of access to health care with the addition of health literacy.

Best Practices

The ARMS Task Force will use a combination of three best practices found from similar interventions to address the above social determinants of health. The first is the use of community health workers (CHWs) as the primary deliverers of educational material, which was proven to be effective both in cost and results in a systematic review of 66 cancer screening studies (Community Preventive Services Task Force, 2022a). The second is the method of information delivery. Educational materials will be delivered in a group setting, specifically in a lecture or workshop format. The CPSFT found insufficient evidence to suggest the effectiveness or ineffectiveness of group education in cervical cancer screening interventions (CPSTF, 2022b). However, they found that this practice is highly effective when used in breast cancer interventions, leading to a promising outlook for its use with cervical cancer should more information be presented. The ARMS Task Force intends to use CHWs in a group setting to provide participants with a sense of connectedness to their community. The final best practice to be implemented is the use of small media to encourage use of preventive measures, which is recommended for programs targeting breast, cervical, and colorectal cancer (CPSTF, 2022c). Small media will be used to support linkage to care and as screening guideline reminders.

Program Overview

To address the health disparities described above, the ARMS Task Force will adapt a program by Staples, Wong, and Rimel entitled “An educational intervention to improve human papilloma virus (HPV) and cervical cancer knowledge among African American college students,” to the specified target population of Black cisgender women aged 18-44 in Mecklenburg County (2018). This intervention used pre-tests and post-tests to examine the increase in knowledge about HPV and cervical cancer as a result of 1-hour lectures given at four Historically Black Colleges and Universities (HBCUS) (Staples et al., 2018). The ARMS Task Force will tailor this intervention by offering six educational lectures over the span of one year at the Simmons YMCA located within the 28212 zip code. The program will aim to reach 100 people, or 15-20 per session.

During these educational sessions, program participants will first take a pre-test to check their prior knowledge on HPV and cervical cancer. Next, they will go through the educational lecture about female anatomy, HPV, the HPV vaccine, cervical cancer, and Pap tests with diagrams and demonstrations. The lectures will encourage those under the age of 26 to receive the three HPV vaccinations and those above 26 to be educated on the subject, as well as recommend Pap tests for all participants. These lectures will be given by recruited local Black CHWs in the obstetrics and gynecology (OB/GYN) field, who will attend four weekly training sessions and complete the same test as participants to demonstrate their knowledge. Finally, participants will take a post-test to track knowledge increase and intent to follow through with recommended preventive measures. These steps follow the model provided by the adapted intervention (Staples et al., 2018). Upon completion, participants will receive a pamphlet with local resources for HPV vaccination and Pap tests as well as the guidelines for each service. This is not included in the adapted intervention, but will reinforce the knowledge the participants gain.

Overseeing this program will be a committee comprised of ARMS Task Force representatives, influential community members, CHWs that specialize in OB/GYN, and representatives of the Simmons YMCA. The committee will meet once a month or as needed to evaluate the program and make any needed changes.

Program Goals

Goal 1: To increase the number of eligible black women in Mecklenburg County receiving recommended Pap tests.

- *Outcome Objective 1.1:* By the end of their educational session, participants' average score on questions regarding what a Pap test is and the recommended guidelines for receiving them will increase by 20%.
 - *Process Objective 1.1.1:* By December 2023, six educational lectures will be given to inform participants about the importance of receiving regular Pap tests.
- *Outcome Objective 1.2:* By December 2024, a year after the program will end, 50% of those who claimed intent to get screened will report having a Pap test completed.
 - *Process Objective 1.2.1:* By the end of their educational session, all participants will receive a pamphlet including where they can get a Pap test and the guidelines for receiving them.

Goal 2: To increase the number of eligible black women in Mecklenburg County receiving recommended HPV vaccinations

- *Outcome Objective 2.1:* By the end of their educational session, participants' average score on questions regarding how HPV vaccination protects against cervical cancer and the recommended guidelines for receiving them will increase by 20%.

- o *Process Objective 2.1.1:* By December 2023, six educational lectures will be given to inform participants about the importance of HPV vaccination.
- *Outcome Objective 2.2:* By December 2024, a year after the program will end, 50% of those who claimed intent to get vaccinated against HPV will have completed the three vaccine series.
 - o *Process Objective 2.2.1:* By the end of their educational session, all participants will receive a pamphlet including where they can get the HPV vaccine series and the guidelines for receiving it.

Logic Model

Inputs	Activities	Outputs	Short-Term Outcomes	Intermediate Outcomes	Long-Term Outcomes
-Simmons -YMCA -Funding -Staff time -Intervention Best Practices -Pap Test and HPV Vaccine Guidelines	-Participant recruitment -Creating supplemental materials -Performing lectures -Demonstrating female anatomy and Pap tests -Compiling test questions	-Six lectures on HPV, cervical cancer, and preventive measures given -Pre-tests and Post-test completed -20 linkage to care brochures given to participants per session	-Increased knowledge about HPV vaccination and Pap test guidelines among participating community members	-Increased HPV vaccination rate in Black cisgender women ages 18-26 in the 28212 zip code -Increased Pap test rate in Black cisgender women ages 18-44 in the 28212 zip code	-Decreased incidence of HPV in the 28212 zip code -Decreased incidence of cervical cancer among Black women in the 28212 zip code

Evaluation Plan

The ARMS Task Force will evaluate program success based on two short term outcome objectives and two intermediate outcome objectives. Outcome objectives 1.1 and 2.1 are short term, and measure the effectiveness of the program regarding the ability to change knowledge and intentions. These objectives will be evaluated using pre- and post-tests given to participants before and immediately after their lecture session. The ARMS Task Force will look at percentage changes in knowledge based questions and questions based on the intent to act on screening knowledge after each session. Results will be discussed at monthly committee meetings to ensure the program is on track to meet its goals.

Outcome objectives 1.2 and 2.2 are intermediate and measure the effectiveness of the program regarding its influence on the number of participants following through on their intent to act on Pap test and HPV vaccination guidelines. These objectives will be evaluated through a follow up questionnaire given by phone or email based on participant preference. The questionnaire will ask eligible participants if they have received a Pap test or HPV vaccine since completion of the program.

Objective	Outcome	Indicator	Data Source	Data Collection
ST Outcome 1.1: By the end of their educational session, participants' average score on questions regarding what a Pap test is and the recommended guidelines for receiving them will increase by 20%.	Increase in knowledge of methodology, purpose, and guidelines for receiving a Pap test.	Percent change in knowledge of methodology, purpose, and guidelines for Pap tests. Percent change in intention to receive a Pap test.	Pre/Post tests completed by participants	Administer pre-test prior to program and post-test immediately after program
IM Outcome 1.2: By December 2024, a year after the program will end, 50% of those who claimed intent to get screened will report having a Pap test completed.	Increase in the number of Black cisgender women receiving Pap tests in the 28212 zip code.	Number of participants who receive a Pap test within a year of program completion.	Follow up questionnaire	Administer follow up questionnaire by email or phone a year after program completion

ST Outcome 2.1: By the end of their educational session, participants average score on questions regarding how HPV vaccination protects against cervical cancer and the recommended guidelines for receiving them will increase by 20%.	Increase in knowledge of purpose and guidelines for receiving HPV vaccines.	Percent change in knowledge of purpose and guidelines for the HPV vaccine series. Percent change in intention to receive the series among eligible participants.	Pre/Post tests completed by participants	Administer pre-test prior to program and post-test immediately after program
IM Outcome 2.2: By December 2024, a year after the program will end, 50% of those who claimed intent to get vaccinated against HPV will have completed the three vaccine series.	Increase in the number of eligible Black cisgender women receiving the HPV vaccine series in the 28212 zip code.	Number of eligible participants that receive the HPV vaccine series within a year of program completion.	Follow up questionnaire	Administer follow up questionnaire by email or phone a year after program completion

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