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IS IT FAIR TO LIMIT ACCESS TO FREE HUMAN PAPILLOMAVIRUS VACCINATIONS TO ONLY GIRLS IN PUBLIC SCHOOLS IN SOUTH AFRICA?

Vanessa Christina Scheepers

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of MSc (Med) in Bioethics and Health Law

Johannesburg, 2024

DECLARATION

I, Vanessa Christina Scheepers (Student number: 2473331) am a student registered for the Degree of MSc (Med) in Bioethics and Health Law at the University of the Witwatersrand, Johannesburg in the year 2024.

I hereby declare the following:

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2. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have explicitly indicated otherwise.
3. I have followed the required conventions in referencing the thoughts and ideas of others.
4. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

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Signature: Vanessa Scheepers

Date: _02 May 2024_____

DEDICATION

In memory of the irreplaceable love of my life, my daughter,
Jordan (07/12/2001 – 13/02/2002)
Rest in eternal peace my baby girl, "*my love is your love*."

And to my husband, Arthur…my rock through the years…
Love always.

ACKNOWLEDGEMENTS

My sincere thanks go to:

God, the Almighty who provides me with the strength and good health to do what I love.

My family, friends, and colleagues for all your encouragement and support. The best cheerleaders one could ask for!

All the people who were obstacles in my path during this journey… *"We refuse to be what you wanted us to be, we are what we are, that's the way it's going to be…"*

The academic and administrative staff at the Steve Biko Centre for Bioethics, University of Witwatersrand.

My supervisor, Dr. Jillian Gardner, for the mentoring and support during this new and exciting journey!

A special thanks to Arthur, my husband, who has always supported my academic endeavors. "*Didn't we make it happen, baby?!"*

Lastly, ME, I thank myself for persevering. It was not always easy but I'm not a quitter. I have a greater need to succeed, and I have.

Emancipate yourselves from mental slavery (Robert Nesta Marley)

ABSTRACT

Gender-neutral Human Papillomavirus (HPV) vaccination programs, covering girls and boys, are necessary to combat the global rise in HPV-related cancers and escalating treatment costs. HPV vaccination is the primary preventative intervention for both men and women. In South Africa, it is freely available to adolescent girls in public schools, excluding girls in private schools and boys. This exclusion deprives them of the benefits of free HPV vaccination, potentially exposing them to a greater risk of cancer, and incurring more costs to society in the end. I apply Kantian ethics and rule utilitarianism to evaluate and argue that the current South African school-based HPV program is unfair and morally unjustified in limiting free access to HPV vaccination to only girls in public schools. I specifically examine Kant's Formula of Humanity and the Formula of Universal Law to evaluate the ethical dimensions of the policy and show that the policy has significant shortcomings in terms of equality, autonomy, and universality from a Kantian perspective. I further demonstrate that a policy excluding certain groups based on gender and socio-economic status is not aligned with the principles of rule utilitarianism because it fails to maximise overall well-being, perpetuates inequalities, hinders optimal vaccine coverage, and neglects the potential benefits of gender-neutral vaccination. I address potential counterarguments that proponents of the current policy might present from both a Kantian and a utilitarian viewpoint. I advocate for a more just and ethical approach and recommend a revision of the HPV vaccination policy to align with Kantian and utilitarian principles. I show that both Kantian ethics and rule utilitarianism support a gender-neutral HPV vaccination strategy in the South African context. Gender-neutral coverage of HPV vaccination ensures free and equitable access to all adolescents who can benefit from it, irrespective of sex, gender, school type, or socio-economic circumstances. A gender-neutral approach to HPV vaccination is more aligned with the South African Constitution.

LIST OF ACRONYMS

European Union/ European Economic Area: EU/ EEA

Expanded Programme on Immunisation: EPI

Human Papillomavirus: HPV

Human Immunodeficiency Virus: HIV

Men who have sex with men: MSM

National Department of Health: NDoH

Quality-adjusted life year: QALY

Strategic Advisory Group of Experts on Immunisation: SAGE

World Health Organization: WHO

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Chapter One: Introduction

Gender-neutral Human Papillomavirus (HPV) vaccination programs that target both girls and boys are required in response to the increasing incidence of cancer and the rapid rise in cancer treatment costs worldwide. In South Africa, cancer treatment starts at R1 million, with an average individual treatment costing about R25 000 (Daily Maverick, 2021). Gender-neutral coverage of HPV vaccination can be achieved by providing free and equitable access to all individuals who may benefit from it, regardless of their sex, gender, and socio-economic status. HPV vaccination is the primary intervention to prevent HPV-related malignancies in both men and women. However, in South Africa, it is only freely available to adolescent girls aged nine to 14 years who attend public schools. This approach excludes adolescent girls attending private schools and boys from the benefits of free HPV vaccination.

In this study, I sought to answer the following question: Is it fair and morally justified to provide access to free HPV vaccination only to girls in public schools? I argue that limiting free access to HPV vaccinations to only girls in public schools is unfair and morally unjustified when viewed through the lenses of Kantian ethics and rule utilitarianism. I argue that there should be universal access to free HPV vaccinations for eligible adolescents in South Africa. I conclude my argument by responding to possible objections to my arguments.

This study employs normative bioethical inquiry to analyse the ethical and legal dimensions of the current South African HPV program for adolescents. The study demonstrates that the government's responsibility towards adolescents is two-fold: ethically, to ensure fair and equitable access to HPV vaccines and protect children from harm; and legally, to fulfil their rights to healthcare. The normative bioethical inquiry is framed within two prominent Western ethical theories, Kantianism and Utilitarianism, providing a comprehensive evaluation of the ethical justifications for free gender-neutral HPV vaccination. I present an ethical justification for free gender-neutral HPV vaccination by applying key Kantian principles. In addition, I demonstrate how these principles support the ethical obligation of the South African government within this context. Furthermore, I examine whether the South African HPV program aligns with the principles of rule utilitarianism, considering the ethical and societal

dimensions. I present an ethical justification from a rule utilitarian perspective, asserting that free gender-neutral HPV vaccination is ethically justified for the greater good.

The significance of this study lies in its critical analysis of the South African HPV vaccination program and its ethical dimensions. By employing frameworks rooted in Kantian ethics and rule utilitarianism, the study aimed to articulate the perceived unfairness and moral justifiability of excluding eligible private school girls and boys from a free school-based HPV vaccination program. This exclusion may potentially expose them to a greater risk of cancer and incur long-term costs for society. Furthermore, this analysis may contribute valuable insights to the discussion on public health ethics and policymaking. Moreover, by addressing potential objections, this study aims to strengthen the ethical foundation of HPV vaccination programs, promoting a more equitable and morally sound approach to public health interventions in South Africa.

1.1 Background

The World Health Organization's (WHO) recent Global Vaccine Market Report highlights the global disparities in access to essential vaccines (WHO, 2022a: 4-49). The WHO (WHO, 2022a: 4) asserts that global disparities are caused by a limited vaccine supply, unequal distribution, and vaccine affordability. According to the Director General of the WHO, the COVID-19 pandemic has emphasised vaccines as a key public good; however, low-income countries have difficulty accessing vaccines because of their worldwide demand (WHO, 2022a: 4). Furthermore, the Director General uses the example of HPV vaccines, which have only been introduced in 41% of low-income countries but are saving the lives of 83% of people in high-income countries (WHO, 2022a: 4). In South Africa, vaccine inequity is heightened by other factors such as racial and gender discrimination, and inequalities in socio-economic status (Coovadia, Jewkes, Barron, et al., 2009: 832), and inequalities between the public and private sectors (De Villiers, 2021: 3). Moreover, the lack of cancer treatment in South Africa presents a major healthcare challenge. Various factors contribute to this issue, including limited access to healthcare, inadequate healthcare facilities, shortages of oncology specialists such as oncologists, oncology nurses, pharmacists,

and radiographers, high cancer treatment costs, limited access to medications, late diagnosis, and challenges within the public health system (Sartorius, Sartorius, Govender, et al., 2016: 949). Additionally, the inequitable distribution of resources between the public and private sectors influences access to specialised cancer treatment.

Globally, HPV is the most prevalent sexually transmitted infection among sexually active men and women (WHO, 2018: 2). Two types of HPV, types 16 and 18, are common causes of HPV-related cancers in both men and women (WHO, 2018: 2). In men, HPV causes cancer of the anogenital areas, such as the penis, anus, and oropharyngeal areas, including the head and neck (Navarro-Illana, Aznar, & Diez-Domingo, 2014: 3; White, 2014: 430). In women, HPV causes vaginal, vulval, cervical, and anal cancers (Marty, Roze, Bresse, et al., 2013:1). Cervical cancer usually manifests later in life after HPV infection during adolescence (Sundaram, Voo & Tam, 2020: 1835).

According to the WHO (WHO, 2017: 5753), cervical cancer accounts for “84% of all HPV-associated cancers”. In addition, the global incidence of anogenital and oropharyngeal cancers in men has increased exponentially (Bogaards, Wallinga, Brackenhoff, et al., 2015: 2; Diez-Domingo, Sanchez-Alonso, Villanueva, et al., 2021: 2; Qendri, Bogaards & Berkhof, 2018: 1). Men who contract HPV not only face a greater risk of developing genital cancers but also increase the likelihood of transmitting HPV to their partners and cause re-infection through sexual contact (Zou, Huang & Li, 2022: 1). Hence, the incidence of HPV infection in men increases the risk of cervical cancer in their female partners (Zou et al., 2022: 1). According to Bruni, Albero, Serrano, et al. (2021: 5), the most recent estimates (for the year 2020) on the burden of HPV-associated cancers in South Africa (annual crude incidence rate per 100 000) are as follows: in females, the cervix uteri (35.6), vulva (1.29), vagina (0.62), lip and oral cavity (2.55), anus (0.90), larynx (0.54), and oropharynx (0.38); in males, the lip and oral cavity (3.99), anus (0.66), larynx (2.45), oropharynx (1.31), and penis (0.72).

However, these data do not indicate results for populations with different sexual orientations. Gay men (including men who have sex with men), and some transgender individuals are at a greater risk of contracting HPV infection and developing anal,

penile, and oropharyngeal cancers. Gay men, including men who have sex with men (MSM) and transgender populations, are excluded from female-only HPV vaccination policies and therefore do not receive any of the benefits of an HPV vaccine (Uwire Text, 2022: 1).

In 2012, there were an estimated 266 000 HPV-associated cervical cancer deaths in women “with more than 85% of these deaths occurring in low- and middle-income countries” (WHO, 2018: 3). The incidence of cervical cancer is higher in sub-Saharan countries with South Africa having the highest mortality rate (Ngcobo, Burnett, Cooper, et al., 2019: 13, Amponsah-Dacosta, Blose, Nkwinika, et al., 2022: 2). The global increase in morbidity and mortality rates prompted the WHO to issue a renewed call to eliminate cervical cancer in 2018 (Colzani, Johansen, Johnson, et al., 2021: 1). In addition, various authors have argued that HPV vaccination policies should include both boys and men, as they face an equal burden of HPV-associated cancer (Law & Gustafson, 2017: 3-7; Prue, Baker, Graham, et al., 2018: 914).

The WHO recommends the inclusion of HPV vaccines in national vaccination programs and the vaccination of girls between nine and 14 years of age (WHO, 2018: 3). As most girls in this age group have not yet had sexual relations, they are the primary target population for HPV vaccination (Sundaram et al., 2020: 1835). Secondary target populations, such as girls aged 15 years and older, boys, older males, or MSM are only vaccinated if it is deemed “feasible, affordable, and cost-effective” (WHO, 2022b: 670). Additionally, resources should not be diverted from vaccinating the primary target group, namely girls aged nine–14 years, or from successful cervical screening programs (WHO, 2022b: 670).
However, due to the increase in HPV-associated cancers in men, some high-income and middle-income countries, such as Australia, Austria, Bermuda, Brazil, Canada, Croatia, Germany, Israel, Italy, New Zealand, the United Kingdom, and the United States of America, and more have already included boys in their HPV vaccination programs (Arie, 2019:1). Nonetheless, in 2019, the WHO requested all countries to stop HPV vaccination for boys and girls older than 15 years for the time being, due to an increase in global demand for HPV vaccines and a reported limited supply (Arie, 2019: 1).

South Africa introduced a school-based HPV vaccination program in 2014 (Department of Basic Education, 2014). The HPV vaccination program is part of the Expanded Programme on Immunisation (EPI) schedule but administered under the Integrated School Health Policy (National Institute for Communicable Diseases, 2016: 8). Vaccination is offered free of charge to fourth-grade girls who are at least nine years old with parental consent (Delaney-Moretlwe, Kelley, James, et al., 2018: 426), but only in the public sector. Consequently, adolescent girls who attend private schools and all boys who could equally benefit from vaccination are excluded from this program (Milondzo, Meyer, Dochez, et al., 2021: 2).

The Immunisation Agenda 2030 recognises that there are inequalities in the distribution of vaccine benefits between and within countries. It reports that part of their focus is on providing equitable vaccine coverage to boys and girls (WHO, 2020: 23-25).

1.2 Research Question

Is it fair and morally justified to provide access to free HPV vaccination only to girls in public schools?

1.3 Rationale for the Study

Governments possess the power and duty to prevent injury and disease and to promote the health of the population (Gostin, 2000: 2837). Under Section 28 (1)(c) of the South African Constitution, which states that ‘every child has the right to basic healthcare services’ (Republic of South Africa, 1996), there are no distinctions made between the public and private health sectors or gender in the provision of healthcare. Moreover, in terms of section 9 (3)(4)(5) of the Constitution (Republic of South Africa, 1996), no person may be unfairly discriminated against on any grounds, including gender and sex. Furthermore, Section 12 (2)(a) and (b) of the Constitution affirms the rights of all individuals to bodily and physical integrity, including the right to make decisions about reproduction and to have security in and control over their bodies (Republic of South Africa, 1996).

Moreover, the rights and best interests of children are further protected by Section 6(2)(a) of the Children's Act, No. 38 of 2005 (Republic of South Africa, 2005). Sections 6(2)(b), (c), and (d) of the Children's Act stipulate that a child's dignity must be respected, a child should be treated fairly and equitably, and a child must be protected from any unfair discrimination, respectively. More importantly, Section 9 of the Children's Act demands that the standard of the child's best interests be paramount and applied in all matters concerning their care, protection, and well-being (Republic of South Africa, 2005).

These rights are further emphasised in the National Department of Health's (NDoH) Integrated Sexual and Reproductive Health and Rights Policy (NDoH, 2019). The Integrated Sexual and Reproductive Health and Rights Policy aims to provide 'comprehensive sexual and reproductive health services with a rights-based approach to achieve health for all' (NDoH, 2019). Furthermore, this policy defines sexual and reproductive health rights as a state of physical, emotional, mental, and social well-being concerning all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction, or infirmity (NDoH, 2019). More importantly, it states that 'all individuals have the right to make decisions governing their bodies and to access services that support the right' (NDoH, 2019).

The Integrated Sexual and Reproductive Health and Rights Policy acknowledges that the attainment of sexual and reproductive health depends on the realisation of sexual and reproductive health rights based on human rights (NDoH, 2019). The right to healthcare is inseparable from the right to equality (Cancer Alliance, 2021: 17). Thus, the government must take reasonable steps to realise the right to health and access to healthcare to ensure that everyone receives fair and equitable treatment.

Moreover, vaccination coverage and equity have been recognised by the planned Immunisation Agenda 2030, "as one of its seven strategic priorities" and seeks to provide vaccine benefits to everyone and everywhere (WHO, 2020: 36). However, the free school-based HPV vaccination program excludes boys and eligible girls attending private schools from the benefits of the HPV vaccine. Therefore, their exclusion could be considered unfair discrimination. The inclusion of eligible private sector schoolgirls and all boys in South Africa's national school-based HPV vaccination program will

ensure that vaccination policies are fair and consistent so that everyone can benefit from the vaccines.

1.4 Thesis

I argue that it is unfair and morally unjustified to limit free access to HPV vaccinations to girls only in South African public schools from Kantian and rule utilitarian ethical perspectives.

1.5 Research Aim

This study aimed to articulate and defend the thesis that it is unfair and morally unjustified to limit free access to HPV vaccinations to girls in public schools in South Africa.

1.6 Research Objectives

To achieve my aim of articulating and defending my thesis, I sought to fulfil the following objectives:

- To provide an overview of the South African HPV vaccination policy and the related ethics literature on HPV vaccination.
- To argue that the South African school-based HPV program is unfair and morally unjustified from the perspectives of Kantian ethics and rule utilitarianism.
- To respond to and counter objections to my arguments.

1.7 Research Design

This research project employs normative bioethical inquiry in the defense of a thesis. Normative ethics is a part of philosophical or theological inquiry that seeks to provide answers to particular "ought" questions (Sugarman & Sulmasy, 2010: 3). In this research project, I seek to provide answers to the question: Is it fair and morally justified to exclude eligible private school girls and boys from a free national school-based HPV program?” Subsequently, the suggested answers to this normative question are presented and defended logically and critically (Sugarman & Sulmasy, 2010: 3).

1.8 Research Methods

This research project applies research methods and standards relevant to philosophical research, such as library and desktop research, to gather literature to define and clarify key concepts, identify, and critique assumptions, and formulate the most reasonable interpretation of the key concepts. The research design and methodology for the traditional literature review on ethical arguments regarding gender-neutral HPV vaccination employed a narrative approach, focused on synthesising and analysing existing scholarly works to comprehensively understand ethical arguments and issues surrounding gender-neutral HPV vaccination. Literature sources included peer-reviewed articles, books, legislation, and other scholarly publications in English relevant to the ethical aspects of gender-neutral HPV vaccination. Electronic databases such as PubMed, JSTOR, and Google Scholar were searched using keywords such as “Human Papillomavirus”, “HPV vaccination”, “gender-neutral HPV vaccination," "ethical considerations," and related terms (e.g. “ethics”, “moral theories”). The search also included the hand-searching of references in identified articles to ensure a comprehensive coverage of the literature. The goal was to identify recurring themes and patterns in the ethical arguments presented in the selected literature and categorise the diverse perspectives on gender-neutral HPV vaccination ethics, to allow for a structured synthesis that addresses key ethical considerations. Publications that were not in English were excluded.

1.9 Argumentative Strategy

To achieve Objective 1, I provide an overview of the South African national policy regarding HPV vaccination as well as the ethics literature related to HPV vaccination. This is discussed in Chapter Two.

To realise Objective 2, I apply Kant’s Formula of Humanity in Chapter Three to demonstrate the following:

- The South African government is failing in its ethical duty to uphold the rights to sexual and reproductive health based on the human right to equal access to healthcare for girls attending private schools and all boys by limiting free access to HPV vaccinations to girls attending public schools.
- Adolescent girls attending public schools are treated as a means of providing “herd immunity” to unvaccinated girls and boys. Herd immunity is achieved when a

substantial number of individuals within a population are vaccinated, preventing infectious diseases from spreading and protecting some unvaccinated individuals (Law & Gustafson, 2017: 3).

- The current public school-based HPV program hinders the freedom of parents and children to make rational health decisions by imposing a financial burden on them.

Furthermore, I apply Kant's Formula of Universal Law to argue that HPV vaccinations should be funded for all girls and boys, regardless of the consequences or costs.

Chapter Four examines from a rule utilitarian perspective, whether a policy that excludes based on gender and socio-economic status maximises the greatest good.

To achieve Objective 3, I address the potential objections in Chapter 5 and demonstrate that they do not undermine my position.

1.10 Ethical considerations

This is a purely normative research project and therefore does not involve human or animal subjects. Ethical approval was not required for this study.

1.11 Limitations of the study

This study applies the ethical perspectives of Kantianism and rule utilitarianism to the South African context, limiting its generalisability to other settings. One significant limitation lies in the cultural sensitivity of Western ethical frameworks when applied in an African context. Western ethical models often stem from individualistic perspectives, emphasising personal autonomy and rights. In contrast, many African cultures, guided by communal values, stress interconnectedness, and community well-being over individual autonomy. Western ethical frameworks may not be sufficiently attuned to the socio-economic, political, and historical realities of African societies, thus resulting in a superficial understanding of moral obligations and responsibilities in African societies.

Chapter Two: An overview of the South African national HPV vaccination policy and a review of the ethics literature related to HPV vaccination.

In this chapter, I discuss the South African policy on HPV vaccination and explore the economic considerations and financial implications of implementing a gender-neutral HPV vaccination program. Thereafter, I present a literature review that both supports and refutes gender-neutral HPV vaccination for girls and boys. The focus of this review is on the need for free access to HPV vaccination regardless of sex, gender, or socio-economic circumstances. Finally, I discuss some arguments against gender-neutral HPV vaccinations and conclude this chapter.

2.1 South African policy regarding HPV vaccination

In 2014, South Africa, prompted by the WHO's recommendations, initiated a school-based HPV vaccination program that offers free vaccination to all fourth-grade school-age girls who are at least nine years old (Department of Basic Education, 2014; Delaney-Moretlwe et al., 2018: 426). This HPV vaccination program is embedded in the national Expanded Programme on Immunisation (EPI) schedule and is administered as part of the Integrated School Health Policy (National Institute for Communicable Diseases, 2016: 8). The school-based HPV vaccination program has recorded both successes and challenges.

2.2 Successes with the South African HPV vaccination program

The successful implementation of the South African HPV program has been reported over six years, extending from 2014 to 2020 (Amponsah-Dacosta et al., 2022: 1). A review conducted by Amponsah-Dacosta et al. (2022: 1) revealed that as of 2020, 75% of adolescent girls, aged 15 years had received at least one dose of the HPV vaccine between the ages of nine and 14 years, with 61% completing the full two-dose schedule as recommended (see Figure. 1).

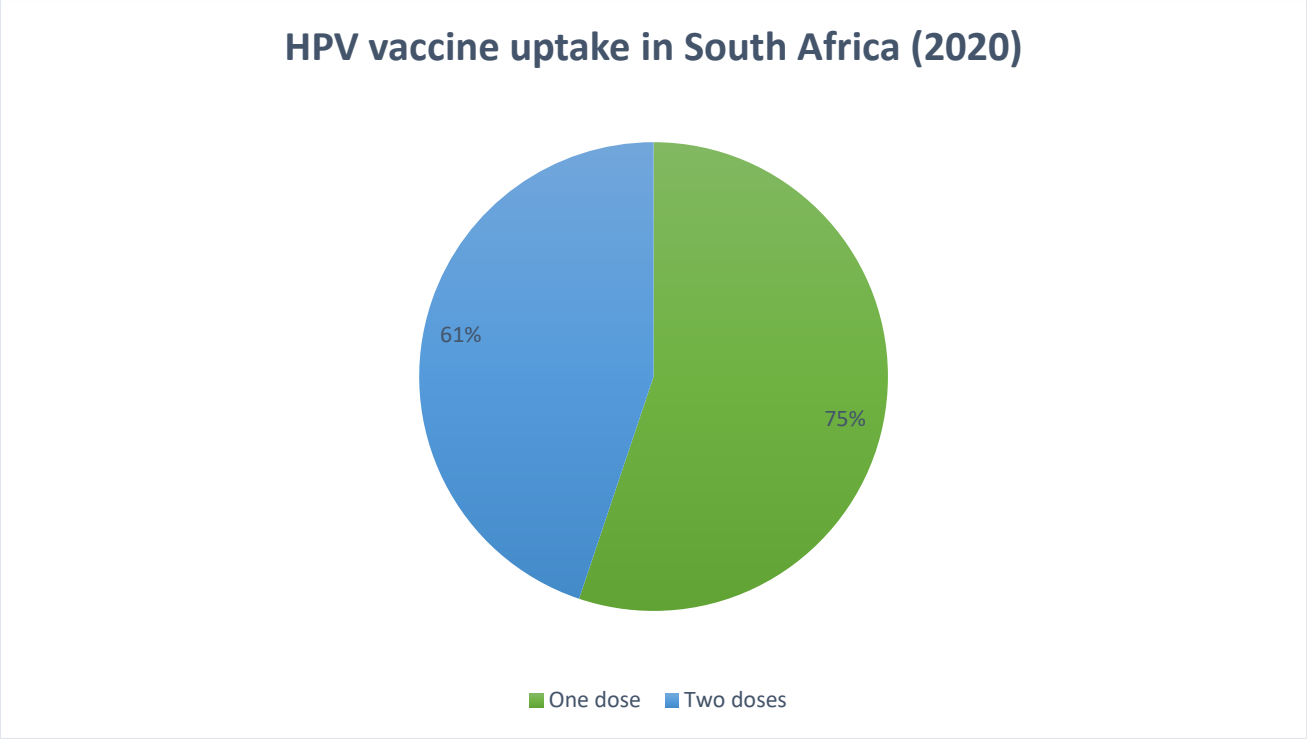


Figure 1 HPV vaccine uptake in South Africa (2020)

Furthermore, a study conducted in the Tshwane Health District of South Africa in 2019 indicated that the overall HPV vaccine uptake during the campaign period was 72% (Ledibane, Ledibane & Matlala, 2023: 1). This study assessed and compared the vaccine uptake between public schools with fee-paying structures and those without (Ledibane et al., 2023: 1). In 2019 (see Figure. 2), 16 122 (73.0%) adolescent girls received one dose of HPV vaccine, while 15 734 (71.0%) received two doses (Ledibane et al., 2023: 1). The overall estimate of vaccine uptake in fee-paying public schools was 78.8%, compared to 68.8% for non-fee-paying public schools (see Figure. 3) (Ledibane et al., 2023: 4). The results of this study indicate that, although HPV vaccinations are freely provided to public, non-fee-paying schools, vaccine uptake is still low and does not meet the optimal target of 90% set by the WHO.

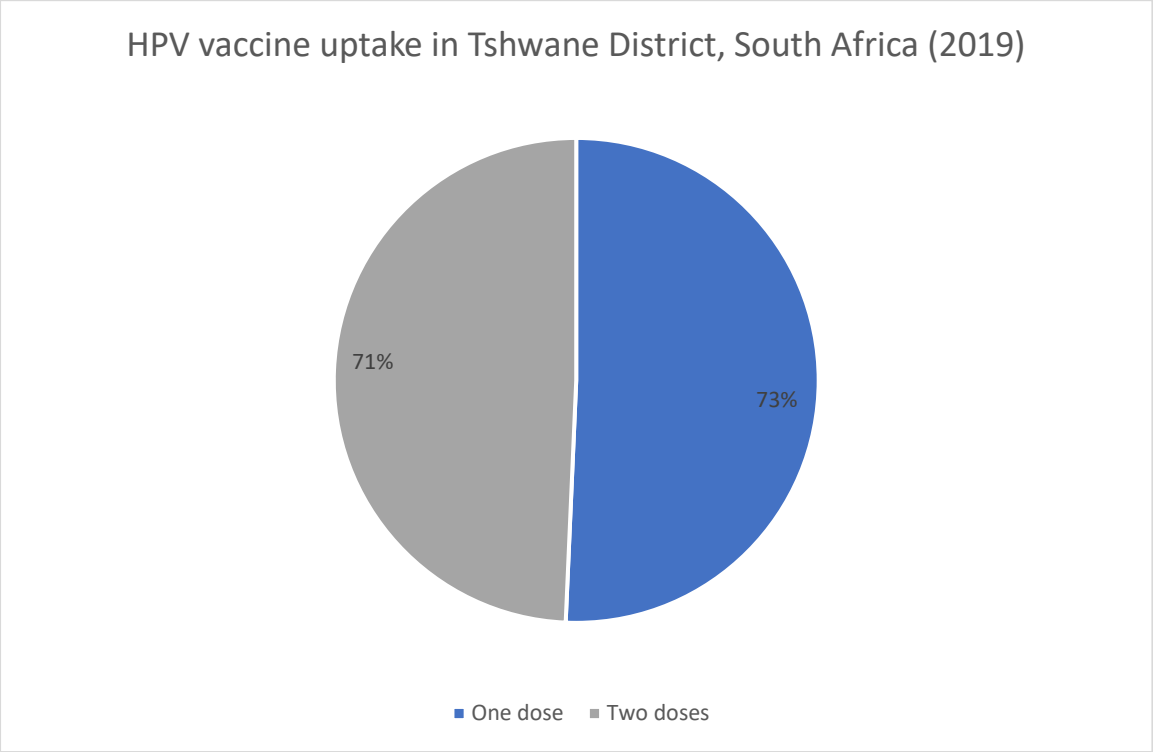


Figure 2 HPV vaccine uptake in Tshwane District, South Africa (2019)

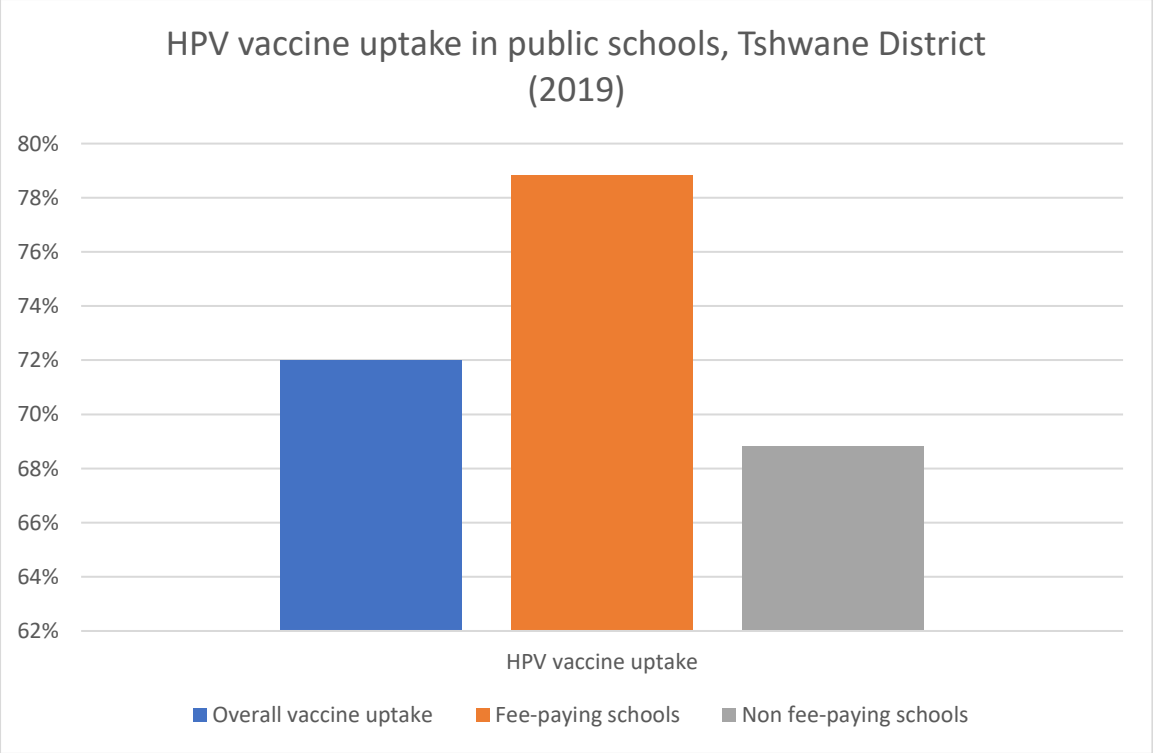


Figure 3 HPV vaccine uptake in public schools, Tshwane District (2019)

2.3 Challenges with the South African HPV vaccination program

The implementation of the South African HPV vaccination program has encountered notable challenges. There has been a consistent decline in vaccine coverage and dose completion rates, impeding the advancement toward achieving global elimination targets (Amponsah-Dacosta et al., 2022: 1). A decline in public demand for the HPV vaccine has been attributed to decreased social mobilisation, ineffective monitoring systems, and vaccine hesitancy (Amponsah-Dacosta et al., 2022: 1). An additional issue revolves around the unequal burden of HPV and HIV co-infections among adolescent girls and young women in South Africa, which increases their susceptibility to the early onset of invasive cervical cancer (Amponsah-Dacosta et al., 2022: 1). Challenges such as securing informed consent, ensuring cold chain capacity, managing adverse events, the spread of misinformation through social media platforms, and school absenteeism have impacted the uptake of HPV vaccination (Delany-Moretlwe et al., 2018: 425-436; Ledibane et al., 2023: 4-5).

2.4 Implications of the current HPV vaccination program

The South African HPV vaccination program is restricted to adolescent girls in public schools. Thus, adolescent girls attending private schools and boys who could equally benefit from vaccination are excluded from the HPV vaccination program (Milondzo et al., 2021: 2). A clear policy is still lacking to explain why adolescent girls attending private schools and boys are excluded from this school-based HPV vaccination program (Ngcobo et al., 2018:15), despite a vaccine being approved for both genders (Western Cape Government, 2021: 2). The formulation and implementation of policies related to cancer in South Africa have been cited as failures on the part of the government in fulfilling individuals' right to access healthcare (Cancer Alliance, 2021: 18-19).

Currently, two vaccines are registered in South Africa: the bivalent vaccine Cervarix and the quadrivalent vaccine Gardasil (Botha, van der Merwe, Snyman, et al., 2015: 40). Some authors have concluded that the exclusion of adolescent girls attending schools in the private sector and boys could be attributed to the high cost of HPV vaccines (Amponsah-Dacosta et al., 2022: 4). While adolescent girls in the private sector do not receive free HPV vaccination, they are advised to access vaccines from

their health service providers; however, this costs approximately R900 per dose compared with R341.76 per dose for government-funded vaccines (Amponsah-Dacosta et al., 2022: 4). HPV vaccinations may be covered in part or in full by private medical aid or insurance (Amponsah-Dacosta et al. 2022: 4). Nonetheless, there have been recent discussions about extending the HPV vaccination program to private schools, but this remains costly (Weekend Argus, 2022). However, some parents or guardians of girls in the private sector are unable to afford private medical insurance or pay out-of-pocket for HPV vaccines (Milondzo, Meyer, Dochez, et al., 2022: 5). Financial constraints on parents and caregivers impede children's access to vaccines, thereby infringing upon their right to healthcare. Furthermore, these constraints hinder the prevention of HPV infection in children because of the lack of vaccination and pose additional financial challenges to parents and caregivers if the absence of vaccination leads to costly healthcare expenses for children.

2.5 Economic considerations and financial implications of a free gender-neutral HPV vaccination program.

The implementation of a gender-neutral HPV vaccination program involves economic and financial considerations. Factors such as the cost of vaccines, vaccination infrastructure, vaccine accessibility, and equity, global collaboration, health insurance coverage, economic productivity, potential economic benefits, and economic modelling should all be considered when implementing gender-neutral HPV vaccination programs.

The cost of acquiring and distributing HPV vaccines for both genders (Zhuang, Goyal, & Xu, 2019: 563; Sundaram et al., 2020: 1837; Colzani et al., 2021: 3), as well as infrastructure needs such as healthcare personnel training and vaccine storage (Rahangdale, Mungo, O'Connor, et al., 2022: 5), should be carefully considered. Notably, the WHO has approved a single-dose HPV schedule, known for its cost-effectiveness, reduced resource requirements, and ease of administration (WHO SAGE, 2022: 266). A single-dose schedule could potentially alleviate the pressure on low- and middle-income countries to procure vaccines and relieve policymakers from opting between female-only or gender-neutral HPV vaccination programs (Uwire Text, 2022: 2).

Adequate resources should be allocated to ensure vaccine accessibility across all socio-economic groups, thereby preventing disparities in vaccination rates (Colzani et al., 2021: 3; WHO, 2022a: 4; Grandahl & Nevéus, 2021: 1644). Moreover, securing funding for vaccines and HPV vaccination programs can be achieved through global partnerships with international organisations and donor agencies, alleviating financial burdens (Oberlin, Rahangdale, Chinula, et al., 2018: 270; Chido-Amajuoyi, Domgue, Obi-Jeff, et al., 2019: 20).

Furthermore, the potential impact on health insurance costs and public healthcare expenditures could be advantageous, as an increase in vaccinations may lead to a decrease in HPV-related diseases and cancer (Dykens, Peterson, Holt, et al., 2023: 3). This, in turn, results in long-term savings in individual and public healthcare costs. Additionally, the economic impact of preventing HPV-related diseases and cancer is beneficial to society (Gostin, 2018: 511-512). A healthier population contributes to increased productivity, reduced absenteeism, and lower healthcare costs in the long run.

Thus, there are potential economic benefits, including reduced healthcare costs for treating HPV-related diseases and cancer, decreased productivity losses, and improved overall public health (Prue et al., 2018: 914; Gostin, 2018: 511-512). Economic modelling should be utilized to estimate the cost-effectiveness of a gender-neutral HPV program, considering factors such as the potential reduction in healthcare expenditures due to the prevention of HPV-related diseases and cancer (Dykens et al., 2023: 2-3; Chido-Amajuoyi et al., 2019: 20).

2.6 Arguments in support of free gender-neutral HPV vaccinations

The successful implementation of gender-neutral HPV vaccination campaigns has been observed in several high- and middle-income countries because of the rising incidence of HPV-related cancers in men. Currently, there are 141 HPV vaccination programs worldwide, with only 43 countries and 4 territories having adopted gender-neutral HPV vaccine schedules (Dykens et al., 2023: 2). The list of high- and middle-income countries includes Australia, Austria, Bermuda, Brazil, Canada, Croatia, Germany, Israel, Italy, New Zealand, the United Kingdom, and the United States of

America (Arie, 2019:1). In 2020, Bhutan became the first low- and middle-income country to adopt gender-neutral HPV vaccination (Dorji, Tshomo, Gyamtsho, et al., 2022: 425-429).

There are arguments grounded in Kantianism that support the idea of gender-neutral HPV vaccination. Arguments concerning human rights, equity, and equality are rooted in Immanuel Kant's notion of protecting individual rights and treating individuals as rational beings with equal moral worth. In the United Kingdom (UK), strong ethical arguments for vaccinating both sexes exist because optimal health is considered a fundamental human right (Baker, Prue, Rae, et al., 2019: 25). In addition, arguments grounded in equity and equality support this position, claiming that not vaccinating boys amounts to sex discrimination (Baker et al., 2019: 25; Powell, Hibbitts, & Evans, 2018: 1). Powell et al. (2018: 1) maintain that girls-only HPV vaccination is more likely to strengthen the perception that sexual health is a predominantly female concern.

Furthermore, Luyten, Engelen, and Beutels (2013: 1-16) address two ethical questions regarding HPV vaccination in boys. First, the authors address the question of whether it is morally acceptable to refuse reimbursing vaccinations for males. The second question is whether boys have a moral obligation to become immunised if vaccination programs are expanded. After developing an ethical framework to evaluate specific vaccination programs, the authors concluded that for HPV vaccination, efficiency must be balanced with non-stigmatization, non-discrimination, and justice (Luyten et al., 2013: 1-16).

Sundaram et al. (2020: 1835-1840), similarly argue for the universal, free HPV vaccination of girls. Additionally, they propose, where feasible, extending HPV vaccination to boys under the same financing structures (Sundaram et al., 2020: 1835). The authors contend that principles such as autonomy, social justice, and gender equality have greater consequences for adolescent immunisation beyond simply accepting vaccination (Sundaram et al., 2020: 1835). These principles necessitate the establishment of more stringent requirements for obtaining informed consent that is both comprehensive and well-informed. This includes providing age- and context-appropriate information, addressing vaccine financing, and developing gender-based vaccination policies (Sundaram et al., 2020: 1835).

The authors explain that fair and equitable access to HPV vaccines both within and across settings is inherently associated with social justice (Sundaram et al., 2020: 1837). This connection arises from the vaccine's capacity to mitigate significant medical, economic, and social challenges arising from cervical cancer in women (Sundaram et al., 2020: 1837). However, the authors also emphasise that access to HPV vaccines is associated with vaccine financing and costs (Sundaram et al., 2020: 1837). They further argue that adolescents possess greater autonomy in making vaccination decisions but lack the means to finance healthcare interventions, as they are financially dependent on their parents (Sundaram et al., 2020: 1837). This financial barrier influences adolescents' autonomy in vaccine decision-making, as parents may discourage or refuse to cover vaccination costs, even if adolescents express a desire to be vaccinated (Sundaram et al., 2020: 1837). Furthermore, the authors contend that on a population scale, the inability of individuals to pay for the HPV vaccine is likely to exacerbate health and financial inequalities based on gender and socio-economic status (Sundaram et al., 2020: 1837).

In Canada, Law and Gustafson (2017: 1-9) also point out that girls-only vaccination policies create inequity as they only protect those at risk of cervical cancer, excluding other members of the population, such as boys, men, and transgender people, who may be protected against other HPV-related cancers that are similarly burdensome. The authors use the moral theories of deontology and utilitarianism to argue that current girls-only policies are unethical and call for a change (Law & Gustafson, 2017: 3-7). Similarly, in an interview with McGill Tribune, Franco, Logel, and Laurie assert that certain population groups that are still susceptible to HPV infection, such as gay men and transgender women, are excluded from female-only vaccination policies (Uwire Text, 2022). These authors believe that female-only vaccination programs do not benefit these populations despite their risk of oropharyngeal, anal, and penile cancers (Uwire Text, 2022). Furthermore, Franco, Logel, and Laurie (Uwire Text, 2022) contend that gender-neutral vaccination increases awareness of HPV among all those at risk, as well as shared social responsibility from all genders regarding prevention.

Furthermore, Swedish authors Malmqvist, Helgesson, Lehtinen, et al. (2011: 19-27) analyse the ethics of various HPV vaccination programs. In particular, the authors

address the main arguments for and against voluntary publicly funded vaccination for all adolescent girls and boys (Malmqvist et al., 2011: 19). According to the authors, a voluntary, publicly funded vaccination program appears appealing because it offers the advantage of protecting more individuals against cervical cancer and other HPV-related cancers than less comprehensive alternatives, and without sacrificing autonomy like a comparable broad program would (Malmqvist et al., 2011: 19). Additionally, those who remain unvaccinated are protected by herd immunity (Malmqvist et al., 2011: 19). According to Malmqvist et al. (2011: 19) this is a key benefit from a justice perspective.

On the other hand, several arguments suggest there is utility in gender-neutral HPV vaccination, as the long-term benefits appear to outweigh the costs. Baker et al. (2019: 25) claim that selective vaccinations of females that are intended to create a protective or “herd” effect do not adequately protect males and that men who have sex with men (MSM) are not protected at all. According to the authors, vaccinating all boys before they become sexually active is the most effective method for preventing HPV infection among MSM (Baker et al., 2019: 25). In addition, boys’ vaccination protects women who have not been vaccinated (Baker et al., 2019: 26). Baker et al. (2019: 26) contend that evidence demonstrates the cost-effectiveness of HPV vaccination for boys; however, this topic is highly contentious. Baker et al. (2019: 26) employ evidence from three studies, which collectively suggest that including boys in HPV vaccination programs is cost-effective, resulting in significant savings in the treatment and care of cancer. Vaccinating all boys will protect all boys, but not vaccinating all girls will not protect girls who may engage in sexual activity with other girls. This scenario has not been addressed in the research report.

Nonetheless, gender-neutral HPV vaccinations have been adopted in the UK because evidence showed an increased incidence of HPV-related cancers in men, together with technical changes in the cost-effectiveness model to reflect the long-term benefits of vaccination (Powell et al., 2018: 1). Furthermore, Powell et al. (2018: 1) point out that switching to a two-dose HPV vaccination schedule instead of the original three-dose regimen has reduced costs and increased benefits as it protects against HPV types that cause genital warts and cancer. Moreover, HPV vaccination has significant health benefits for boys (Powell et al., 2018: 1). This is because it prevents HPV-

related cancers in women, such as cervical, vulval, vaginal, and anal cancers, and oropharyngeal and anal cancers in men (Powell et al., 2018: 1).
Furthermore, Prue et al. (2018: 914), assert that a fair and equitable HPV vaccination program would protect adolescent boys from severe and debilitating diseases caused by HPV infection. According to Prue et al. (2018: 914), universal vaccination could offer significant health and economic benefits, since vaccination of boys would be less costly than treating genital warts or HPV-associated oropharyngeal and anal cancers. Thus, universal vaccination is both lifesaving for individuals and economical for the healthcare system (Prue et al. 2018: 914). The authors contend that the overall economy also benefits from improved productivity, earnings, and increased tax revenue (Prue et al., 2018: 914) because of a decrease in HPV-related infection and disease.

In addition, Gostin (2018: 511-512) claims that a more universal uptake of HPV vaccines would generate significant public benefits. He states that the vaccine's health risks are minimal compared to its benefits. According to Gostin (2018: 511-512), increasing the vaccination rate would also reduce HPV prevalence in the population, which would minimise the risks for all sexually active adolescents and adults. Hence, HPV vaccination has both individual and public benefits (Gostin, 2018: 511-512). In another paper, Malmqvist, Natunen, Lehtinen, et al. (2012: 247) assert that instead of only evaluating overall benefits and costs, social justice aspects such as the fair distribution of benefits and burdens should also be considered (Malmqvist et al., 2012: 247).

Additionally, Verheijen, Mahmood, Donders, et al. (2020: 188), claim that HPV-related cancers can be prevented by vaccinating more girls, boys, older men, and women. The authors assert that research suggests that gender-neutral vaccination can prevent both male and female HPV-related cancers and is cost-effective. Similarly, Lehtinen and Pimenoff (2021: 1-2) claim that gender-neutral vaccination can effectively eradicate HPV-related cancers through herd immunity. The authors argue that gender-neutral vaccination coverage, even at moderate levels, is vital for protecting at-risk individuals who are unvaccinated (Lehtinen & Pimenoff, 2021: 1-2).

Likewise, Qendri et al. (2018: 1-4) argue that gender-neutral HPV vaccination can be justified both on the grounds of strengthening the herd protection of women and the direct protection of men, specifically MSM. The authors further state that vaccination coverage would determine the clinical significance of both arguments (Qendri et al., 2018: 1-4). Moreover, Schmeler and Sturgis (2016: 1799) claim that gender-neutral HPV vaccination reduces HPV transmission rates and increases herd immunity, preventing both cervical and other HPV-related cancers.

In Africa, Chido-Amajuoyi et al. (2019: 20-21) appeal for the introduction of gender-neutral HPV vaccinations into national immunisation programs. The authors assert that although HPV-associated cancer cases are lower in men compared to women, acquiring accurate health-related data and statistics in Africa is challenging. This challenge complicates the accurate assessment of the actual burden posed by HPV-associated cancers (Chido-Amajuoyi et al., 2019: 21). Furthermore, the authors contend that gender-neutral HPV vaccination should be incorporated into immunisation programs in all African countries since HPV-associated cancer is becoming more prevalent worldwide (Chido-Amajuoyi et al., 2019: 21).

Similarly, Lorway, Macharia, Maina, et al. (2022: 1-3) issued a call to include MSM in Kenya’s national HPV immunisation program. Although local private clinics advertise and promote HPV vaccination for boys and young men, the country's health ministry insists that only eligible girls and women should be vaccinated (Lorway et al., 2022: 1). In Kenya, the authors found that the prevalence of anal diseases, likely caused by HPV and compounded by Human Immunodeficiency Virus (HIV), among MSM has increased (Lorway et al., 2022: 1). End-stage diseases require medical attention, resulting in extensive recovery, painful suffering, and loss of income (Lorway et al., 2022: 1).

2.7 Arguments against free gender-neutral HPV vaccinations

In contrast, Malmqvist et al. (2011: 19-27) also indicate that a gender-neutral HPV program may not be cost-effective. The authors suggest that although gender-neutral HPV programs might have a greater impact on cancer incidence and mortality than other approaches, these benefits are not worth their higher costs (Malmqvist et al.,

2011: 24). A potential benefit of implementing a limited, cost-effective vaccination program is that it may free up societal resources to be directed towards other areas where improvements in human health or well-being can be more substantial relative to the number of people protected by the vaccination program (Malmqvist et al., 2011: 24).

More importantly, Colzani et al. (2021: 4) suggest that the decision of many European Union/European Economic Area (EU/EEA) countries to expand HPV vaccination to boys may exacerbate the global shortage of HPV vaccines. According to the authors, certain low- and middle-income countries with high cervical cancer burdens do not have sufficient HPV vaccine doses available for girls because of the global shortage of the vaccine (Colzani et al., 2021: 3). Additionally, the authors assert that expanding HPV vaccination to boys will require an increased number of doses to be procured and administered (Colzani et al., 2021: 3). Thus, they claim that there is a moral dilemma between the provision of equitable access to HPV vaccines for girls and boys in countries with established HPV vaccination programs and the provision of equitable access for girls worldwide (Colzani et al., 2021: 4).

Moreover, in response to an appeal by Chido-Amajuoyi et al. (2019: 21-22) to introduce gender-neutral HPV vaccination into national immunisation programs in Africa, Zhuang et al. (2019: 563) support the gradual global introduction of universal HPV vaccination of both sexes, but it is important to consider costs. The authors argue that first, vaccination coverage must increase in African countries; second, female-only HPV vaccination is a likely alternative in countries not subsidized by the Vaccine Alliance, and a global shortage of HPV vaccines might affect the introduction of gender-neutral vaccinations.

2.8 Policy implications and recommendations

While the South African HPV vaccination program has experienced some successes, there have also been reported challenges. The overall HPV vaccine uptake in public schools for adolescent girls still falls short of the WHO target of 90%. This has serious implications for the fight against local and global elimination of cervical cancer. The inclusion of adolescent girls in private schools and boys in the national school-based HPV vaccination program can increase vaccination rates and coverage. This would

protect all adolescents against HPV-related diseases and cancers and increase herd immunity.

The consideration of the economic dimensions of a free gender-neutral HPV vaccination approach must be at the forefront of policy changes. The updated single-dose HPV vaccine schedule as recommended by the WHO could address economic challenges with implementing a free gender-neutral HPV vaccination program. Furthermore, the challenges encountered with the current school-based HPV vaccination policy must be addressed to ensure success with a gender-neutral policy. Therefore, policy changes should include strengthening social mobilisation, improving monitoring systems, and addressing vaccine hesitancy. Moreover, challenges such as obtaining informed consent, ensuring cold chain capacity, managing adverse events, the spread of misinformation through social media platforms, and school absenteeism must also be addressed to ensure the effective implementation of a gender-neutral HPV vaccination program.

2.9 Summary

In this chapter, I discussed the South African policy on HPV vaccination and explored the economic and financial implications of implementing a gender-neutral HPV vaccination program. I presented a literature review that both supports and refutes gender-neutral HPV vaccination for girls and boys. This review focused on the need for free access to HPV vaccinations regardless of sex, gender, or socio-economic status. Furthermore, I discussed some arguments against gender-neutral HPV vaccinations. In the next chapter, I present arguments grounded in Kantian ethics to defend my claim that limiting free access to HPV vaccination exclusively for girls in public schools is both unfair and morally unjustified.

Chapter Three: A Kantian defense of free gender-neutral HPV vaccination

In the previous chapter, I discussed the South African policy on HPV vaccination and explored the economic and financial implications of implementing a gender-neutral HPV vaccination program. Additionally, I presented literature that supports and opposes gender-neutral HPV vaccination for adolescent girls and boys. The review particularly emphasised the need for free access to HPV vaccinations, irrespective of sex, gender, or socio-economic status.

In this chapter, I apply the key principles of Kantian ethics to demonstrate how this theory supports a free gender-neutral HPV vaccination program for both boys and girls. I evaluate whether the policy treats all individuals as rational beings with equal moral worth, respects the autonomy and dignity of both girls and boys equally, and can be universalised without contradiction. I discuss the role and moral duty of the state in providing public health services, emphasising Kant's idea of the state's obligation to protect individual rights, and explore the concept of gender equality in the context of Kantian ethics to evaluate whether the policy amounts to discrimination or unequal treatment. I argue that the HPV vaccination policy is not ethically justified when viewed through a Kantian lens, revealing shortcomings in terms of equality, autonomy, and universality. I demonstrate that Kantian ethics would support the provision of free HPV vaccination to eligible adolescents regardless of their gender, sex, or socio-economic status.

First, I provide an overview of Kantian ethics, focusing on the central principles, such as the categorical imperative and Kant's emphasis on moral duty, rationality, and treating individuals as ends in themselves. Second, I analyse how the HPV vaccination policy aligns with Kantian ethics. Applying Kant's formula of humanity, I evaluate the South African government's ethical duty to ensure equal healthcare access for girls and boys; assess the treatment of adolescent girls in public schools; and evaluate the freedom and autonomy in HPV vaccination decision-making for parents and children. Finally, I apply Kant's formula of universal law to assess whether the policy is fair in limiting HPV vaccination to girls in public schools only.

3.1 Introduction to Kantian ethics

Kantian ethics is one of the most influential deontological moral theories. Deontology is a class of moral theories in which choices are morally allowed (permissible), prohibited, or required (obligatory) (Alexander & Moore, 2021). The term deontology originates from the Greek words “deon” (duty) and “logos” (reason)” (Alexander & Moore, 2021). Deontology contrasts with other theories such as virtue ethics, which describes what type of individual we ought to be and focuses on character, or consequentialism, which aims to maximise good outcomes or consequences (Alexander & Moore, 2021). Also, deontology differs from contractualist moral theories, such as Rawls’ theory of justice as fairness, which centres on the idea of social contracts or agreements between rational individuals, as well as other justice-related moral theories that consider broader aspects of societal justice and equality (Rachels & Rachels, 2019: 87; Motloba, Makwakwa & Machete, 2019: 150-152). Instead, the deontological view involves following moral rules and duties.

Kantian ethics was specifically chosen over contractualist, and other justice-related moral theories normally applied in policy contexts because of its emphasis on universalisability and respect for individual autonomy. Kantian ethics prioritise moral principles applicable to all rational beings irrespective of personal desires or circumstances (Rachels & Rachels, 2019: 146). This universality can provide clarity and consistency to policy decisions ensuring fairness and accountability. Furthermore, Kantian ethics highlights the inherent value of each individual, aligning with the principles of human rights and dignity commonly foundational in policymaking. Therefore, in contexts where it is crucial to prioritise clarity, consistency, and respect for individual autonomy, Kantian ethics offer robust justification for decision-making.

Kantian ethics is rooted in the philosophy of Immanuel Kant (1724-1804). Kant's philosophy asserts that a "good will" is fundamental to moral right action (Rachels & Rachels, 2019: 146). Kant believed that ethical actions should be driven by the intention to do what is morally right, not merely to achieve particular consequences (Rachels & Rachels, 2019: 146). In Kant's view, individuals should act out of a sense of duty because it is the morally right thing to do, rather than for any self-interested or pragmatic reasons (Rachels & Rachels, 2019: 146).

Furthermore, Kant posited that human beings possess rationality and free will, which enable them to discern between right and wrong. He argues that all moral duties are grounded in a single rational principle known as the categorical imperative (Rachels & Rachels, 2019: 146). The categorical imperative is an absolute moral imperative that determines our moral duties and commands adherence regardless of consequences (Law & Gustafson, 2017: 4). This fundamental principle of Kantian ethics guides moral decision-making. Kant formulated several versions of the categorical imperative, each of which can be applied to different situations.

The first formulation of the categorical imperative is called the “Formula of Universal Law”, which requires one to “Act only according to that maxim by which you can at the same time will that it should become a universal law” (Rachels & Rachels, 2019: 136). A maxim is a general rule that guides an act. For example, consider the rule you would follow if you carried out the action you were contemplating. Thus, this rule becomes the maxim of your action. To determine whether my maxim is morally permissible, I ask whether everyone would be able to act on it or if it could be willed as a universal law. If this is the case, then the maxim is sound and the act permissible. However, if the maxim is flawed, the act is morally impermissible (Rachels & Rachels, 2019: 136). Kant used various examples to demonstrate the functioning of this formula. One example Kant uses is that of the “lying promise” (Rachels & Rachels, 2019: 136). According to Kant, if a man needs to borrow money, no one will lend it to him, unless he promises to repay it. However, he is unable to do so. Could he falsely promise to obtain loans? Thus, the man's maxim would be “Whenever I need money, I should make a lying promise when borrowing it" (Rachels & Rachels, 2019: 136). This rule must be willed into a universal law that applies to everyone. However, if this maxim is universalised, it will be unsuccessful. Since no one would believe in such promises, no one would lend money (Rachels & Rachels, 2019: 136).

Kant’s second formulation of the categorical imperative is called the “Formula of Humanity” which emphasises treating individuals as ends in themselves rather than as a means to an end. It states, “Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only” (Rachels & Rachels, 2019: 146). Kant further emphasised the need for people to be treated well through the promotion of well-being, respect for rights, prevention of harm, and

furthering their ends (Rachels & Rachels, 2019: 147). In other words, since people can make moral decisions based on their own reasoning and free will, and are ends in themselves, they must be treated with respect (Rachels & Rachels, 2019: 147). Therefore, it is not permissible to manipulate, use, or exploit people to achieve our goals because doing so does not respect the dignity and autonomy of people, who should be treated as ends in themselves (Rachels & Rachels, 2019: 147).

3.2 Kant's Formula of Humanity: Evaluating South Africa's ethical duty in ensuring equal access to healthcare for girls and boys

Kant's Formula of Humanity emphasises that people should be treated well by promoting their well-being, respecting their rights, preventing harm, and furthering their ends (Rachels & Rachels, 2019: 147). The South African Bill of Rights and the Children's Act (No. 38 of 2005) align with Kant's categorical imperative. Rights to equal healthcare access and reproductive healthcare are enshrined in Chapter 2 of the Constitution of South Africa (Republic of South Africa, 1996). Similarly, these rights and the best interest of children are protected under the Children's Act No. 38 of 2005 (Republic of South Africa, 2005).

The Bill of Rights protects the rights of all citizens and upholds the democratic values of human dignity, equality, and freedom (Republic of South Africa, 1996). Likewise, the Children's Act ensures the respect and protection of children's rights. Thus, both the Bill of Rights and the Children's Act impose a duty on the South African government to respect, protect, promote, and fulfil specified rights (Republic of South Africa, 1996; Republic of South Africa, 2005). Consequently, both the Bill of Rights and the Children's Act could be considered deontological, as the state has a duty to uphold these rights. The values are intended to ensure ethical conduct (Law & Gustafson, 2017: 4). The National Integrated Sexual and Reproductive Health and Rights Policy (NDoH, 2019) further affirms the duties of the government as it recognises that the sexual rights of all people must be respected, protected, and fulfilled to achieve and maintain their sexual health.

However, by allocating funds for HPV prevention programs only for adolescent girls attending public schools, the state fails to promote the well-being and respect the rights of adolescent girls in private schools and all boys, thereby exposing them to the

potential harm of life-threatening cancer. The exclusion of girls in private schools and boys from a free HPV vaccination program does not align with the fair and equitable treatment of children and unfairly discriminates against them. Furthermore, if the best interests of children are always considered paramount in all matters concerning their care, protection, and well-being as specified in Section 9 of the Children's Act (No. 38 of 2005), then a policy that excludes adolescent girls in private schools and boys based on sex, gender, and socio-economic status is ethically unjust.

3.3 Kant's Formula of Humanity: Assessing the ethical treatment of adolescent girls in public schools

Kant's second formulation of the categorical imperative, the formula of humanity, requires one to "Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only" (Rachels & Rachels, 2019: 146). Humans are ends in themselves and should therefore be treated with respect (Rachels & Rachels, 2019: 147). However, vaccinating adolescent girls only in public schools against HPV infection imposes a burden on them to provide herd immunity to unvaccinated girls and boys. However, boys benefit only from herd immunity if female HPV vaccination rates exceed 80% (Prue et al., 2018: 914).

In 2020, the WHO passed a resolution calling on all member countries to implement multi-sectoral and integrated healthcare approaches to eliminate cervical cancer by 2030 (WHO, 2023: 1). The target is to have 90% of adolescent girls fully vaccinated against HPV by the age of 15 years (WHO, 2023: 1). According to the WHO-UNICEF data collected in 2020, 75% of 15-year-old South African adolescent girls had received at least one dose of the HPV vaccine between the ages of nine and 14 years (Amponsah-Dacosta et al., 2022: 4). In contrast, 61% of the girls received the full recommended schedule (Amponsah-Dacosta et al. 2022: 4). The national vaccination coverage data do not include HPV vaccination coverage in the private sector (Amponsah-Dacosta et al. 2022: 4). This is because adolescent girls attending private schools are excluded from the national school-based HPV program. It is with serious concern that Milondzo et al. (2021: 10) report that only 19.4% of eligible adolescent girls attending private schools in the country had received one or two doses of the

HPV vaccine. Therefore, South Africa still falls short of the WHO target of 90% HPV vaccinations.

One of the key issues highlighted by Milondzo et al. (2021: 10) as a barrier to HPV vaccination for girls attending private schools is the lack of access to the vaccine. The caregivers in this study reported that the cost of HPV vaccination and the inconvenience of using private health facilities are challenges to having their daughters vaccinated (Milondzo et al., 2021: 10). It is also important to note that HPV vaccination is not available in South African public healthcare facilities (Ngcobo et al., 2019: 14). Therefore, even if boys or adolescent girls attending private schools wanted to be vaccinated against HPV, they were unable to access the vaccines at public health facilities.

Moreover, boys are not included in South Africa's national school-based HPV vaccination program. However, the vaccine is registered for both sexes (Western Cape Government, 2021: 2). While cervical cancer has the highest HPV-related cancer burden globally, other HPV-related cancers such as oropharyngeal, anal, and penile cancers also cause significant morbidity and mortality in men (Schmeler & Sturgis, 2016: 1799; Baker et al., 2019: 25; Law & Gustafson, 2017: 3-7; Prue et al., 2018: 914). Men exhibit a weaker immune response to HPV infection than women, making them less likely to undergo seroconversion after infection (Baker, Kelley, Medeiros, 2020: 1). This leaves them more susceptible to re-infection. Therefore, by not providing HPV vaccination to boys, the government is exposing them to debilitating and life-threatening cancers. The most disturbing reality is that vulnerable populations such as gay, bisexual, and transgender individuals are completely unprotected (Baker et al., 2019: 25; Uwire Text, 2022). During a recent study conducted in Sweden, it was revealed that boys believed it was important and fair for boys and girls to receive equal protection from HPV (Grandahl, Nevėus, Dalianis, et al., 2019: 1794-1802). According to the participants, if HPV vaccination has the potential to protect both girls and boys from HPV-related illnesses, it should not be a matter of sex but rather of equal rights for both genders (Grandahl et al., 2019: 1794).

HPV vaccination rates can be increased by including adolescent girls attending private schools (Milondzo et al., 2022: 1) and all boys in the national school-based HPV program (Baker et al., 2020: 1). However, the inclusion of adolescent girls attending

private schools may not be sufficient to reach the WHO target of 90% HPV vaccination coverage (Milondzo et al., 2021: 10). Therefore, the inclusion of boys in the national school-based HPV program is imperative. Gender-neutral HPV vaccination would protect boys and possibly strengthen the herd effect (Vänskä, Luostarinen, Baussano, et al., 2020: 955; Qendri et al., 2018: 1-4). A study conducted by Gray, Kann, Pimenoff, et al. (2021: 1-18) found that a gender-neutral vaccination program provides a greater herd effect than a vaccination program restricted to girls in settings where vaccination coverage is moderate (40%-50%). In addition, as stated by Qendri et al. (2018: 3) in their paper, gender-neutral HPV vaccination provides significant health benefits by enhancing the herd effect in women, as well as direct protection to men, particularly gay men.

Some authors contend that gender-neutral HPV vaccination can eliminate HPV disease and eradicate oncogenic HPV types in both men and women (Vänskä et al., 2020: 955; Lehtinen & Pimenoff (2021: 1-2). According to a study conducted by Vänskä et al. (2020: 948-956), the authors found that gender-neutral HPV vaccination strategies are more effective than girls-only strategies in eradicating most oncogenic HPV types. Notably, eradication implies that specific HPV types are universally eliminated (De Sanjose & Bruni, 2020: 888). The long-term effect of this is that no further intervention measures are needed to prevent HPV infection (De Sanjose & Bruni, 2020: 888).

Thus, in applying Kant's categorical imperative, to "Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only" (Rachels & Rachels, 2019: 146); vaccinated adolescent girls in public schools are treated as a means only in providing "herd immunity" to unvaccinated girls and boys. Furthermore, the rights to sexual and reproductive health and equal access to healthcare for adolescent girls in private schools and all boys are infringed upon when it comes to free HPV vaccinations. By extending free access to HPV vaccines to girls attending private schools and to all boys, the WHO target of 90% HPV vaccination can be reached. Most importantly, the burden of cervical cancer and all other HPV-related cancers can be significantly reduced. Vaccinated adolescent girls in public schools would be treated as an end and not merely as a means to provide herd immunity to others. Consequently, the rights to sexual and reproductive health

and equal access to healthcare for adolescent girls attending private schools and for all boys are respected, protected, promoted, and fulfilled.

3.4 Kant's Formula of Humanity: Evaluating the freedom and autonomy in HPV vaccination decision making for parents and children

Kantian ethics holds that humans are rational beings with free will and the ability to make moral decisions based on their own reasoning (Rachels & Rachels, 2019: 147). Likewise, the Bill of Rights affords all individuals the right to freedom and autonomy (Republic of South Africa, 1996). Furthermore, the Sexual and Reproductive Health Rights policy asserts that 'all individuals have the right to make decisions governing their bodies and to access services that support that right' (NDoH, 2019).

However, the national school-based HPV program infringes upon parents' and children's freedom to make rational health decisions by imposing financial burdens on them. In the earlier section, I explored the difficulties faced by caregivers of adolescent girls in private schools concerning the expense and availability of HPV vaccines (Milondzo et al., 2021: 10). The cost is estimated to exceed R900 per dose for both bivalent and quadrivalent HPV vaccines in the private sector, while a single-dose bivalent HPV vaccine costs the South African government R341.76 (Amponsah-Dacosta et al., 2022: 4).

Parents or caregivers of adolescent girls attending private schools are presumed to be able to pay out-of-pocket for HPV vaccines or be covered by private medical insurance (Milondzo et al., 2021: 10; Amponsah-Dacosta et al., 2022: 4). However, the assumption that all parents or caregivers of girls attending private schools can pay for HPV vaccines or have medical insurance is incorrect. This is because some children receive bursaries or scholarships to study at private schools or are from middle-income families, where caregivers struggle to make ends meet with rising inflation and food costs. Consequently, this financial barrier affects parents' and children's rights to make rational decisions regarding their health (Law & Gustafson, 2017: 5).

Moreover, girls attending private schools and all boys cannot access HPV vaccinations at public health facilities because they are not available there (Ngcobo et al., 2019:

14). Thus, it is unfair to maintain an HPV program that infringes on people's freedom to make rational health decisions (Law & Gustafson, 2017: 5). The South African government must do what is morally right to provide free, equitable access to HPV vaccination for all adolescent children irrespective of their gender or socio-economic circumstances.

3.5 Kant's Formula of Universal Law: Assessing the fairness of limiting free HPV vaccination to only girls in public schools

Kant's first formulation of the categorical imperative, the formula of universal law, requires one to "Act only according to that maxim by which you can at the same time will that it should become a universal law" (Rachels & Rachels, 2019: 136). When applying this categorical imperative, the maxim "Provide free HPV vaccination to those most at risk (girls) in public schools", aligns with the current policy. However, universalising such an exclusionary policy has several implications for individuals and public health.

Vaccinating only adolescent girls in public schools against HPV reinforces gender disparities in healthcare (Grandahl & Nevéus, 2021: 6-7). Moreover, limiting the vaccination to girls only does not adequately protect boys from HPV-related diseases, leaving them vulnerable to oropharyngeal, anal, and penile cancers (Uwire Text, 2022: 1). A policy that excludes children based on sex, gender, and socio-economic status is inconsistent with the principle of equal access to healthcare. Furthermore, it fails to consider the best interests of girls in private schools and boys in protecting them from preventable cancers. Moreover, such a policy inherently discriminates against girls attending private schools and boys based on their sex, gender, and socio-economic circumstances. Therefore, such a policy cannot be consistently applied as a universal law and is thus morally impermissible.

According to Kantian ethics, the right action would be to include all adolescent girls and boys in a free national school-based HPV vaccination program, despite the cost (Law & Gustafson, 2017: 4). Therefore, when applying the formula of universal law, the maxim, "Provide free HPV vaccination for all girls and boys regardless of the consequences or cost" is ethically permissible. The WHO has approved the use of a single-dose HPV vaccination schedule, as it has shown comparable efficacy to two-

and three-dose schedules (WHO, 2022b: 670). Furthermore, the WHO's recommendations allow for boys to receive the HPV vaccine on the same schedule as girls (WHO, 2022b: 654). The manufacture and supply of low-cost generic HPV vaccines could increase access to affordable vaccines for national programs (Oberlin et al., 2018: 272). This means that the funding for free HPV vaccination could be extended to all girls and boys locally and globally. South Africa can follow the lead of other low-middle-income countries by adopting gender-neutral HPV vaccination programs to protect all children from preventable cancers and improve health and gender disparities. Thus, a free gender-neutral HPV vaccination program can be willed to become a universal law.

3.6 Policy implications and recommendations

In light of the Kantian critique presented South Africa must re-evaluate its HPV vaccination policy. Kantian ethics supports a more comprehensive and inclusive approach to HPV vaccination. The ethical duty to treat all individuals with equal moral worth, respecting their autonomy and dignity, should guide policy reformulations. Acknowledging the constitutional and legislative frameworks supporting the rights to equal healthcare access, particularly enshrined in the Bill of Rights and the Children's Act, the state must ensure policies align with these deontological principles. Furthermore, considering the National Integrated Sexual and Reproductive Health and Rights Policy (NDoH, 2019), which recognises the obligation to respect, protect, and fulfil sexual rights, the policy should be revised to encompass a more inclusive, gender-neutral approach. To address the ethical shortcomings identified through Kantian analysis, a fundamental shift toward gender-neutral HPV vaccination is recommended. The policy should extend free access to HPV vaccines to all adolescent girls, irrespective of school type, and include boys in the national school-based HPV vaccination program. A gender-neutral approach aligns with the Kantian principle of treating individuals as ends in themselves and ensures equitable protection against HPV-related diseases for all.

Given the financial barriers identified in the analysis, the South African government should take proactive measures to overcome economic disparities in accessing HPV vaccinations. Implementing a subsidy or support system for families facing financial

constraints, irrespective of school type, would contribute to dismantling the economic obstacles hindering access. This resonates with the Kantian emphasis on the moral duty to ensure equal access to healthcare, irrespective of socio-economic status. Collaborative efforts with international organisations and the development of cost-effective vaccination strategies, possibly through the use of low-cost generic vaccines, could enhance the feasibility of a gender-neutral approach. This aligns with the Kantian principle of universalisability, ensuring that ethical principles can be applied consistently and universally.

Recognising the evolving nature of public health challenges, it is recommended that South Africa establish a mechanism for continuous evaluation of its HPV vaccination policy. This involves ongoing assessment of vaccination coverage, health outcomes, and societal implications. A dynamic and adaptive approach ensures that the policy remains aligned with both ethical imperatives and pragmatic considerations over time. By prioritising inclusivity, equity, and continuous evaluation, South Africa can move toward a more ethically sound and effective HPV vaccination strategy.

3.7 Summary

In this chapter, I provided an overview of Kantian ethics and demonstrated how it supports gender-neutral HPV vaccination. I showed that the South African government's policy of providing free HPV vaccinations exclusively to girls in public schools raises ethical concerns when viewed through the lens of Kant's Formula of Humanity and Formula of Universal Law. First, by limiting access to HPV vaccinations based on the type of school a child attends, the government fails in its ethical duty to uphold the rights to sexual and reproductive health and the human right to equal access to healthcare. This inequitable distribution of vaccinations may result in disparities in HPV-related health outcomes, exposing certain groups, such as girls in private schools and all boys, to potentially life-threatening HPV-associated cancers.

Second, the current policy implies that HPV-vaccinated adolescent girls attending public schools are treated as a means to an end. In this context, the "end" refers to the attainment of 'herd immunity,' where a significant portion of the population becomes immune to a disease, thereby indirectly protecting those who are not

vaccinated. While this concept has public health benefits, it raises ethical questions when applied exclusively to one gender, as it implies that girls are being used to protect unvaccinated girls and boys. This approach disregards the individual agency and autonomy of the vaccinated girls.

Third, the current school-based HPV vaccination program may hinder the freedom of parents and children to make rational health decisions. Imposing a financial burden on those who do not have access to free vaccinations infringes upon their ability to make choices based on their own reasoning and free will, a fundamental aspect of Kantian ethics. When parents and children are denied access to free vaccinations based on their school type, they are effectively denied the opportunity to make rational health decisions without financial constraints.

Finally, to assess the fairness of limiting HPV vaccination to only girls in public schools from the perspective of Kant's Formula of Universal Law, we must ask whether such a policy could be consistently applied as a universal law. If we universalise the maxim that only girls in public schools should receive free HPV vaccinations, we encounter logical contradictions. Such a universal law would inherently discriminate against girls who attend private schools and boys. Kantian ethics, rooted in rationality and consistency, would find this maxim incompatible with the principle of universalisability. In the following chapter, I provide a rule utilitarian argument in defense of gender-neutral HPV vaccination. I examine whether the South African HPV vaccination program aligns with the principles of rule utilitarianism.

Chapter Four: A rule utilitarian argument in defense of free gender-neutral HPV vaccinations

In the previous chapter, I presented a Kantian argument in defense of free gender-neutral HPV vaccinations. Kantian ethics assigns moral worth to actions based on principles of duty rather than emphasising consequences. A Kantian framework emphasises the inherent dignity of individuals and the moral duty rooted in rational principles, which contrasts with the utilitarian approach adopted in this chapter.

In this chapter, I examine whether the South African HPV vaccination policy aligns with the principles of rule utilitarianism, considering the ethical and societal dimensions. I show that rule utilitarianism can be applied to assess the ethical aspects of the policy regarding gender-based eligibility. First, I provide an overview of utilitarian ethical theory and distinguish between two forms of the theory. I explain why rule utilitarianism is the more appropriate form for evaluating the ethics of the policy. Thereafter, I examine whether the policy, when consistently applied as a rule, leads to the greatest overall well-being or utility for society from a rule-utilitarian perspective. I discuss how this policy may affect public health outcomes and gender equality in the long term. I show that a rule-utilitarian analysis finds that the policy does not generate the best possible outcomes.

4.1 Introduction to Utilitarianism

Utilitarianism is a consequentialist moral theory. In consequentialism, a duty arises from achieving good or desirable outcomes (Sinnott-Armstrong, 2022). Hence, consequentialists believe that the sole determinant of morality is the outcomes or consequences of actions, with morally right actions being those that lead to the best outcomes (Sinnott-Armstrong, 2022). In utilitarian ethics, moral judgment is based on the utility or benefit of an action for the majority, aiming to achieve the “greatest good for the greatest number of people (Rachels & Rachels, 2019: 118). Prominent utilitarian ethicists such as Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1873) established the fundamental principles of this ethical theory. In utilitarianism, the "Principle of Utility" serves as the ultimate moral principle, seeking to maximise happiness and pleasure, while minimising unhappiness and pain in all circumstances. (Driver, 2022; Rachels & Rachels, 2019: 118). In utilitarian theory,

> "The morality of an action depends solely on the consequences of the action; nothing else matters. An action's consequences matter only insofar as they involve the greater or lesser happiness of individuals. In the assessment of consequences, everyone's happiness gets equal consideration. This means that equal amounts of happiness always count equally" (Rachels & Rachels, 2019: 118).

Therefore, utilitarianism is characterised by three propositions. It emphasises the primacy of consequences (instead of adherence to moral rules), the centrality of happiness, and the equal consideration of everyone's happiness. The right course of action is one that produces the best consequences; maximising the overall balance of happiness over unhappiness (Rachels & Rachels, 2019: 118; Savulescu, Persson & Wilkinson, 2020: 622). Utilitarianism is sometimes divided into act utilitarianism and rule utilitarianism. Act utilitarians and rule utilitarians both agree that the main objective in assessing actions is to achieve the best outcomes. However, they differ in their approach.

Act utilitarianism asserts that our choices should consistently prioritise the action that results in the highest overall utility whenever we are deciding what course of action to take. Proponents of this ethical theory argue that the utility principle, which entails following actions that lead to the most favourable overall outcomes, should be individually applied. The best decision is always the one that generates greater utility (i.e., well-being), than the alternative choices. Thus, act utilitarianism holds that "An act is right if and only if it results in at least as much overall well-being as any act the agent could have performed" (Eggleston, 2017: 2).

Act utilitarianism places the utilitarian principle directly on the examination of individual actions. For example, when there is a limited supply of a life-saving vaccine available, and two patients urgently need it, an act utilitarian would judge the morally right action to be the administration of the vaccine to the patient whose survival would result in the greatest overall well-being, even if it means withholding the vaccine from the other patient. Act utilitarianism focuses on assessing individual actions based on their consequences, offering flexibility but potentially leading to complexity and unpredictability. Evaluating the consequences of every action can be mentally taxing

and challenging in complex moral dilemmas. Since it does not rely on pre-established rules, act utilitarianism can lead to unpredictable moral judgments, making it difficult to establish consistent ethical norms (Mill, 1863).

In contrast, rule utilitarians hold that “An act is right if and only if it would be permitted by a system of rules whose general acceptance would result in at least as much overall well-being as would the general acceptance of any system of rules” (Eggleston, 2017: 7). Rule utilitarians contend that a specific action is morally justified if it adheres to a moral rule that is considered morally acceptable. They suggest that a moral rule attains moral acceptability if its adoption would generate greater overall value compared to having no rule at all. Thus, rule utilitarianism acknowledges that morally right actions are still based on the promotion of overall well-being but seeks to achieve the greatest good for the majority of people while respecting established moral rules.

In line with this perspective, the evaluation of the morality of individual actions is based on overarching moral principles. The specific moral principles are then determined by considering whether accepting them would yield greater well-being in comparison to embracing alternative rules. For example, in the medical context, rule utilitarianism might entail following a general rule that physicians must prioritise patients based on the severity of their conditions and not discriminate against them based on any other factors. This rule aims to maximise overall well-being by ensuring equitable access to medical care.

Rule utilitarians adhere to a set of rules or guidelines that are designed to maximise overall well-being or utility when consistently followed. The specific set of rules can vary depending on the context and the principles that are deemed to optimise overall happiness or minimise pain and suffering. Rule utilitarians aim to establish rules that if universally applied, would lead to the greatest net benefit to society. These may include rules that prioritise public health and safety such as vaccination policies, and quarantine measures (Gostin, 2000: 2837-2841), and rules that respect individual autonomy and basic human rights such as the right to life and liberty and rules that promote equality and non-discrimination.

4.2 Justification for rule utilitarianism as a framework of analysis and evaluation

The choice between act utilitarianism and rule utilitarianism in evaluating a policy's utility depends on the specific context and the ethical principles one values. Neither approach is inherently better than the other, as their suitability varies based on different factors. However, rule utilitarianism often provides a more reliable framework for evaluating policy utility. The choice of rule utilitarianism as a framework for analysing and evaluating the South African HPV vaccination policy is grounded in several reasons.

First, rule utilitarianism provides a more stable and consistent ethical framework than act utilitarianism does. While act utilitarianism assesses each specific action by considering its consequences, rule utilitarianism formulates general rules that guide behaviour. These rules are formulated to produce the greatest good for the greatest number of people over the long term, offering a more systematic approach to ethical decision-making (Savulescu et al. 2020: 622).

Secondly, rule utilitarianism is well-suited for evaluating policies and laws, as it considers the aggregate consequences of adhering to a set of rules that can be consistently applied across cases, ensuring fairness and predictability. Notably, Savulescu et al. (2020: 622) suggest that laws are often rooted in rule utilitarianism, as they are typically designed to generate the best possible outcomes. Laws and policies, by nature, are rule-based systems, making rule utilitarianism a natural fit for assessing their ethical implications (Savulescu et al. 2020: 622). Furthermore, publicly funded systems usually adopt a utilitarian approach aimed at maximising health outcomes for the population (Law & Gustafson, 2017: 5).

Lastly, rule utilitarianism allows for the incorporation of societal norms, established moral principles, and ethical standards into the evaluation process. The framework takes into account the importance of respecting and upholding existing rules and moral values while seeking to maximise overall well-being (Eggleston, 2017: 7). The South African policy on HPV vaccination can be viewed through the lens of rule utilitarianism, given that policies are derived from legal frameworks. By adopting rule utilitarianism, we can comprehensively assess the ethical merits and drawbacks of the South African policy on HPV vaccination in a structured manner. This analysis considers not only the

immediate consequences but also the long-term societal implications of the policy, thereby providing a more holistic perspective on its ethical standing.

Having outlined the principles of utilitarianism, and explaining why rule utilitarianism is the most appropriate form to evaluate the policy, I now turn my attention to its application in evaluating the South African HPV vaccination policy.

4.3 Does rule utilitarianism justify gender-based eligibility for HPV vaccination?

The rule-utilitarian framework prioritises the overall well-being generated by adherence to specific rules. When evaluating gender-based eligibility for HPV vaccination, rule utilitarianism considers factors such as health impact, equality and non-discrimination, and herd immunity. In terms of health impact, rule utilitarianism would assess whether limiting HPV vaccination to a specific gender, such as girls only, maximises general well-being by lowering the prevalence of HPV-related illnesses, such as cervical cancer. Rule utilitarianism promotes rules that support equality and non-discrimination (Rachels & Rachels 2019: 114-117), therefore both the burden of illness and potential health benefits for both genders would be considered. A policy that discriminates against girls in private schools and boys may be regarded as unethical if it maintains gender-based inequities in health outcomes or fails to maximise overall well-being. Rule utilitarianism takes into account how vaccination laws affect society as a whole. Herd immunity, which can shield both sexes from HPV-related illnesses, would be assessed to see if a gender-based policy impairs it. The general welfare of society may suffer if herd immunity is undermined because of gender-based limitations.

A policy that restricts access based on financial means could be ethically problematic from a rule-utilitarian perspective, as it may lead to lower vaccination rates, reduced herd immunity, and an increased incidence of HPV-related diseases, ultimately diminishing overall well-being. Rule utilitarianism considers factors like accessibility and public health impact. Equal access to healthcare services is supported by rule utilitarianism (Daniels, 2008). Therefore, a strategy that limits HPV vaccination access based on financial means raises ethical concerns. This approach may result in disparities in health outcomes and compromise the general well-being of children whose parents or caregivers are assumed to have the financial means to afford

vaccination but are routinely denied this preventive measure. From a rule utilitarian perspective, a policy that limits access to vaccination based on financial means may lead to lower vaccination rates and reduced herd immunity, which could negatively affect overall well-being by increasing the incidence of HPV-related diseases in the population.

The exclusionary policy does not align with the rule-utilitarian principle, as it perpetuates inequalities in access to vaccine benefits, hindering the policy's potential to achieve the greatest good for the majority. The exclusion of certain groups based on gender and socio-economic status has significant societal implications. The policy fails to maximise overall well-being by not addressing the broader public health goals of reducing HPV-related diseases and achieving herd immunity. Consider a scenario in which the South African HPV vaccination policy remains unchanged. Over time, this policy results in a growing burden of HPV-related diseases among unvaccinated individuals, including both boys and girls attending private schools. The societal consequences include increased healthcare costs, reduced productivity due to illness, and preventable suffering (Lorway et al., 2022: 1).

Scientific evidence strongly supports the inclusion of both genders in HPV vaccination programs (Bogaards et al., 2015: 1-9; Gray et al., 2021: 1-18; Vänskä et al., 2020: 948-956; Diez-Domingo et al., 2021: 1-11). Research has shown that gender-neutral vaccination not only protects males from HPV-related diseases but also contributes to the prevention of cervical cancer in females and reduces the overall burden of HPV infections (Vänskä et al., 2020: 955). Furthermore, a gender-neutral HPV vaccination approach has been endorsed by numerous health authorities and organisations worldwide, including the WHO. According to Diez-Domingo et al. (2021: 8), even persistent female vaccine coverage of 70% in female-only HPV programs is not adequate in protecting MSM against HPV-related diseases. In Finland, Gray et al. (2021: 1-18) compared the herd effect between no HPV vaccination, girls-only HPV vaccination, and gender-neutral HPV vaccination. The authors found that with 40-50% vaccine coverage in both girls-only HPV vaccination programs and gender-neutral HPV vaccination programs, only gender-neutral HPV vaccination produced a significant herd effect against HPV type 16 (Gray et al., 2021: 2). Gender-neutral vaccination not only protects both males and females but also contributes to herd

immunity, reducing the overall prevalence of HPV and its associated diseases (Qendri et al., 2018: 3; Baker et al., 2020: 1-3).

4.4 Policy implications and recommendations

Rule utilitarianism advocates for rules that maximise overall well-being. Considering the evidence supporting gender-neutral HPV vaccination and potential societal benefits, a more inclusive approach may align better with rule utilitarian principles.

Rule utilitarianism emphasises equal access to healthcare, thus modifying the policy to ensure equitable access, regardless of gender or financial means, would align with rule utilitarian principles and contribute to the overall well-being of the population.

Rule utilitarianism values consistency and long-term consequences, therefore, evaluating the policy in light of its long-term societal implications, including the potential for herd immunity and overall health outcomes, is essential for an ethically robust approach.

4.5 Summary

In summary, the South African HPV vaccination policy, which excludes certain groups based on gender and socio-economic status, is not aligned with the principles of rule utilitarianism. Rule utilitarianism seeks to establish rules that maximise overall well-being, and the current policy falls short by perpetuating inequalities, hindering optimal vaccine coverage, and failing to capitalize on the potential benefits of gender-neutral vaccination. The ethical and societal implications of this policy, when evaluated in the context of rule utilitarianism, call for a reconsideration of its inclusiveness to truly maximise the greatest good for the population. In the following chapter, I address possible objections to adolescents' free access to gender-neutral HPV vaccination.

Chapter Five: A response to possible objections to adolescents' free access to gender-neutral HPV vaccination

In the preceding chapter, I examined whether the South African HPV vaccination policy aligns with the principles of rule utilitarianism, considering the ethical and societal dimensions. I demonstrated that a rule-utilitarian analysis finds that the policy does not generate the best possible outcomes. This chapter addresses potential counterarguments to adolescents' free access to gender-neutral HPV vaccination from both Kantian and rule utilitarian perspectives. I first address potential objections to using Kantian ethics and utilitarianism in a policy context. After that, I address potential counterarguments from a Kantian perspective and then consider counterarguments from a utilitarian standpoint.

5.1 Potential counterarguments to using Kantian ethics and utilitarianism in policy contexts.

One possible objection against the use of Kantian ethics in a policy context may be that it neglects consequences or outcomes (Rachels & Rachels, 2019: 146). Kantian ethics with its focus on universalisability and respect for individual autonomy, may at times fail to fully consider the practical implications and real-world consequences of policies and actions. In complex policy contexts, prioritising Kantian ethics solely could lead to decisions that place abstract moral principles above the well-being of individuals and society at large. Critics of Kantian ethics may argue that other ethical theories such as consequentialism or utilitarianism, offer a broader perspective by taking into account the consequences or outcomes of actions that are essential in policymaking to maximise overall well-being for the greatest number of individuals. Thus, relying on Kantian ethics alone in policymaking may neglect significant considerations of utility, justice, and social well-being.

On the other hand, critics of utilitarianism in policy contexts may argue that it could prioritise overall happiness or utility at the expense of individual rights and justice (Rachels & Rachels, 2019: 121-122). Thus, utilitarian decision-making in policy contexts could unfairly disregard minority groups or individuals who may be adversely affected by policy measures intended to benefit the majority.

In the next two sections, I address potential counterarguments to adolescents' free access to gender-neutral HPV vaccination in terms of Kantian ethics and utilitarianism.

5.2 Potential counterarguments and ethical analysis from a Kantian perspective

Advocates of the current policy may argue that the policy is justified because HPV disproportionately affects females, particularly cervical cancer (WHO, 2017: 5753). For them targeting girls for vaccination is a pragmatic response to a specific health risk. Thus, they may point out that a universal law could be formulated based on gender-specific health risks. They might assert that it is ethically permissible to universalise the maxim "Provide free HPV vaccination to those most at risk (girls) in public schools." However, this maxim is flawed; therefore, it cannot be willed into a universal law, rendering the act morally impermissible.

While it is true that cervical cancer is predominantly associated with HPV, it is essential to consider that HPV also poses significant risks to males, including anal, penile, and oropharyngeal cancers (Schmeler & Sturgis, 2016: 1799; Baker et al., 2019: 25; Law & Gustafson, 2017: 3-7; Prue et al., 2018: 914). Even though females are at a higher risk of certain HPV-related cancers, a universal law that discriminates based on gender still violates the principle of equal treatment (Baker et al., 2019: 25; Powell et al, 2018: 1) and the inherent worth of individuals, as Kant's Formula of Humanity, emphasises. Furthermore, limiting HPV vaccination access based on gender overlooks the autonomy of individuals who may be at risk of HPV-related diseases (Law & Gustafson, 2017: 1-9).

Proponents of the current policy may also argue that resource allocation is a valid reason for restricting free HPV vaccinations to public schools (Amponsah-Dacosta et al., 2022: 4). They may contend that the government has limited resources and must prioritise public schools, where a larger portion of the population is educated (Amponsah-Dacosta et al., 2022: 6). From this perspective, the government is acting responsibly by targeting the most significant portion of the population with available resources. However, while resource allocation is a valid concern, Kantian ethics emphasises that moral duties are not contingent on consequences (Rachels & Rachels, 2019: 146). Kant's Formula of Universal Law suggests that policies should be designed based on principles that can be universally applied (Rachels & Rachels, 2019: 136). If we universalise the principle that only public-school girls should have access to free HPV vaccinations, we would find it ethically problematic when considering the dignity and autonomy of girls in private schools and boys. Therefore,

resource allocation should be balanced with a commitment to treating all individuals as ends in themselves.

Some proponents of the policy may argue that restricting HPV vaccinations to public schools is necessary for public health reasons, given the potential for a more substantial impact in preventing HPV transmission in a larger, more densely populated setting (Amponsah-Dacosta et al., 2022: 6). Kantian ethics recognises the importance of public health but insists that policies should be formulated based on principles that respect the moral worth of individuals (Rachels & Rachels, 2019: 147). While public health considerations are valid, a universal law that prioritises one group over others based on school type still fails the test of universalisability and fairness. The rule cannot be universalised as it excludes a large number of children who can benefit from free HPV vaccination. Furthermore, such a rule denies girls attending private schools and boys their rights to equal healthcare access and suggests that girls in public schools have more moral worth, even though they are exposed to the same risks.

Some advocates may argue that administering vaccines in public schools is more practical and cost-effective than extending vaccination programs to private schools and boys (Amponsah-Dacosta et al., 2022: 4). They might claim that the current approach is simply a matter of logistics and feasibility. Kantian ethics does not discount practical considerations; however, it emphasises that practicality should not compromise the principles of moral duty and equal treatment (Rachels & Rachels, 2019: 147). While logistics and cost-effectiveness are valid concerns, they should be addressed while upholding the principles of fairness, individual dignity, and autonomy. Applying Kantian ethics to the issue of limiting access to free HPV vaccinations to only girls in public schools in South Africa highlights significant ethical concerns. Kant's Formula of Humanity underscores the importance of treating all individuals as ends in themselves, demanding equal access to healthcare and respect for individual autonomy (Rachels & Rachels, 2019: 146-147). Similarly, Kant's Formula of Universal Law emphasises the need for principles that can be universally applied without contradictions (Rachels & Rachels, 2019: 136). While there are counterarguments, such as resource allocation, gender-specific risks, and practical considerations, these must be weighed against the foundational principles of Kantian ethics.

Resource allocation should be balanced with a commitment to treating all individuals as ends in themselves. Gender-specific risks should not justify discrimination, and practicality should not compromise principles of fairness, dignity, and autonomy. To address these ethical concerns, it is recommended that the South African government consider revising its HPV vaccination policy to ensure equitable access for all individuals, irrespective of school type or gender. This would align with Kantian principles and promote a more just and ethical approach to healthcare policy.

5.3 Potential counterarguments from Utilitarianism

Utilitarian counterarguments against free gender-neutral and universal coverage of HPV vaccination programs may focus on resource allocation, cost-effectiveness, and the potential for unequal distribution of benefits.

Prioritising free gender-neutral HPV vaccination could be questioned on the grounds of resource allocation. Some may argue that limited healthcare resources should be directed to areas where they can have the most significant impact (Malmqvist et al., 2011: 24; WHO, 2022b: 670). If resources are finite, directing them to the most affected population might be more efficient in terms of maximising overall well-being. Studies have shown variations in HPV prevalence and associated cancers between genders (Navarro-Illana et al., 2014: 3; White, 2014: 430; Marty et al., 2013: 1). HPV-related cancer rates are significantly higher in females than males (Chido-Amajuoyi et al., 2019: 21), thus focusing resources on vaccinating females could provide a higher overall health benefit. Redirecting resources to areas with higher disease burdens is a utilitarian argument for maximising the overall good.

However, while resource allocation is a valid concern, research suggests that the benefits of gender-neutral HPV vaccination can outweigh targeted vaccination (Gray et al., 2021: 1-18; Bogaards et al., 2015: 1-9; Qendri et al., 2018: 1-4; Vänskä et al., 2020: 948-956). The burden of HPV-related diseases, including cancer, extends to both genders, although unevenly distributed (WHO, 2022b: 647-648). By providing gender-neutral coverage, we address the burden on both sexes and reduce the overall disease prevalence more effectively (Powell et al., 2018: 1). Gender-neutral vaccination aligns with this epidemiological evidence.

Some may argue that from an economic perspective, the cost-effectiveness of a gender-neutral vaccination program should be carefully assessed (Zhuang et al., 2019: 563). If providing gender-neutral coverage proves to be significantly more expensive without proportionate benefits in terms of health outcomes, this could be seen as a less efficient use of resources (Brisson, Jit, Boily, et al., 2016: 6). A utilitarian concern could therefore be that universal coverage for both genders may not be cost-effective. If a gender-neutral HPV vaccination program significantly increases the cost per quality-adjusted life year (QALY) gained compared to targeted vaccination, it might not represent the most efficient use of resources (Brisson et al., 2016: 5).

However, cost-effectiveness studies vary in their conclusions because it depends on many factors (Brisson et al., 2016: 3-6). Moreover, a broader societal perspective may support gender-neutral vaccination (Prue et al., 2018: 914). While incremental costs may rise, the overall health gains, including cancer prevention and improved quality of life, can justify the investment in gender-neutral vaccination (Baker et al., 2019: 26; Powell et al., 2018: 1).

Proponents from a utilitarian standpoint may contend that there could be ethical trade-offs between different principles, such as equality and overall well-being to consider. Some may argue that gender-neutral vaccination coverage might lead to unequal impacts since benefits may not be distributed evenly among the sexes (Colzani et al., 2021: 3-4). This unequal distribution could be seen as a suboptimal outcome from a purely utilitarian perspective. In such cases, an argument might be made that targeted interventions are more equitable and, therefore, more in line with a utilitarian-like approach focused on overall well-being. Gender-neutral vaccination is, however, more consistent with principles of equality and non-discrimination, as it ensures equal access to preventive measures and addresses concerns of ethical trade-offs (Luyten et al, 2013: 1-16). Gender-neutral vaccination upholds the fundamental tenets of justice, ensuring that access to healthcare and disease prevention is provided without discrimination based on gender.

Utilitarian considerations may encompass broader health priorities. Thus, a utilitarian argument could be raised regarding the allocation of healthcare resources across different health priorities. If universal HPV vaccination for both genders diverts

resources from other pressing health concerns (Malmqvist et al., 2011: 24; WHO, 2022b: 670), it might be seen as ethically problematic from a utilitarian perspective. This diversion of resources, from a utilitarian perspective, might not maximise overall well-being. In cases where universal coverage might not significantly contribute to herd immunity (Brisson et al., 2016: 5), some utilitarian considerations may suggest that the resources could be better allocated elsewhere. This is particularly relevant when the vaccination rates are already high and have led to substantial reductions in HPV transmission and related diseases (Brisson et al., 2016: 5-6).

Addressing multiple health priorities is a complex challenge, but it is essential to adopt a comprehensive view of public health (Gostin, 2000: 2837-2841). Health economists often conduct resource allocation analyses to assess the potential impact of healthcare investments on various health priorities. Gender-neutral HPV vaccination contributes to broader public health goals by reducing the incidence of HPV-related diseases in both sexes, thereby relieving the burden on healthcare systems (Vänskä et al., 2020: 955; Qendri et al., 2018: 3; Gray et al., 2021: 1-18). Public health strategies often require a balance between addressing specific health priorities and the broader societal context. Gender-neutral vaccination is consistent with the WHO's goal to promote gender equity in health (WHO, 2021; WHO, 2020: 23-25).

While utilitarian counterarguments against gender-neutral HPV vaccination raise valid concerns, the scientific evidence and ethical considerations support the notion that gender-neutral vaccination can maximise overall well-being and is consistent with principles of justice and equity. Gender-neutral HPV vaccination addresses the burden of HPV-related diseases for both males and females, contributing to improved public health outcomes. Ethical discussions surrounding HPV vaccination should take into account not only utilitarian concerns but also considerations of fairness, equal access, and the protection of individual rights. Policy decisions should aim to balance these principles to promote the greatest overall well-being of society.

5.4 Summary

While various counterarguments can be made against the implementation of free gender-neutral HPV vaccination for both girls and boys, it raises significant ethical concerns. Evaluating the selective HPV vaccination of only girls in public schools must be considered in relation to public health objectives, ethical considerations, and the impact on both genders. This assessment should not only focus on immediate cost-effectiveness but also consider long-term health outcomes and societal equity. A free gender-neutral HPV vaccination program has the potential to significantly decrease HPV-related cancers in South Africa, particularly cervical cancer. Furthermore, it ensures the fair and equitable distribution of vaccine benefits.

Chapter Six: Conclusion and Recommendations

In this research report, I employed normative bioethical inquiry to answer the question: Is it fair and morally justified to provide access to free HPV vaccination only to girls in public schools? The hypothesis posited is that there should be universal access to free HPV vaccinations in South Africa. The report includes a critical analysis of the ethical and legal dimensions of the existing South African HPV vaccination program. In this chapter, I conclude the report and offer recommendations for a free gender-neutral HPV vaccination program in South Africa.

Chapter One introduces the study and provides a background to the normative bioethical inquiry. The study aimed to achieve the following objectives: First, to present an overview of the South African HPV vaccination policy and the relevant ethics literature on HPV vaccination. Second, to argue that the South African school-based HPV program is unfair and morally unjustified, as viewed through the lenses of Kantian ethics and rule utilitarianism. Third, to address and counter objections to the arguments presented. Overall, the study aimed to demonstrate that the government's duty towards adolescents is two-fold: ethically, to ensure fair and equitable access to HPV vaccines and protect children from harm; and legally, to fulfil their rights to healthcare.

In Chapter Two, I provided an overview of the South African HPV vaccination program and a review of the ethics literature related to HPV vaccination. The current HPV vaccination program in South Africa, which targets only adolescent girls in public schools, does not meet the WHO goal of 90% vaccination coverage. This has significant consequences for both unvaccinated adolescent girls and boys in the public and private sectors. Unvaccinated girls and boys are at a greater risk of developing debilitating and life-threatening HPV-related diseases and cancers. Furthermore, ethical arguments involving human rights, equity, and equality, grounded in Kantianism, support a gender-neutral approach to HPV vaccination. In addition, various arguments have demonstrated that there is utility in gender-neutral HPV vaccination because the benefits may outweigh the costs. Policy changes must consider the economic and financial implications of a free gender-neutral HPV program in South Africa. The challenges identified during the implementation of the existing HPV vaccination program must be addressed before the implementation of a

gender-neutral program. Previous studies reported issues, including decreased social mobilisation, ineffective reminder and tracking systems, vaccine hesitancy (Amponsah-Dacosta et al., 2022: 1), challenges in obtaining informed consent, vulnerabilities in cold chain capacity, onsite management of adverse events, the spread of misinformation through social media platforms (Delany-Moretlwe et al., 2018: 425-436), instances of unsigned consent forms, and school absenteeism (Ledibane et al., 2023: 4-5).

These authors (Amponsah-Dacosta et al., 2022: 9-10; Delany-Moretlwe et al., 2018: 425-436; Ledibane et al., 2023: 4-5) have nonetheless presented targeted recommendations to address the specific programmatic challenges. The recommendations include improving adolescent health services in conjunction with the existing HPV vaccination program. This entails improving HPV vaccination coverage and completion rates, conducting operational research on the co-administration of HPV vaccines and other adolescent health services, utilising current programs and initiatives for adolescent health while ensuring effective connections across services, promoting advocacy and awareness campaigns driven by adolescents, and increasing the local vaccine production capacity to incorporate affordable generic HPV vaccines (Amponsah-Dacosta et al., 2022: 9). Furthermore, school-based HPV vaccination campaigns could be enhanced by improving the storage and tracking of vaccine doses, refining informed consent procedures, and delineating stakeholder responsibilities (Delany-Moretlwe et al., 2018: 436; Ledibane et al., 2023: 4-5). Additionally, absenteeism from school during vaccination campaigns could be reduced through improved communication, social marketing, and targeted messaging in the weeks preceding the campaign (Ledibane et al., 2023: 5).

In Chapter Three, I argued that the South African government's policy of offering free HPV vaccinations solely to girls in public schools raises ethical issues when assessed from the perspectives of Kantian ethics and rule utilitarianism. According to Kantian ethics, the government neglects its ethical responsibility to uphold individuals' rights to sexual and reproductive health, as well as the human right to equal healthcare access. This inequitable distribution of vaccines results in disparities in HPV-related health outcomes, exposing certain groups, such as girls in private schools and all boys, to potentially life-threatening HPV-associated cancers.

By applying Kant's second formulation of the categorical imperative, the formula of humanity, I argued that vaccinated adolescent girls in public schools are treated as a means to an end, disregarding their individual agency and autonomy, as they are used to protect unvaccinated girls and boys through herd immunity. Moreover, the existing school-based HPV vaccination program restricts the freedom of parents and children to make informed health decisions by imposing a financial burden on those without access to free vaccinations. Furthermore, applying Kant's formula of universal law, I argued that universalising the maxim that adolescent girls only in public schools should receive free HPV vaccinations inherently discriminates against girls attending private schools and boys. Kantian ethics, grounded in rationality and consistency, would deem this maxim incompatible with the principle of universalisability. Therefore, from a Kantian perspective, the current South African HPV vaccination policy is unfair and morally unjustified.

In Chapter Four, I examined whether the South African HPV vaccination policy, when consistently applied as a rule, leads to the greatest overall well-being or utility for society from a rule-utilitarian perspective. I argued that the exclusion of specific groups based on gender and socio-economic status does not align with the principles of rule utilitarianism. Rule utilitarianism underscores the importance of rules and policies that promote equality, prevent discrimination, and ensure equitable access to healthcare services to maximise the overall well-being of the population. I argued that the existing policy falls short by perpetuating inequalities, impeding the attainment of optimal vaccine coverage, and failing to capitalise on the potential benefits of implementing gender-neutral HPV vaccination. Thus, this policy does not generate the best possible outcomes for the population.

In Chapter Five, I responded to possible objections to adolescents' free access to gender-neutral HPV vaccination. I addressed potential counterarguments from both Kantian and Utilitarian perspectives. I concluded that while various counterarguments can be made against the implementation of a free gender-neutral HPV vaccination strategy, it raises significant ethical concerns. The selective HPV vaccination of adolescent girls in public schools only impacts public health objectives and both genders. The cost-effectiveness of a free gender-neutral HPV vaccination program

must include long-term health outcomes, societal equity, and economic benefits for the population.

In conclusion, policy recommendations for free gender-neutral HPV vaccination should focus on achieving fair access and comprehensive coverage. This involves implementing free school-based HPV vaccination programs in both public and private schools, targeting both genders, and emphasising the importance of HPV vaccination for both boys and girls. Various health organisations recommend gender-neutral HPV vaccination because it has the potential to prevent a wide range of HPV-related diseases, promote equity, and reduce the overall burden of disease. The South African government with considerable efforts from the NDoH, including relevant stakeholders could collaborate with international organisations and donor agencies to secure funding and resources for HPV vaccines, enabling free HPV vaccines for both girls and boys. This approach could eliminate financial barriers that may impede vaccine uptake. Additionally, there is a need for gender-neutral educational and public health campaigns to promote awareness and understanding among South Africa's diverse populations, emphasising the crucial role of gender-neutral HPV vaccination in preventing various cancers. Hence, healthcare workers' support and commitment are critical to the success of a gender-neutral HPV program. Effective communication, addressing concerns from both adolescents and parents or caregivers, providing training, and demonstrating the program's value in combating HPV-related diseases and cancers are key factors to ensure the successful implementation of the policy. Additionally, monitoring the program's progress, identifying any issues or challenges, and making necessary adjustments are important. This may include regular assessments, data collection, and utilising feedback mechanisms to ensure continuous improvement. To prevent programmatic challenges, such as those mentioned earlier regarding storage and cold chain management, the supply and distribution of vaccines must be effectively and efficiently managed.

Further research may include ethical analyses in the African context where ethical or moral foundations are guided by communal values that highlight interconnectedness, and community well-being over individual autonomy.

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