

## ORIGINAL RESEARCH ARTICLE

# An analysis of key stakeholders' attitudes and beliefs about barriers and facilitating factors in the development of a cervical cancer prevention program in South Africa

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## Abstract

Cervical cancer is the leading cause of cancer related deaths among women. Each year there are approximately 250,000 deaths; most of which occurred in Sub-Saharan Africa, South Asia, and Latin America. The purpose of this report is to examine key stakeholders experience and knowledge of HPV and cervical cancer, examine their experiences with the current cervical cancer screening and treatment policy, and identify barriers and facilitating factors to vaccine implementation and uptake. Fifteen in-depth interviews were conducted with key stakeholders in Cape Town and Johannesburg, South Africa. The interviews revealed several key findings including: 1) knowledge about HPV and cervical cancer varied across participants, 2) knowledge about cervical cancer was also mixed while knowledge about the relationship between HPV and cervical cancer was low among participants. Our findings indicate that key stakeholders are concerned about women's health and wellbeing. In addition, they believe that the government, families, and the media need to play a prominent role in prevention efforts. (*Afr J Reprod Health 2013; 17[1]: 158-168*).

## Résumé

Le cancer du col est la principale cause de décès liés au cancer chez les femmes. Chaque année, il y a environ 250.000 décès, la plupart se produisant en Afrique sub-saharienne, en Asie du Sud et en Amérique latine. Le but de ce rapport est d'examiner l'expérience des partis prenants clés et la connaissance sur le cancer du col utérin et le VPH, d'examiner leurs expériences avec le dépistage du cancer du col de l'utérus et des politiques actuelles du traitement et d'identifier les obstacles et les facteurs qui facilitent la mise en œuvre du vaccin et son acceptation. Quinze entrevues en profondeur ont été menées auprès des intervenants clés au Cap et à Johannesburg, en Afrique du Sud. Les entrevues ont révélé plusieurs résultats clés, notamment: 1) les connaissances sur le VPH et le cancer du col de l'utérus varie selon les participantes, 2) les connaissances sur le cancer du col de l'utérus ont également été variables tandis que la connaissance sur la relation entre le VPH et le cancer du col de l'utérus était faible chez les participantes. Nos résultats indiquent que les principaux partis prenants sont préoccupés de la santé et du bien-être des femmes. En outre, ils estiment que le gouvernement, les familles et les médias doivent jouer un rôle de premier plan dans les efforts de prévention (*Afr J Reprod Health 2013; 17[1]: 158-168*).

**Keywords:** cervical cancer prevention, women's health, South Africa

## Introduction

In the majority of the developing world, cervical cancer remains the number one cause of cancer related deaths among women. Of the nearly 275,000 deaths from cervical cancer in 2008, over 85% occurred in developing countries<sup>1</sup>. Numerous studies have isolated the Human Papillomavirus (HPV), a sexually transmitted infection (STI), as

the major risk factor for cervical cancer. In South Africa, cervical cancer is the second leading cause of death among women<sup>2-4</sup>. Specifically, the age standardized rate overall is 30 per 100,000 per year but this rate is differentially distributed across the population (11, 12, 26, and 35 per 100,000 per year in Asian, White, Coloured, and Black populations respectively)<sup>2</sup>.

In the United States (US), cervical cancer rates are extremely low (8 per 100,000) despite the high

rates of HPV infection, due to the widespread availability of Pap tests<sup>5</sup>. However, in developing countries, access to medical care may be limited outside of urban areas; women who do not have access to cervical cancer screenings (i.e., routine Pap tests) significantly increase their risk of developing cervical cancer. Pap tests can detect not only early stage cervical cancer which is highly treatable but it can also detect precancerous changes of cervical cancer cells which can linger for years and lead to the development of invasive cancer<sup>6</sup>. In addition women may lack knowledge about HPV and cervical cancer prevention and may be reluctant to see providers<sup>7</sup>.

Campaigns against cervical cancer in developed countries can attribute their success to the availability and accessibility of trained clinicians and modern laboratories and equipment along with sustained media campaigns targeting women and health care providers regarding the importance of regular pap tests and routine medical screenings. However, these opportunities are nearly non-existent in resource poor developing countries that have limited public health infrastructure and where women may have to travel great distances for medical care<sup>6</sup>. In 2001, a study conducted by the WHO found that no organized cervical cancer screening programs existed in many countries in Latin American, Sub-Saharan Africa or Asia<sup>6</sup>. However, WHO estimates that even once in a lifetime screening, performed by women in their 30s or 40s could reduce the risk of cervical cancer by 25-30%. Preventive measures such as the HPV vaccines, Gardasil and Cervarix, when administered to adolescents or women prior to coitus have the potential to significantly reduce risk for HPV and cervical cancer; access to this vaccine has the potential to reduce the morbidity and mortality of women and young boys and girls particularly in countries lacking medical infrastructures and where women may have limited access to regular medical care and screenings. While research efforts targeting HIV/AIDS, other STIs, and malaria prevention and treatment are abundant, less empirical work has been conducted to examine knowledge, attitudes and beliefs of key stakeholders in regards to HPV and cervical cancer screening and treatment, and vaccine uptake.

Therefore, this pilot study seeks to explore stakeholders' beliefs and knowledge about HPV, the HPV vaccine and cervical cancer prevention, examine their experiences with the current cervical cancer screening and treatment policy, and identify barriers and facilitating factors to vaccine implementation and uptake.

## Methods

### *Study design and sample*

The goal of this pilot study was to recruit stakeholders (e.g. clinicians, reproductive health professionals, educators, government officials, managers in non-governmental organizations, academics, infectious disease control experts) to participate in an in-depth interview about cervical cancer prevention. Up to 15 key stakeholders (per location – Johannesburg and Cape Town) were identified by word of mouth and were invited to participate in one-on-one interviews. Key stakeholders were individuals who were indigenous to the community and worked in government, health care, education, or were social activists and were familiar with the needs of their community (e.g. Cape Town and Johannesburg).

Interview questions were created based on a review of the literature on provider attitudes and beliefs about cervical cancer and HPV prevention<sup>3, 8, 9</sup>. The PI (Francis) worked with local colleagues to pilot test the interview questions among individuals similar to her target population. Interview questions were modified for clarity and consistency.

### *Data collection*

Study participants were selected through purposive and snowball sampling. Once potential study participants were identified, they were contacted by email or phone. At the initial point of contact, it was explained why they were being contacted and they were provided with background information about the PI and the research study and invited to participate. All individuals contacted agreed to participate in the interviews and were then scheduled for an interview at their convenience. Reminder calls and emails were sent to study participants. Only one scheduled

interview was not completed as the PI was unable to meet with the individual and they were not able to reschedule their interview.

Interviews took place in the participant's office. Before the interviews began, participants provided written, informed consent. All interviews were conducted in English, were digitally recorded for accuracy, and took between 45 to 90 minutes. Participants were provided R140 (approximately \$20 US) to thank them for their time. Participants were assured that all data would remain confidential and that the anonymity of answers would be maintained. The study was approved by the institutional review boards at both the University of the Witwatersrand and the Ohio State University.

### *Data analysis*

Interview discourse was transcribed verbatim and was supplemented by handwritten notes. The analyst triangulation technique was used to analyze interview data. This technique uses multiple analysts to review findings<sup>1</sup>. Using grounded theory, recurring themes were identified and grouped according to grand thematic areas<sup>10, 11</sup>. Comments were identified as recurring if two or more participants gave the same response. It was important to use at least three reviewers to assure that themes would be independently validated.

For the purpose of this manuscript, the analysis focuses on the following themes:

- *Accessibility of Services Including cost/fees*
- *HPV/Cervical cancer and vaccine knowledge*
- *Vaccine Awareness/Costs*
- *Potential barriers to vaccine implementation and uptake and*
- *Potential facilitating factors to vaccine implementation and uptake*

Themes were analyzed and coded for each question across interviews and location. Quotations were selected that best illustrated the themes of interest. Emerging themes from stakeholders' beliefs about HPV, the HPV vaccine, and cervical cancer prevention illustrate

the potential challenges facing the development of prevention messages and programs. Participants overall supported the utilization of the HPV vaccine. However, this support was tempered with concerns about stigma, cost, and side effects. Participants highlighted the potential barriers and facilitating factors to developing HPV and cervical cancer prevention messages.

## **Results**

### *Participants*

Capetown. A total of six participants were interviewed over five interviews in Cape Town. Five women and one male participated in the interviews. The participants held various leadership positions within their respective organizations and/or community. Participants had some education with 50% having completed secondary school (i.e., high school equivalent). Participants ranged in ethnicity from Coloured, Afrikaan, and Black to Xhosa. Participants reported having worked an average of  $12.88 \pm 7.46$  years [range: 2.75-21 years] with their current organization. In terms of years working with adolescents, participants reported an average of  $10.5 \pm 5.24$  years [range 5-20 years].

Johannesburg. Nine participants, seven women and two men, were interviewed. Of the 9 participants, 5 worked directly in a health care setting (physician, medical officer, nurse, adolescent program director, senior counselor. All participants were educated with 50% having completed secondary school (i.e., high school equivalent). Participants reported having worked an average of  $10.82 \pm 10.92$  years [range: 1.08-34.33 years] with their current organization. In terms of years working with adolescents, participants reported an average of  $9.64 \pm 11.43$  years [range 0-34.3 years].

### **Accessibility of Services**

Participants were asked to describe the types of services/programs offered by their particular organization and the types of clients seen. Findings are organized from general audiences then specifically to adolescents and young women.

Johannesburg. The most common services offered by the health care organizations were: cervical cancer screening/PAP smears, treatment for cervical cancer (colposcopy, cryotherapy, VIA and LEEP), screening/treatment of sexually transmitted diseases and HIV, and family planning. The community activist offered an afternoon radio talk show, which discussed women's health issues, while the Sangoma identified her main service as providing counsel to her clients. Six of the nine participants reported their organizations had no programs specifically targeting adolescents, while three participants reported having adolescent programs. Programs/services offered included: peer modeling, support groups, and counseling with the main goal of making adolescents feel included in a non-judgmental environment. Six of the nine participants offered services to young women while two of the six offered cervical cancer screening, two offered family planning services, and the other two offered peer mentoring and support groups to young women.

Cape Town. In Cape Town, three of the six participants administer programming directly for youth and adolescents, (including HIV prevention and home-based care), two offered skill building and development programming. One organization offered a variety of services in a faith-based setting (but not faith exclusive), and one organization ensures government accountability by employing program oversight and evaluation in addition to ensure accountability of the government. Five of the six participants had programs that directly benefited women's health issues. However, the majority of the organizations did not focus exclusively on women's health, but on wellness as a whole. Most organizations deliver programs addressing adolescent needs, some more formally than others. Informal programs included those with guest speakers focusing on a health topic, compared to organizations that implement programs specific to HIV prevention or health screening in schools. One organization administers programming for adolescents but they could not speak directly for the programs. Although the majority of participants offered services to youth, one participant mentioned that adolescents are left out of the package of care.

### HPV/cervical cancer and vaccine knowledge

Participants were asked to describe what they knew about HPV, cervical cancer and the relationship between HPV and cervical cancer.

Johannesburg. The majority (7/9) of participants were able to correctly describe HPV as a sexually transmitted virus with different strains. However, 2 participants were unable to correctly describe HPV. One of the researchers shared this explanation, "HPV...*Human papillomavirus...it's sexually transmitted, and it's one of those silent infections. Both men and women can have HPV. Unfortunately, for it to be diagnosed in women, they need to go for a cervical smear.*" Awareness and knowledge about cervical cancer was mixed among interview participants. Five out of nine participants were able to completely explain cervical cancer. "Cervical cancer kills about 10 women a day in South Africa, but the knowledge of it is very low within the population. Very often there are no symptoms that immediately identify cervical cancer. There could be discharge, a little bleeding. By the time the woman realizes what it is, it is often late, which is why mortality is quite high." The other four participants had superficial knowledge of cervical cancer. The community activist commented, "I didn't hear much. I've heard that it's a silent killer. Most women don't tend to do it [get PAP smears]. I haven't done it...It's that most black women don't want to face it. It's a secret that people don't want to talk about." In regards to the relationship between HPV and cervical cancer, seven of nine participants were able to correctly describe the relationship between HPV and cervical cancer as a relationship where contracting HPV precedes the event of getting cervical cancer.

In 2000, South Africa's Department of Health established a cervical cancer policy in an attempt to address the growing disparities in cervical cancer. The policy entitles women over age 30 to receive three, free Pap tests to be given about 10 years apart. Participants were asked if they were familiar with South Africa's current cervical cancer screening policy. Five of the nine participants were fully aware of the current cervical cancer screening policy and were able to

successfully articulate the policy to the interviewer. Two participants had a partial understanding of the screening policy and two participants were not familiar with the screening policy at all.

*Cape Town.* Two of the participants were aware of HPV and knew that HPV causes cervical cancer. In fact, one of the participants was a cervical cancer survivor. In addition, one participant was able to identify some symptoms of HPV and cervical cancer, but did not fully understand the disease. One participant had no knowledge of cervical cancer and another described other issues related to screening. In regards to cervical cancer, all six participants were aware that cervical cancer was a growing problem in their community. Five of the six participants were aware that a screening test is available to detect cervical cancer (Pap test). Three participants demonstrated comprehensive knowledge about the disease. One participant (who was also the only male participant) knew that cervical cancer was a problem but did not have any additional knowledge about cervical cancer or screening. When asked about the relationship between HPV and cervical cancer, three of the six participants were unaware that cervical cancer and HPV were related. One participant knew that men could transmit HPV to women and two were aware that HPV is spread via sexual intercourse. One participant (male) was unaware about the relationship while one participant (the survivor) had comprehensive knowledge about the relationship.

Participants were asked to describe their familiarity with South Africa's cervical cancer screening policy. Two of the six participants articulated a full understanding of the screening policy while two other participants conveyed basic knowledge. One participant was completely unaware of the screening policy and one participant was not asked that specific question. Those who were aware of the policy commented on its inadequacy and add that the policy perpetuates cervical cancer disparities as those who have more money can receive screening exams more often from private clinicians.

### **Vaccine Awareness/Admin Costs**

Our next discussion focused on the HPV vaccine and explored participants' knowledge about the vaccine as well as how they thought it should be administered. Participants were asked whether or not they had ever heard of the HPV vaccine [e.g. pharmaceutical names, Cervarix or Gardasil]. Participants were also asked about the age at which to administer the vaccine, whether the vaccine should be given to only girls, boys, or both. Participants also discussed the cost of the vaccine and how best to administer it if offered.

*Johannesburg.* Eight of the nine participants were aware that there was a vaccine for HPV. A few participants noted the vaccine was expensive and that it was difficult to obtain in public health clinics. The research consultant comments, "*Yes, I've heard that it's available and that it has been approved in South Africa by the Medicine Control Counsel, but its' very expensive*" while the Sangoma had this to say about the vaccine, "*What I've heard is that it is wise to let our children go ahead and have it...so it's going to prevent them from getting these disease.*" One participant was completely unaware of the vaccine.

*Cape Town.* Findings on participants' awareness of the HPV vaccine were mixed. One participant had heard of the HPV vaccine Cervarix while the remaining five participants were unaware of any cervical cancer vaccines. However, one participant had knowledge that the cervical cancer vaccine was expensive, even though they did not know the name of the vaccine.

### **Age to Administer Vaccine**

*Johannesburg.* Participants voiced a range of opinions on when the vaccine should be administered but the majority (eight out of nine participants) agreed that it should be given to both boys and girls. One participant disagreed and thought we should just focus on girls. "*I think now, not to boys at this stage. The greatest benefit for now is in girls. The objective is to immediately reduce the level of cervical cancer that is very high. If you want to completely eliminate HPV in your country, then boys must come into the picture.*" Most participants agreed that the vaccine should be administered between the ages

of 8 to 17 while one participant suggested age 13. One participant noted that the HIV+ boys and girls should receive the vaccine first. *“Where I would start here in South Africa for the most bang for the buck...is that I would start in the pediatric hospital in the HIV clinic and get all of the 9 year old girls who are HIV+ and give it to them... I would do the boys too, the HIV+ boys, also because we know they increase transmission.”* Four participants noted that the schools would be a good place to administer the vaccine. *“I think that schools should be targeted; you should go to the schools. Because that is where young boys and girls are.”* Two participants suggested that clinics would be the proper place to administer the vaccine for the following reasoning, *“The problem with South Africa is that we are developing in a very underdeveloped world. So, in those developed parts they go to the schools and give immunizations to the kids. In the not so developed they still need to take them to the clinic. I would recommend that it [HPV vaccine] becomes part of their immunizations.”*

Cape Town. In discussing vaccine administration with participants, they agreed that the vaccine should be administered between ages 9 – 14 years. Three participants mentioned that it would be better to administer the vaccine at a younger age while age 12 might be the most appropriate time to administer because it corresponds with other immunization schedules. Five out of six participants agreed that both boys and girls should receive the vaccine. One participant did not specify that boys should not receive the vaccine, but said that girls should be the priority. Participants suggested a variety of strategies to administer the vaccine. For example, one participant thought that youth family services would be the best venue to administer the vaccine while two believed that schools should be involved with vaccine administration. One participant suggested administering the vaccine in doctor's office and clinics.

### **Cost of Vaccine**

Johannesburg. In terms of the cost of the HPV Vaccine, the majority (8/9) of participants stated that the government should pay for and provide

them with the vaccine. One participant commented, *“I think the government needs to procure the vaccine. But we need enough enthusiasm, the same way we did for the ARVS (HIV medication). We need to do it for the vaccine to get the pharmaceutical companies to bring the prices down.”* On the other hand, one participant thought that individuals or donors should pay. *“I think donors should be involved and the private sectors should also be involved in the helping. I think that the government is forever complaining about funds...look at HIV now. They are trying their best, but I don't think that they can afford the vaccine, unless they involve the private sector and it becomes a joint effort”.*

Cape Town. The HPV vaccine is quite costly and is currently not covered by insurance. Participants were mixed on who should pay for the vaccine. Three of the six participants believe that both the government and the family should contribute to the cost of vaccines and the three others thought that the cost should be entirely state-funded. One participant also noted that it was the State's responsibility to educate parents. One participant also thought that individuals should pay by using a government grant to cover extra costs because individuals need to take responsibility for their own health. Although participants in both Cape Town and Johannesburg had suggestions on who should pay for the vaccine and how to administer it to adolescents, in terms of thinking about program development, we wanted to assess potential barriers and facilitation factors of effective HPV vaccine administration.

### **Potential barriers to vaccine uptake**

Johannesburg. All participants agreed that having to return to the clinic for the three shot series would be a barrier to successful vaccine administration. *“It's a challenge because you do not get 100% follow up. If you had 100 people take dose one, you do not get 100 who take dose two and of those who take dose two not 100% will take dose three. The fact that they have to do it like this, it's a challenge. If anybody can deliver the vaccine that you give once, that would be great.”* One participant noted that HIV+ individuals might be the most likely to adhere to the vaccine regimen.

*“For older people or kids who are HIV+...they are coming to get their ARVs anyway. You might almost have better adherence with the HIV+ group than the non-positive group.”*

Cape Town. All six participants expressed that the multiple shots required for the HPV vaccine would be a challenge to overcome. Two participants cited wait times at clinics as a deterrent to receive the shots in addition to the unfriendly the clinic environment. One participant conveyed concerns about the limited vaccine related knowledge among health professionals and the public. Specifically, the lack of parental knowledge about HPV and cervical cancer prevention would be a barrier to vaccine administration. In terms of additional barriers, one participant mentioned the capacity of the facilities and that people will not want to return for follow-up shots.

Participants identified other barriers to vaccine administration such as the cost of the vaccine, *“The cost...but of course the bigger problem would be people who say, “I have not seen cervical cancer in my family. I don’t really think I’m in danger. I’m not interested.” They have those attitudes, “It will not happen to me.”* Three participants suggested that lack of awareness/education on HPV and CC would be a large barrier to vaccine administration. One participant noted that sexual activity itself would be a barrier, and another noted that there would be stigma associated with getting the vaccine. Another participant offered the following comment, *“I think a barrier will be if we put a stigma on it. South Africa is very fond of stigma and rumors, and community negativity.* Residing in rural areas was also cited as a barrier due to lack of access to medical facilities and transportation.

### **Potential facilitating factors to vaccine uptake**

Johannesburg.

Increasing education/awareness, creating better vaccine administration programs, reducing stigma associated with HPV, and getting political figures and media involvement were identified as factors that could facilitate vaccine implementation and uptake. One participant described how political figures were getting involved in cervical cancer prevention. *“There’s a real movement between the*

*First Ladies of South Africa and some of the other African nations. They’ve set up this First Ladies organization to fight cervical and breast cancer. I think this will be very key. She’s worried about the rural folks, so if she goes out to the rural areas, I think that will help a lot.”*

Cape Town. Three participants did not provide answers for this question. One participant mentioned that lower levels of STIs, one mentioned mobile-clinics and home-based approach to care and one said that media could all be facilitation factors for vaccine administration. In our final line of questioning, we sought to examine how different segments of the community including families, the media, and government could be involved in cervical cancer prevention.

### **Role of family**

Johannesburg.

Participants thought that parents played a major role in prevention. Johannesburg. Six of the nine participants stated that parents needed to be educated on HPV and cervical cancer so that they can talk to their children. *“I think we need to support the parents in such a way that we don’t try to put everything on them. We’ve got health experts and something’s are better left to the experts.”* One participant stated that parents need external support in order to discuss HPV and cervical cancer with their children. Three of the nine participants suggested that parents’ need to take their children to get immunized.

The role of extended family was also discussed. Four of the nine (two not asked) participants noted that grandparents have a similar role as the parents in educating and communicating with their grandchildren about HPV and cervical cancer. *“I think the grandparents’ role is similar to that of the parents. Maybe get the knowledge out about the disease, and encourage responsible behavior. If they [grandparents] can afford, and the parents cannot afford, they can help make payments for the vaccine.”*

### **Role of the Media**

Five of nine participants indicated that the role of the media is to raise awareness about the issue of HPV and CC. *“We [the media] need to be positive*

and say we need to talk about this [HPV/CC], make it a norm, make it an “in thing.” You know people are really bored of the HIV thing because they have heard it over and over, but this [HPV/cervical cancer] is something new...if they hear about it, they will start talking about it.”

Two participants indicated that the media needs to use ethics when reporting, and use lay language that the general population can understand. Another participant noted that media could be used as a way of educating the public through TV, pamphlets, and newspapers. One participant indicated that people are bored with HIV and need to have their attention drawn to HPV.

### **Role of the Government**

Five of the nine participants indicated that the government should provide the vaccine for the people of South Africa. *“I think that the government here needs to provide the vaccine—they should provide the vaccine—they must find the ways and means.”*

One participant noted that the government should change their policy to lower the age that women can first get screened for cervical cancer. *“The government should change the policy first, so that screening may be a bit earlier...then maybe make the vaccine available to everybody.”* Four of the nine participants thought that the government should be involved with the media and advertise through the TV, make dramas series on the issue and create pamphlets. *“I think the government could do a drama series, as much as they can be able to do a drama series about HIV...like drama on the radio or TV.”* Participants noted that the role of the Ministry of Health (MH) was different from the government. One participant stated that the Ministry of Health (MH) needs to encourage governmental policy change. Two participants indicated that the MH needs to allocate funds and needs to be educated on the issue of HPV and cervical. Another participant noted that the MH needs to establish a rapport with the community and talk about HPV and cervical cancer as a community issue. *“I think it’s similar [to the government role], but for them it’s to really drive the problems...sometimes it is them that must bring the issue to the table.”*

## **Cape Town**

### **Role of Parents**

Two participants said that parents need to initiate conversations about sensitive issues with their children; while three participants said that parents need to educate their children and two participants thought parents should be role models for their children. Participants also talked about educating themselves and taking responsibility for their children’s health. Extended family, like grandparents need to provide support to the family.

### **Role of the Media**

The majority of participants believed that the role of the media is to offer education and provide awareness about health issues. The media should discuss health in their programming. Participants mentioned that both the television and radio would be good mediums to disseminate health related information. One participant placed the responsibility of addressing these issues on the media and government leaders.

### **Role of the Government**

One participant did not comment. Three of the participants agreed that it was the role of the government to educate the public about HPV and cervical cancer. One participant stated that the government should mobilize the people and communities while another observed that currently the government’s performance is inadequate. One participant specifically said that the government plays a large role. The role of the ministry of health as described by three participants is to be the political head of the department and should be visible during campaigns and known to the people. In addition, the ministry of health should be charged with educating and advocating in the community about general health information, prevention and community education. They also need to set policies in addition to being accountable for policy outcomes.

## **Discussion**

This study sought to examine key stakeholders’ beliefs and knowledge about HPV, the HPV vaccine, and cervical cancer prevention as well as

identify barriers and facilitating factors to vaccine implementation and uptake. Key findings included: 1) knowledge about HPV and cervical cancer varied across participants. Participants in Johannesburg had a very good understanding of HPV while participants in Cape Town were less likely to articulate what HPV was; 2) Knowledge about cervical cancer was also mixed while knowledge about the relationship between HPV and cervical cancer was low among participants. Participants in both cities were somewhat aware of the country's cervical cancer screening policy and had mixed knowledge about the availability of the HPV vaccine. In Johannesburg, participants knew that the HPV vaccine was available while in Cape Town only one participant had heard of the vaccine. In terms of when and who to administer the vaccine to, participants in both Cape town and Johannesburg agreed that vaccination efforts should target both males and females ages 9–14 and could be best facilitated in schools, doctor's offices or clinics. However, vaccine costs, the stigma of having an infectious disease, returning for multiple shots, and lack of parental knowledge about STIs, HPV, and cervical cancer were frequently mentioned as barriers to implementation and vaccine uptake. A number of strategies for facilitating vaccine implementation and prevention initiatives were suggested such as involving multiple sectors of the community including families, government, and the media. Some of the strategies included providing parents and grandparents with information about HPV and cervical cancer, using the media to provide awareness and disseminate messages about HPV and cervical cancer prevention, and utilizing mobile or home based clinics for screening and vaccine administration. Participants also strongly believed that the government should underwrite and provide the vaccine to at risk populations.

While the body of work examining HPV and cervical cancer prevention in developed countries is quite vast, empirical studies examining these issues in the developing context are less frequent. However, our findings are similar to those of previous studies conducted in this area. For example, Harries et al (2009) examined challenges and barriers to the HPV vaccine introduction in the Western Cape Province of South Africa. Using

qualitative methods, researchers found that there was strong support for the HPV vaccine. However, a number of challenges or barriers towards implementing such programs were identified such as poor knowledge about cervical cancer and the causal relationship between HPV and cervical cancer. Participants in this study recommended vaccination between ages 9 to 15 years. Consistent with findings from the present study, school-based HPV vaccination programs were strongly recommended as a delivery mechanism for the HPV vaccine because many South African schools already have vaccine administration programs in place. However, the findings also suggest that for a vaccination program to be successful that it would require cooperation and “buy in” from multiple sectors of the community<sup>3</sup>. In another study examining cervical cancer prevention, Moodley et al., (2006) explored the challenges of implementing a cervical cancer-screening program in South Africa. Researchers tested several interventions targeting health care workers, health system tools and protocols, and community awareness. Findings indicated that while there are considerable challenges that need to be addressed in order to implement a screening program, the study was successfully able to improve staff knowledge about screening policies, improve cytology processing times, and increase the number of screenings<sup>2</sup>.

Our findings indicate that key stakeholders are concerned about the health and wellbeing of their fellow citizens. In addition, they believe that the government needs to play a prominent role in prevention efforts. A number of preventive strategies were identified that have the potential to make a considerable impact. For example, in order for screening efforts to be successful, women need to be informed that these services are available to them—participants suggested working with the media to create prevention messages including discussions about HPV and cervical cancer prevention in TV shows and “Soapies.” There is also a need for the development of preventive materials for parents and extended family (e.g. grandparents) in order for them to be able to talk to their children about HPV and cervical cancer prevention. Although the vaccine

has the potential to serve as a means of primary prevention, secondary prevention is still critical as the vaccine does not cover all cancer causing HPV strains and some individuals may already be exposed to HPV. Overall, there needs to be a greater emphasis on population level initiatives for HPV and cervical cancer prevention and treatment.

### Strengths and Limitations

This study has several limitations and strengths that should be noted. Due to the study's exploratory nature and small sample size, reported findings are descriptive in nature and are only generalizable to the target communities. Differences documented between cities may be due to cultural differences in the meaning of cancer and sexually transmitted infections. The strengths of this comparative study include exploring the global burden of cervical cancer from the perspective of individuals who are engaged in their communities or have a level of expertise in policy, research, clinical care, and education. The study also provides an understanding of the strengths and limitations facing the development of HPV and cervical cancer prevention programs and offers potential suggestions to guide the development and dissemination of prevention education to communities.

Our study findings illustrate that regardless of geographical location, culture, or employment that key stakeholders share similar concerns about HPV and cervical cancer prevention. The introduction and availability of the HPV vaccine requires that prevention programs and educational materials address what HPV and cervical cancer is, how to prevent it, target multiple sectors of the community, and address potential concerns regarding vaccine administration and uptake.

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### Contribution of Authors

Dr. Francis conceptualized the research study, collected and analyzed data, and led the manuscript development.

Ms. Leser transcribed the Johannesburg interviews, analyzed data, developed the Johannesburg results section, and provided feedback on overall manuscript organization.

Ms. Esmont transcribed the Capetown interviews, analyzed data, developed the Capetown results section, and provided feedback on overall manuscript organization.

Dr. Griffith worked on data analysis and provided feedback on manuscript organization. All authors mentioned in the article are aware of and approve the manuscript submission.

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