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Biopower, Normalization, and HPV: A Foucauldian Analysis of the HPV Vaccine Controversy

Kimberly S. Engels [1]

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Abstract This article utilizes the Foucauldian concepts of biopower and normalization to give an analysis of the debate surrounding the controversial administration of the HPV vaccine to adolescents. My intention is not to solve the problem, rather to utilize a Foucauldian framework to bring various facets of the issue to light, specifically the way the vaccine contributes to strategies of power in reference to how young adults develop within relationships of power. To begin, the article provides an overview of the Foucauldian concepts of biopower and normalization, including how these two strategies of power were present in the administration of the smallpox vaccine in the 19th century. Next, information about HPV and the history of the current controversy in the United States is presented. Lastly, the article presents an analysis of the strategies of biopower and normalization present in the debate on HPV, including an emphasis on how the vaccination is similar to, and different from, 19th century smallpox vaccination. It also explores the way that mechanisms of disease control affect and are affected by individual subjects, in this case, adolescents.

Keywords Foucault · Biopower · Normalization · Human papillomavirus

Human papillomavirus or HPV is the most common sexually transmitted infection in the United States and worldwide. Approximately 79 million U.S. residents are currently infected with HPV and about 14 million people become newly infected each year. Approximately 4,000 women die each year from cervical cancer caused by HPV (Centers for Disease Control and Prevention [CDC], "Genital HPV Infection" 2014). Since 2006, a vaccine has been available and recommended for young females and since 2009 for young males (CDC 2014). There has been proposed legislation in several states to mandate the vaccine for girls entering middle school. Despite the potential benefit of preventing several different cancers, the push for mandatory vaccination for HPV is met with some opposition. Many are concerned that because the HPV vaccine is new, the long term side effects of the vaccine are unknown and

✉ Kimberly S. Engels
kimberly.engels@marquette.edu

[1] Marquette University, 2434 North 68th Street, Wauwatosa, WI 53213, USA

that the public benefit of the vaccine is exaggerated. However, the opposition goes beyond the traditional debate surrounding routine vaccination. Because HPV is linked to sexuality, some opponents see requiring the vaccine as an intrusion by the state into the decision-making process of teenagers who could abstain from sexual activity and an intrusion into the responsibility of parents with regard to the well-being of their children (Casper and Carpenter 2008, 893-895). Some more extreme opponents argue that vaccines for STIs condone or even encourage teenage sex and give a false sense of security against other STIs. Proponents of the vaccine, on the other hand, argue that a mandate is the only way to achieve herd immunity, which is the idea that if the majority of the population is vaccinated for a disease, those who are not vaccinated are still protected. Further, proponents assert that the benefits of the vaccine outweigh potential side effects (as studies of the vaccine have shown it to be safe) or concerns about teenage sexual behavior (Jin, et al. 2013, 49-60). The purpose of this essay is to evaluate the situation from within a Foucauldian framework to bring the various power mechanisms within the debate to light and to further understand the aforementioned concerns.

One prominent theme of Foucault's philosophy is focused on the development of subjects through various methods of social control and power. This includes disciplinary practices, medical practices, or other social norms that involve the control over, or alteration of, physical bodies. Analyzing these structures through a Foucauldian lens assists in illuminating what is at stake with respect to the various effects of the vaccine on adolescent subjects which can be potential causes for concern. In Foucault's analyses of power mechanisms operative in society, he presents two innovative concepts: biopower and normalization. Biopower refers to the specific strategies of power which developed through an understanding of humans as a species (2007, 1). Normalization refers to medical or disciplinary practices that involve the establishment of a prescriptive model as a norm, and then require people to conform to the model (2007, 56-57). I will offer an examination of the HPV vaccine and the controversy surrounding it through a Foucauldian lens, focusing specifically on the strategies of biopower and normalization present, including their potential effects and benefits. A Foucauldian framework brings to light the multifarious power forces involved and shows that mandating the vaccine potentially contributes to the shaping and formation of individual human subjects. This includes ways that adolescent subjects understand themselves and relate to their families and their peers through mechanisms of power.

To bring these mechanisms and their potential effects to light, I compare them to smallpox variolization[1] and vaccination practices that Foucault has analyzed. By comparing the HPV vaccine to one for a disease that has been eradicated, I bring out the similarities and differences in the mechanisms of power surrounding the administration of the two vaccines. Clearly smallpox and HPV are different diseases that are transmitted differently and affect patients and society at large in different ways. However, the framework of analysis that Foucault uses for examining the power strategies that arose with the development of the smallpox vaccine is helpful for analyzing the same mechanisms surrounding the HPV vaccine. A Foucauldian analysis reveals that mandatory HPV vaccination potentially brings about changes in the way adolescent subjects understand themselves. This could affect various relationships and establish new medical and behavioral norms. However, these changes are not necessarily negative. Biopower enables both control over and positive transformation of human life. I suggest that the HPV vaccine can be implemented routinely side by side other sexual health practices in order to benefit the health of both adolescents and adults. This would include, but is not limited to, emphasis on the importance of protected sex and proper understanding of the child's body,

an understanding of the risk of multiple sexual partners, and promotion of knowledge of partners' sexual history, condom use, regular cervical screenings and pap smears. The practice of vaccination can only result in the elimination of the disease if these additional mechanisms are in place, exercised by and through individual subjects. However, a potential mandate must consider other potential effects of the vaccine, including the concerns of parents and their adolescent children.

Foucault, biopower, normalization, and smallpox

Foucault argues that strategies and mechanisms of power exercised over subjects and by subjects create a framework through which subjects become who they are. The subject is not something that exists prior to or independent of being affected by power, rather it is only created through these power mechanisms. Power does not refer only to political power but also includes mechanisms present in social structures, personal relationships, family relationships, and other forms of public and personal interaction. Relationships between spouses, parents and children, sexual partners, and other social relationships are created and affected by these power mechanisms. It is only through specific strategies of power that bodies of knowledge such as psychology, criminology, or various medical fields can be developed and practiced. Foucault identifies biopower as one specific strategy of power that solidified its foundation when Western societies discovered the fundamental biological fact that human beings are a species. Biopower is a tool to explore the mechanisms through which some basic features of humans as a biological species were discovered as susceptible to being mastered and manipulated. Foucault describes biopower as the "numerous and diverse techniques for achieving the subjugation of bodies and the control of populations" (1978, 140), and "the set of mechanisms through which the basic biological features of the human species became the object of a political strategy, of a general strategy of power" (2007, 1). Mechanisms and procedures of power were able to create bodies of knowledge that fostered a new understanding of human life processes and sought to control and modify them. Western humans learned what it meant to be a species in the world. This included the insight that the physical body was malleable and that the conditions of human existence could be manipulated and controlled. These manipulations aimed at increasing probabilities for the flourishing of human life, including individual and collective welfare (1978, 142). Such a manipulation includes different medical practices that are directed at the population as a whole: quarantine, preventative medicine, and vaccination (2007, 2).

Foucault identifies one specific strategy of biopower that arose with mass vaccination as "normalization," the positing of an optimal model to which people, their movements, and actions are then required to conform. Normalization is present in disciplinary, medical, and other social practices that intend to alter subjects in order to bring them in line with a specific ideal. It is a prescriptive standard that determines that which is normal and consequently, that which is abnormal (2007, 56-57). Normalization acts through imposing homogeneity on subjects, while at the same time individualizing them. This takes place through observing human behavior or examining results from medical tests or developments and mathematizing the findings. The differences between subjects are then measured, and levels of normality determined. Because mandatory vaccinations are intended to create a norm of immune bodies that stop the spread of disease, they involve the establishment of a norm and a subsequent attempt to bring the population in line with this norm. Foucauldian biopower and normalization can be observed in contemporary social and medical practices.[2]

With the development of biopower and human understanding of themselves as a species, systems of knowledge and strategies of power centered on the proliferation of life and avoidance of death became possible. Techniques of knowledge and power allowed the discovery of the necessary mechanisms to make the possibility of living a norm rather than a remote possibility that arose periodically amidst the randomness of death from famine and disease. Political technologies emerged for investigating and understanding the human body as well as various strategies for promoting the health and subsistence of shared spaces of habitation. Such strategies and control over space (such as healthy living quarters, regulations for public buildings, quarantine procedures, etc.), were then conducive to the overall flourishing of the species (Foucault 1978, 143-144). Many of these implemented mechanisms relied on the new idea of preventative medicine, which included herd immunity. Herd immunity, the crux of mandatory vaccine arguments, is a clear example of a mechanism of biopower. Individual human subjects are vaccinated in order to prevent the spread of disease to the overall human population. Herd immunity then allows both a power over and a proliferation of life, a protection of individual subjects through a prescription of a norm for these same individuals in order to benefit the species. These concepts are further illustrated in Foucault's discussion of the smallpox vaccine.

In his lectures *Security*, *Territory*, *and Population*, Foucault illustrates the mechanisms of biopower and normalization present in 19th century smallpox vaccination and variolization practices. I will also appeal to a comprehensive study done by Anne Hardy on smallpox vaccination practices in 19th century London that confirms and supplements Foucault's analysis. Utilizing Hardy's study identifies the most effective methods for eliminating smallpox and further gives support for a smallpox/HPV comparison (Hardy 1993). Foucault argues that methods of smallpox vaccination and variolization introduced four new concepts within disease control: *case*, *risk*, *danger*, and *crisis*. Smallpox vaccination is particularly interesting because, for the first time, statistical instruments made it possible to think of the phenomena of smallpox purely in terms of calculated probabilities. With these new calculation processes, smallpox was no longer apprehended as a "prevailing disease" in the sense of a disease that is associated with a particular place and a particular group of people (2007, 59-60). Previously, smallpox was identified with the poor, the unclean, or those inhabiting certain shared space. Quantitative analysis enabled the possibility of predicting rates of smallpox and thus it became possible to calculate the likelihood of smallpox arising among certain individuals. Smallpox was then considered a "…distribution of cases in a population circumscribed in time or space" (2007, 60). Thus arose the first new concept: a *case* of smallpox.

Cases of smallpox did not refer to a specific individual case but rather to the result of an ability to measure when smallpox may break out within a short time period or in a specific portion of the population. As studies of smallpox showed, the disease was likely to arise among specific individuals at a specific time (Foucault 2007, 60). Current scientific knowledge about smallpox suggests that *cases* of smallpox were easily detected because the presence of the disease was obvious. Symptoms for smallpox begin approximately twelve to fourteen days after exposure to the virus. The symptoms begin with fever or vomiting, followed by a development of a rash two to three days later. At this point it is apparent that a certain group of individuals who had occupied the same space were likely infected with smallpox. A *case* of smallpox was clearly visible and identified through the lesions which were understood to be a symbol of death and disease and thus aroused fear in the public (CDC, Control "Smallpox" 2014).

The second concept that arose from the calculation and study of smallpox, according to Foucault, is *risk*. Through the analysis of the distribution of cases of smallpox came the possibility of identifying the extent to which specific groups or individuals were at *risk* of dying from smallpox or susceptible to being cured. For the first time, it was possible to calculate the risk of death specific to an age group, a profession, a particular milieu, etc. For example, it was shown that individuals who lived in towns rather than in the country were more at risk for contracting smallpox. Additionally, infants, the weak, and elderly were more likely to die from the disease (2007, 61). Further, the poor shared a disproportionate risk as they often lacked the same hygiene standards as the wealthy, were more likely to live in close quarters, and were generally less educated about proper practices for prevention (Hardy 1993, 130).

The third new concept that came into play was *danger*. Foucault states that the new methods of calculation allowed the determination that risk is not the same for all individual ages, conditions, or places. Consequently, zones of higher or lower risk could be established. This led to an ability to identify that which could be considered *dangerous*. For example, an analysis of risk showed that it was *dangerous* to be less than three years old, more *dangerous* to live in a town than the country, and *dangerous* to live in close quarters where clothing, space, and living items were shared (Foucault 2007, 61; Hardy 1993, 130).

Fourth, Foucault asserts that the ability to calculate cases, risks, and dangers involved with smallpox gave rise to the notion of *crisis*. The term refers to the sudden worsening, acceleration or spread of the disease that could be associated with a specific time and place. A crisis would not fall within the category of epidemic but would refer to increasing disease rates that were considered unstoppable unless "effectively checked by either an artificial or an enigmatic natural mechanism" (2007, 61). A *crisis* is a case of smallpox that worsens or begins to spread.

These four new notions of *case*, *risk*, *danger*, and *crisis* gave rise to a new field of application and techniques of power, including a series of interventions by the state which differed significantly from previous methods of dealing with a disease. Previous interventions sought only to nullify the disease in every subject and then to prevent contact between those infected and those who were not. In contrast, interventions utilizing vaccination and variolization considered the sick and healthy as a whole and then identified a probable morbidity given the demographic to which individuals belonged. Thus arose in the 19th century, as a result from the gathered statistics, the idea of a "normal" morbidity from smallpox. The technique then applied was an attempt to reduce excessive rates such as those regions or groups that fell above the normal incidence of smallpox for that demographic and bring these regions or groups in line with the normal rate (Foucault 2007, 62-63). The intention of establishing a norm led to the passage of laws which mandated vaccination and in England, to the establishment of medical stations where appointed medical officers enforced vaccination laws. People were required to travel to these stations and be vaccinated before entering many public spaces within the city (Hardy 1993, 118-126). Here is demonstrated a biopower mechanism of control over space.

Along with a new mechanism of normalization, the introduction of *case*, *risk*, *danger*, and *crisis* led to the development of new strategies of power that contributed to the development of human subjects. Because of the new methods used to deal with the disease, for the first time, subjects understood themselves as being vulnerable to a *case* of smallpox, as being at a higher risk in terms of the demographic or categories to which they belonged, as being in *danger* of dying from the disease, and as susceptible to being swept away by a *crisis* of the disease. Further, it created new structures for understanding if one fell in line with a "normal" rate of

smallpox. These changes were part of a broader power strategy that eliminated the disease but also created a new discourse through which subjects understood themselves and understood processes of dealing with illness.

Elimination of smallpox, power over death and biological affirmation of life

In her analysis of smallpox vaccination in London, Hardy suggests that smallpox vaccination was only successful when there was organization and consistency in the administration of the vaccine. The development of the vaccine alone could not successfully eliminate the disease but had to be accompanied by consistent administration, which required the cooperation of the general population. Additionally it was necessary to practice some traditional disease control techniques such as proper quarantine of the infected and the destruction of infected clothing and control over public space. Disease elimination also necessitated re-vaccination after three years (what is today known as a "booster" vaccination). Most importantly, it required education of the public and cooperation of the general population. This cooperation was especially important with regard to parents who needed to bring their children and family members to vaccine stations and follow up with booster vaccination. It also required proper education of preventative measures, especially for at-risk demographics. What this illuminates is that eliminating or significantly reducing infection from a disease requires the use of a variety of mechanisms in addition to administration of a vaccine (Hardy 1993, 121-130).

Through the identification of case, risk, danger and crisis; the control over and alterations of bodies through the utilizations of vaccine stations; and mandated vaccination through security, herd immunity against smallpox was achieved. With the changing of individual perception of smallpox and its proper prevention, the emergence of new methods for dealing with disease as well as calculation of statistics and rates of infection, one of the most serious and fatal diseases in the recent history of the human species was contained, isolated, and eliminated. The effective mass vaccination and control of bodies succeeded in an establishing a norm of individual and species-wide immunity. Medical norms and behavioral norms for disease control were altered and further, lives were saved and improved. With this framework in place, I now turn to the case of HPV vaccination and examine the mechanisms of biopower and normalization present in the development, administration, and potential mandate of the vaccine.

Biopower, normalization, and HPV

HPV is a serious medical concern both in the United States and worldwide. It is so common that nearly all sexually active men and women will get at least one type of HPV at some point in their lives. There are over one hundred strains of the virus, two of which have been linked to 70% of cervical cancer in females. HPV can be transmitted through sexual intercourse or sexual activity and occasionally from a mother to a baby during delivery. Each year about 360,000 people develop genital warts, and 12,000 women develop cervical cancer of which 4000 die (CDC, "Genital HPV" 2014). High risk HPV types are found in about 3.4% of women tested and detected in virtually all cervical, vaginal, and vulvar cancers (National Cancer Institute 2014). Women who do not die from cervical cancer often must still go through painful surgeries to remove portions of their cervix. Genital warts caused by HPV are often difficult and painful to treat. Additionally, there is a financial cost of treating HPV: roughly 16 billion dollars each year (CDC, "Incidence" 2013).

The development and approval of the HPV vaccine in 2006 was seen as an opportunity to significantly decrease the rate of infection. Since rates of HPV are higher in the age group of fourteen through twenty-four, the recommendation is to vaccinate females before the onset of sexual activity when it is unlikely that they have been previously exposed to the virus (CDC, "Incidence" 2013). The CDC recommends that, in order to be maximally effective, the series of vaccination should be given to adolescents at around eleven to twelve years of age. In 2009 the vaccine was also approved and recommended for eleven to twelve year-old males ("HPV Vaccine" 2014). In addition to protecting males against genital warts and penile and anal cancers, vaccinating males reduces the spread of the disease to females.

Late in 2006, states began considering legislation that would mandate vaccination for girls entering middle school. Although the initial development of legislation saw little controversy, this changed when Texas governor Rick Perry signed an executive order in 2007 requiring the HPV vaccine for girls entering middle school. This order was later revoked by the Texas state legislature. Since then, twenty-four states have considered legislation that would mandate the vaccine although those measures have only passed in Virginia and the District of Columbia (National Conference of the State Legislatures 2014).

Several concerns have been raised about the mandated administration of the HPV vaccine. One of the main concerns is that the potential health benefit for the public that would come from mandating the vaccine is not sufficient to warrant both an intrusion on parental autonomy and on the decision making process of teenagers. Second, there is the concern that since the vaccine is fairly new, there are not enough data to ensure its safety. While initial studies suggest the vaccine is safe (the Vaccine Adverse Event Reporting System has found no serious systemic reactions apart from the dizziness, fainting or swollen injection sites that are common to almost every other vaccine, and recent trials have reaffirmed safety), the long-term effects of the vaccine, if there are any, are not yet known (Jin et al. 2013, 52-53). Since HPV is not casually transmitted like other diseases for which children are traditionally vaccinated, many parents believe that an equally effective alternative to a vaccine with potential side effects is to practice abstinence (Hendry et al. 2013, 5163). There is a significant gap between parents who are in favor of mandatory TDAP (tetanus, diphtheria, and pertussis) vaccine and those in favor of mandatory HPV vaccine (Casper and Carpenter 2008, 895)[3] suggesting that many hold the view that HPV can be avoided through methods other than vaccination. The third concern is that the vaccine gives adolescents a false sense of security in terms of avoiding other STIs. The more extreme opponents are concerned that mandating a vaccine for an STI condones or even encourages sexual behavior in adolescents (Stein 2005).

Those who argue in favor of making the vaccine mandatory assert that disease rates do not fall unless vaccines are made mandatory. Further they argue that routine administration is necessary for establishing herd immunity. This is an argument supported by historical and modern evidence of disease control through vaccination including smallpox elimination. A number of child vaccines have been mandatory in schools for a long time, and such requirements have been successful in preventing infectious diseases. Even those who are not eligible for the vaccine get protection through herd immunity because the spread of the disease is contained (Vaccines.gov 2014). Proponents assert that a false sense of security against STIs can be avoided by proper education about the vaccine. In general, they argue that the potential public health benefits outweigh potential concerns about teenage sex (Haber et al. 2007).

It is in the consideration of these issues that a Foucauldian analysis can shed light on the debate. Mandating the HPV vaccine potentially changes familial relationships, sexual relationships, understanding of their body, and discourses through which they develop. A

Foucauldian examination of *case*, *risk*, *danger*, and *crisis* involved with HPV vaccination reveals the potential effects on individual subjects and may explain these concerns. There are several key differences between HPV and smallpox. First, HPV is hidden. While smallpox vesicles were visible, immediately identifying a subject infected with the disease, HPV may go unnoticed or undetected even by the subject who is infected. Second, HPV is spread through sexual intercourse, while smallpox was spread through casual contact in shared space. Third, HPV is more harmful and deadly to one gender, while smallpox was equally deadly to both. Consequently the HPV vaccine offers more protection to females, while males are vaccinated in order to contain the spread of the disease to females. With these differences in mind I will apply Foucault's identified concepts.

Case. Cases of smallpox were easily detected because the presence of the disease was starkly visible. In contrast, many people who have or are exposed to HPV never know it because symptoms are not always present. An HPV infection may take years to form genital warts or decades to develop into cancer, making it difficult to isolate a case and thus accurately predict those who will manifest symptoms. Another reason why *cases* of HPV are more difficult to identify than *cases* of smallpox is that HPV is more prevalent among persons who engage in unprotected sexual activity or sex with multiple partners. It is thus not limited to people who occupy a certain environment, as smallpox was often transmitted to those who occupied the same space. Since sexual contact is a condition for the virus to spread, it is not clear when *cases* will arise, who has HPV and, due to the intimate nature of its transmission, who is transmitting it to others.

Risk. Research about HPV has also led to the ability to calculate who is at higher *risk* of contracting HPV and at a greater risk of dying from diseases caused by HPV. Government agencies are able to conduct studies that examine the prevalence of HPV and its likelihood to lead to cancer. These calculation processes allow us to predict how drastically cases of cervical cancer will decrease if the vaccine is made mandatory. All studies of the changes and effects of diseases and vaccines on the human body are now part of a system of knowledge in the hands of agencies and institutions that can make predictions, give advice, and make recommendations to legislators, doctors, or parents. Females and males are seen as specimens that can be studied in order to make generalizations about the effects of the disease on the human species as a whole and generalizations about how the disease should be dealt with. For example, it has been shown that women with lower education and higher poverty experience a higher rate of HPV-associated cancer, most likely due to lack of proper sexual education and accessibility to regular pap smears and screening. This is analogous to smallpox, as the poor were at a disproportionate risk because lack of education about the disease (Kahn et al. 2007, 93-94).

Danger. The ability to identify the *risk* of contracting HPV allows us to calculate the *danger* of the disease. In many states that do not require the vaccination, there are educational materials in both schools and healthcare centers that discuss the risk of HPV, which can lead subjects to understand that it can be *dangerous* to have unprotected sex. The *danger* is increased if an individual has unprotected sex with multiple partners. While for the smallpox vaccine *danger* was associated with a specific location or age demographic (being under three years old or living in a town), in the case of HPV the *danger* is linked to gender, as the virus is more deadly to females. In addition, females may also perceive HPV as a potential *danger* associated with sexual assault. However the hiddenness of HPV and the perception that it is possible to avoid

the disease through practicing safe sex or abstinence makes the sense of danger less immediate. Further, there is no exposed graphic sign (analogous to smallpox vesicles) to accompany HPV which would cause individual subjects to feel the same sense of danger.

Crisis. The notion of *crisis* that accompanied the mathematical calculation of smallpox is harder to detect with HPV. The sense of *crisis* could possibly refer to an increase of cases of HPV in a shared social setting, such as college campuses or in low-income communities where women do not have access to regular cervical screening. However, much like *cases* of HPV, *crises* are much harder or even impossible to identify. Due to its hidden nature and the process through which it is transmitted, identifying a *crisis* of HPV requires an intrusive investigation of very private and personal behavior. Additionally, because HPV is not a disease that is spread by people simply occupying the same space, it is more difficult to establish if a rate of HPV is accelerating or spreading at an unusual pace.

Normalization

There are at least three different forms of normalization present in the push for mandating the HPV vaccine. First, the support for mandatory vaccination seeks to establish as a norm both elimination of individual cases and prevention for the sake of the population at large through herd immunity. The practice of herd immunity reaffirms the medical norm of individuals vaccinated for a disease that might represent a greater risk or harm to other members of the population than to themselves. Such is the case when males are vaccinated for HPV, even though the disease is more harmful to females. There is resistance from some people who argue against the principle of herd immunity, asserting that they or their children should not be required to alter their bodies for the sake of others. This resistance is even stronger if they feel their children are being required to get the vaccine in order to protect those who engage in promiscuous or unsafe sex.

The second form of normalization concerns the individual. A mandate for HPV vaccination establishes the principle that one should be vaccinated for a disease that is not spread casually. Normalization then distinguishes individuals by the extent to which they follow the overall rule of being vaccinated for a non-casually spread disease. A boundary is established between normal or abnormal bodies: normal bodies conform to vaccination against non-casually spread diseases, whether being infected by it (female body) or communicating it (male body). Abnormal bodies are not vaccinated and must rely on behavioral strategies alone (such as abstinence or safe sex practices) to protect themselves from the disease or avoid communicating it. This normalization is different from regular childhood vaccines for diseases spread easily in public schools, which are generally viewed and understood as a requirement for health. It is an established norm that attending school where a large number of children easily spread illnesses to one another in a shared space in which mandatory vaccines are required (this mechanism mirrors the requirement that one be vaccinated for smallpox before entering certain areas.) Mandating the HPV vaccine establishes a new individual norm that adolescents be vaccinated for a disease that is not easily spread through schools. Such a norm uncouples vaccination as a requirement for areas of shared space and instead requires it for a disease spread through sexual activity.

A third form of normalization consists in the fact that mandating the HPV vaccine can also potentially affect behavioral norms. A worry or concern from those who oppose mandatory or routine vaccination is that it establishes adolescent sexual activity as a norm to the extent that individual behavior is evaluated by a whole group, and such an evaluation tends to rely on an implicit rule to be followed. Thus, the worry of some who oppose the vaccine is that by

establishing an assumption of sexual activity and thus setting a norm, mandatory or routine vaccination transforms the "normal" body that could instead be protected through other traditional strategies of STI prevention.

HPV, relationships of power, and the subject of the vaccine

In the case of smallpox, power over the disease was only possible with the cooperation of individual subjects. In London vaccination programs, parents had to be educated and convinced to make the journey to vaccination stations with their infants and had to be informed of the importance of revaccinating in three years. Without the vital communication to parents and family members about the benefits and necessity of the smallpox vaccine, herd immunity could not be established and the vaccine could not be successful in containing the disease (Hardy 1993, 121-123). Similarly, in order for herd immunity to be achieved in the case of HPV, parents must be properly educated about the need for the vaccine and the proper method for receiving it. It has been shown that physician recommendation is vital to parents choosing to vaccinate (Rosenthal et al., 2011, Stephens and Thomas 2013, Casper and Carpenter 2008). What this shows is that familial relationships between parents and children as well as relationships between parents and medical providers are an integral part of the administration of the vaccine. However, the process can also bring about changes in those relationships. Adolescents may view themselves and understand themselves differently as subjects and as sexual beings. As Foucault argues, relationships exist only through various power mechanisms and strategies of biopower are necessarily intertwined within familial relationships. He writes,

> There are not family type relationships, and then over and above them, mechanisms of power; there are not sexual relationships with, in addition, mechanisms of power alongside or above them. Mechanisms of power are an intrinsic part of all these relations, and in a circular way, both their effect and cause. (2007, 2).

The importance of parental approval and recommendation for the vaccine has been proven by several studies, especially recommendations and approvals from mothers, even when women were old enough to choose to be vaccinated without their mothers' consent (Auslander 2013, Roberts et al. 2010, McRee, et al. 2011, Stephens and Thomas 2013). This shows the extent to which adolescents associate the control or alteration of their body with familial approval and relationships. Because of laws mandating the vaccine or requiring discussion of the vaccine with parents, parents of adolescents may consider risks to their children's health that they did not previously anticipate or even consider. They may also consider their children as potentially sexually active for the first time. Studies in general have shown there is a consistent 50% gap between mothers who believe their teenage daughters have had sex and the number of adolescents who admit to having sex (Liddon et al. 2013). This gap likely contributes to the significant portion of mothers who do not think their daughters are at risk for HPV (Askelson et al. 2011, 166).[4] This statistic suggests that many parents do not fully understand how common HPV is in the overall population and fail to see the "big picture" to the extent that even if their teenage daughters are not currently sexually active, the vaccine will protect their children later in life. Currently studies disprove the theory that the vaccine causes an increase in sexual behavior (Marchand et al. 2013, Bednarczyk et al. 2012, Liddon et al. 2013). However it is important that the results of these studies are properly communicated to parents by their medical providers. Roughly half of mothers reported that they were likely to use the topic of HPV vaccination as a potential opportunity to talk

with their daughters about sex, indicating there is a need for more communication (Askelson et al. 2011, 166).

Male uptake for the vaccine is still very low, as studies indicate that only approximately 2% of males eligible are vaccinated. This is due primarily to a lack of education about the vaccine or because parents fail to realize that their sons are now eligible for it (Reiter et al. 2011, 5597). Given the hidden nature of HPV, many adolescent males are not even aware they could contract the virus. Similarly to female adolescents, adolescent male willingness to get the vaccine was often closely linked to parental approval. In addition there is a shift in vaccine uptake when the vaccine is described as cancer preventing. More males are willing to get vaccinated in order to prevent getting cancer themselves than they are spreading an STI to females (Reiter et al. 2011, 5597). This is further evidence of biopower strategies triggering a desire in adolescent subjects to have control over their bodies.

Familial relationships are not the only relationships that are shaped and formed by mechanisms of biopower or normalization. Surveys of both male and female adolescents show there is a link between vaccine uptake and peer acceptance (Allen et al. 2009). Knowing that many of their peers have received the shot shapes their perspective of how normative the vaccine is. In other words, if a teenager recognizes that many of his or her peers have received the shot, he or she will perceive it as an implicit rule to be followed.

While smallpox vaccination necessitated control over bodies, the vaccine had no intimate link to sexuality like the HPV vaccine. The very fact that there is a disagreement on whether adolescents should rely on safe sex methods rather than a vaccine in order to control the disease indicates that the conflict is about the behavior and alteration of the body. This is not only true from the perspective of parents but also from the perspective of children, as they may see parental insistence that they must get the vaccine as an attempt to control their own body and their behavior. Additionally they may feel that their parents expect them to have sex even if they do not encourage it. These uncertainties or misunderstandings may lead to conflicts. The situation is different from vaccines that are targeted towards easily communicable diseases. These do not lead to the same instances of conflict over the control of the body because these diseases are viewed as a requirement or normal standard for health. By contrast, the HPV vaccine is viewed in connection with intimate behavior—engaging in sexual activity or abstinence—that adolescents do not see in a uniform way.

I mentioned four main concerns from those who oppose a mandate for the vaccine. The first one is that the overall benefit to the public is not sufficient to intrude on parental autonomy in the decision-making process. This concern could potentially be countered if parents better understood the high risk of HPV, which can lead to cancer. There are still a large number of parents who do not completely realize how common HPV is and how harmful it can potentially be. Thus, in terms of the public health benefit, there is an enormous advantage that comes from establishing herd immunity against a disease and could eventually lead to a severe reduction or complete eradication of it. This again emphasizes the need for proper communication among providers, parents, and patients. The second concern was that the vaccine is fairly new, and the long-term effects are still unknown. However, as Zimet et al. points out, the vaccine has been around long enough that it is no longer necessarily a "new vaccine" (2013, 415). If more adolescents receive the vaccine and its safety continues to be demonstrated, this concern should subside (except in the portion of the population that opposes all vaccination due to supposed safety concerns). It should also be emphasized that the vaccine is not intended to serve as an alternative to safe sex practices but should be implemented alongside them. The third concern was that the HPV vaccine gives adolescents a false sense of security over

STIs. Studies have shown that a very small subset of girls perceived themselves as overall at less risk for STIs (Mullins et al. 2012, 86-87). This concern can be mitigated if it is emphasized to adolescents that the vaccine does not protect against a large number of other STIs, including other very serious ones such as HIV. Here again, proper education of those receiving the vaccine (as was demonstrated with the smallpox vaccine) is extremely important. The fourth concern was that the vaccine condones or encourages sexual behavior in teenagers. Several studies suggest that this concern is false (Marchand et al. 2013, Bednarczyk et al. 2012, Liddon et al. 2013). However, it is important for providers to communicate these data and for parents to communicate them with their children to ensure that this does not become a future problem.

Conclusion

My aim was to show through a Foucauldian analysis that the development of the HPV vaccine is a strategy of biopower that affects adolescents, parents, and the human species as a whole. This strategy also potentially introduces new medical and behavioral norms and introduces new techniques for understanding the disease. Through incorporation of Foucault's and Hardy's analyses of smallpox elimination, I have shown that triumph over and elimination of a disease requires the shaping of both medical and behavioral norms. It was vital to educate the public about the disease, and to facilitate the cooperation of citizens, especially parents, in immunizing their children and following other protocols to bring down rates of smallpox. This implies that the development of a vaccine must be implemented alongside other practices in order for the disease to be effectively controlled and for lives to be saved. In addition, the HPV vaccine must be accompanied by other power mechanisms in the form of standard precautionary measures: an understanding of the risk of multiple sexual partners, knowledge of partners' sexual history, condom use, regular cervical screenings and pap smears, etc. The practice of vaccination can only result in the elimination of the disease if these additional mechanisms are in place, exercised by and through individual subjects.

The combination of medical practice (vaccination) and these other aspects of the process can refocus the debate: First, we must recognize that the HPV vaccine is a form of biopower and entails a form of normalization—establishing what is normal and abnormal. It is not a neutral medical procedure. Second, while biopower introduces power over bodies, not all forms of biopower are detrimental and can lead to eradication of deadly diseases like smallpox, or the containment of diseases like measles, mumps, rubella, tuberculosis, diphtheria, etc., which are all prevented through usual childhood vaccines. In these cases, an alteration of bodies cannot be equated with harm. Third, when new forms of biopower and normalization occur, adolescents should be part of the conversation so that they are included in the decision-making process and exercise power over their own bodies. Fourth, parents, who are legally and morally responsible for adolescents have to be part of the conversation and the decision-making process so that the biopower and normalizing processes are not external anonymous forces but are recognized, discussed, and susceptible to parents' and adolescents' assent or dissent.

HPV is a serious and prevalent STI that affects millions of people each year and leads to the deaths of 4,000 women annually. Reduction of HPV has the potential to save lives, prevent painful genital warts, and save billions of healthcare dollars. However, making the vaccine mandatory is a new form of biopower and strategy of normalization, and with new mechanisms of power come new attitudes, concerns, and controversy about health, behavior, relationships and norms. These strategies affect the development of individual human subjects

and shape who we are and what we become. Only when we take this into consideration can we properly refocus the issue on how the vaccine can potentially serve as an affirmation of life, power over death, and a mechanism that positively affects the species.

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Endnotes

[1] Variolization involves inoculating a susceptible person with material taken from a vesicle of a person who has smallpox.

[2] See, for example, Davi Johnson, "'How Do You Know Unless You Look?' Brain Imaging, Biopower and Practical Neuroscience," *Journal of Medical Humanities*, 29.3 (2008): 147-161. Johnson illustrates how biopower and normalization are present in the use of brain images, through which individuals are compelled to improve themselves through various self-fashioning technologies. The author analyses the strategies of power that develop in the brain-based self-help literature. The brain images in such literature are thought to make the inaccessible interiors of the corporeal body literally visible. Individuals are then controlled through their own desires to become healthy subjects. Individual subjects actively choose various modes of self-care and self-management to become "healthy" individuals. Individuals feel they are freely choosing this state of health, without completely realizing that they are submitting to a standard or norm of health that is presented to them through the strategy of brain-based imaging and self-help. See also Anne Pollock, "Complicating power in high-tech reproduction: Narratives of Anonymous Paid Egg Donors," *Journal of Medical Humanities* 24.3/4 (2003): 241-263. Pollock highlights the complex mechanisms of power over bodies involved in the practice of anonymous paid egg donation. In her analysis Pollock points out that the complex process of egg donation requires a precise control over human bodies and precise control of relationships between those participating in the different levels of the procedure. This involves control over egg donors' bodies, and by egg donors who volunteer for donation, and participate in how their bodies are presented to women who are seeking egg donation. There are also various methods of power and control at each level of the reproductive center: the reproductive endocrinologists, counselors, social workers, egg consumers, egg donors, and surrogate mothers. For example, Pollock points out that the common conception or opinion of surrogate mothers is that they chose surrogate motherhood as a last resort to obtain income. However, Pollock's research found that the surrogates were often women who already had children, but still had childbearing years left and had physical traits generally considered beneficial for birthing children—were big-boned or had traditional child-bearing hips. Pollock shows that, far from being coerced into surrogate motherhood many women actively sought out this process because they had bodies that were of prime physical condition for carrying and birthing children, and were receiving thousands of dollars from upper class women in the process. The biological fact that some women have bodies better suited for child bearing allows the process of surrogate motherhood to be developed as a science, but also leads to different levels of power and control.

[3] A 2007 poll showed that just 44% of polled parents were in favor of mandatory HPV vaccination, while 68% were in favor of mandatory Tdap (tetanus, diphtheria, and pertussis) vaccine.

[4] This 2011 study showed that 45% of mothers do not think their daughters are at risk for HPV.

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