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The Sexual Ethics of HPV Vaccination for Boys

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Abstract Human papillomavirus (HPV) is one of the most common sexually transmitted infections. It is a leading cause of cervical cancer in women but the virus is increasingly being linked to several other cancers in men and women alike. Since the introduction of safe and effective but also expensive vaccines, many developed countries have implemented selective vaccination programs for girls. Some however argue that these programs should be expanded to include boys, since (1) HPV constitutes non-negligible health risks for boys as well and (2) protected boys will indirectly also protect girls. In this paper we approach this discussion from an ethical perspective. First, on which moral grounds can one justify not reimbursing vaccination for the male sex? We develop an ethical framework to evaluate selective vaccination programs and conclude that, in the case of HPV, efficiency needs to be balanced against non-stigmatization, non-discrimination and justice. Second, if vaccination programs were to be expanded to boys as well, do the latter then also have a moral duty to become immunized? Two arguments in favor of such a moral duty are well known in vaccination ethics: the duty not to harm others and to contribute to the public good of public health. However, we argue that these are not particularly convincing in the context of HPV. In contrast, we believe a third, more powerful but also more controversial argument is possible. In our view, the sexual mode of transmission of HPV constitutes an additional reason to believe that boys in fact may have a moral obligation to accept vaccination.

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Introduction

Human papillomavirus (HPV) is one of the most common sexually transmitted infections (STI). An estimated 70–80 % of all sexually active men and women incur an HPV infection at some point in their lives (Trottier and Burchell 2009). HPV-infections were long regarded as self-limiting and benign since they often do not lead to symptoms or diseases. However, in the early 1980s scientists uncovered the causal link between HPV infection and cervical cancer, a discovery for which they received the 2008 Nobel Prize in Medicine (Kolf 2012). Today, cervical cancer is the second or third leading cause of cancer deaths in women (Parkin and Bray 2006), with an estimated 530,000 new cases occurring worldwide in 2008, resulting in approximately 275,000 deaths of relatively young women on a yearly basis (Arbyn et al. 2011). Whereas the biggest share of HPV-attributable severe morbidity and mortality is due to cervical cancer and thus affects females only, also a substantial proportion of anal, vulvar, penile, throat, neck and tongue cancers has been linked to HPV (Gillison and Shah 2003). With an additional worldwide disease burden of approximately 97,000 cases annually, of which 50,000 cancers occur among men, these non-cervical cancers make HPV also a relevant cause of severe morbidity and mortality in males (Chaturvedi 2010). Furthermore, HPV infection is a common cause of genital warts in females and males alike. The associated disease burden—albeit generally non-severe per individual case—can have an important impact on the lives of those affected by it. Due to the higher frequency of occurrence compared to the more severe consequences, the total disease burden can be substantial for both females and males.

There are several ways to prevent such consequences of HPV infections. As transmission of the virus occurs through sexual contact, limiting the number of sexual partners, or excluding partnerships with people who are known to be promiscuous could prevent infection. This offers no guarantee however, as HPV is highly contagious and can be transmitted by a single sexual contact. In addition, because most HPV infections occur without visible symptoms, HPV can be transmitted unknowingly for many years after acquiring infection (Doorbar et al. 2012). The use of condoms is not particularly effective as the virus can be transmitted from the skin and mucosal surfaces (Manhart and Koutsky 2002; Salo et al. 2013). From a public health perspective more effective prophylaxis is offered through vaccination. Two HPV vaccines are currently authorized for use: GardasilTM and CervarixTM (Schiller et al. 2012). GardasilTM provides protection against four HPV types, two of which that cause approximately 70 % of all cervical cancers and two that cause approximately 90 % of all genital warts in males and females. CervarixTM only provides protection against the two carcinogenic types. Both vaccines have demonstrated very high efficacy in preventing HPV infection and are considered safe. There is no risk of vaccine-induced HPV infection. The most common side effect is brief soreness at the site of injection. The protective efficacy of the vaccines has been demonstrated in previously unexposed individuals, so vaccination is primarily relevant for individuals

in early adolescence before their sexual debut. Since there are more cancer-causing HPV-types than those targeted by the vaccines (Munoz et al. 2003), vaccination is in itself, however, insufficient to guarantee the prevention of cancers. Therefore an important second tier of HPV prevention is cytological screening of young women once every 2–3 years so that potentially infected cancer cells can timely be detected and eliminated through colposcopies, biopsies, cryotherapy and other assorted treatments. Screening, however, causes substantial physical and emotional burden to women, and there appears to be a social gradient in different socio-economic groups' use of regular screen-tests (Brankovic et al. 2013; Lefevere et al. 2011).

In the USA, a complete three dose HPV vaccine schedule is currently priced at about \$390 in the private sector, and at about \$300 in the public sector [2]. In most other countries the difference between these two prices is typically not revealed. Despite important price drops, HPV vaccines remain multiple times more costly than other routinely administered vaccines. Much research has been published on identifying the most cost-effective strategies for HPV vaccination, the essence of which has been used to inform policy (Beutels and Jit 2010). That is, at the initial high prices, it would only be cost-effective to vaccinate girls at a young age, preferably before their sexual debut. Consequently, most high-income countries have funded a universal HPV vaccination program for girls only, and middle- and low-income countries are also rolling out similar programs at greatly reduced prices [about €5 per complete schedule (Ed. 2013)]. However some have argued that the vaccine should be administered routinely to boys too as (1) HPV constitutes a non-negligible health risk for males as well and (2) boys' vaccination also protects girls since boys transmit the virus as well (Barroso and Wilkin 2011; Kubba 2008).

The latter two arguments generate two related ethical questions, which will be the subject of this paper. First, on which moral grounds can selective vaccination for the female sex be justified? In the section "[Is Selective HPV Vaccination for Girls Morally Justified?](#)", we will outline an ethical framework to evaluate targeted vaccination programs and apply it to the specific case of HPV. Second, if HPV vaccination programs were to be expanded to boys, do the latter then have a moral duty to accept vaccination? We will explore the weight of two common lines of argument underlying duties to become vaccinated: (1) our obligation not to harm others and (2) the duty to sustain public goods (Dawson 2007, 2009). Then we will explore a third, more powerful but also more controversial argument, which relates to the sexual nature of HPV infection. Whereas it has been argued before that the mode of transmission of an infectious disease does not constitute a morally relevant consideration (Harris and Holm 1995), we believe that it does in the case of HPV vaccination.

Is Selective HPV Vaccination for Girls Morally Justified?

A General Framework

Most vaccination programs serve both an individual and a social purpose. A vaccinated individual protects herself but also reduces the chance that susceptible persons in her social network come into contact with an infectious person. On a

social level the indirect protective effect of having many vaccinated individuals in a population is called ‘herd immunity’ or ‘community immunity’. The latter is a direct objective of most state-run vaccination policies as in theory it could allow protecting an entire population without having to vaccinate everyone (Fine et al. 2011).

Due to the fact that some groups may be more at risk of catching a disease than others, herd immunity can also be an important reason to only vaccinate one specific subgroup in a population. When a specific profile is more likely to play a crucial part in the transmission of a pathogen, a selective vaccination program for that group can be an efficient way to protect the entire population. Research has, for instance, indicated both the economic and public health benefits of targeting vaccination programs only at specific groups defined by age (e.g., new-borns), occupation [e.g., health care workers (Burls et al. 2006)], sexual activity [e.g., men-who-have-sex-with-men (Beutels 2001)], ethnicity [e.g., immigrants (Postma et al. 2004)], religion [e.g., Muslim pilgrims to Mecca (Gautret et al. 2010)] or drug use (Judd et al. 2007).

In instances in which efficiency considerations (i.e., the comparison of the costs and the benefits of a program) may suggest targeting subgroups, other values must be considered as well. More specifically, selective vaccination programs need to balance the value of efficiency against considerations of justice, non-discrimination, privacy and non-stigmatization (Luyten et al. 2011, 2013).

Justice

The distribution of burdens and benefits of a vaccination program can be a relevant issue for targeted policies in two ways. (1) Ideally a program benefits those being vaccinated in the first place, with potentially indirect protective effects on the rest of society. But sometimes the ones who benefit are not the ones who carry both the inconveniences of receiving vaccination (muscular pain, light fever, absence from work, et cetera) and the small risks of more serious adverse effects. One example could be influenza vaccination for children in order to protect the elderly (Beutels et al. 2008). Such skewed distributions of burdens and benefits generate an equity concern and may justify some form of compensation. (2) Targeted vaccination also makes it harder for non-targeted groups to receive vaccination. A powerful intuition of justice, which finds support in many theories of justice as well, is that public resources should be invested so as to equalize opportunities and improve the prospects of those groups in society which are worst-off (Daniels et al. 2000). In many cases, vaccination is to be considered a form of basic health care, as acknowledged in the International Covenant on Economic, Social and Cultural Rights of the United Nations (Hinman 2004). When designing vaccination policies, one should not only think of their respective costs and benefits but also how they affect the health risks (and hence also the opportunities) of those at the bottom of the socio-economic ladder. Especially when vaccines are expensive, there is a strong case to ensure that the immunity generated benefits all members of society instead of further increasing already existing inequalities in health risks.

Non-Discrimination

Discrimination—or at least the illegitimate, unjust or prejudiced forms of discrimination—can be defined as differentiating individuals according to a non-relevant characteristic.¹ As such, the principle of non-discrimination, which is enshrined in constitutions of liberal democracies around the world, expresses a political dedication to promoting equality of opportunity among citizens. For a characteristic to be an acceptable basis for public policy to distinguish between individuals, its differentiating force therefore has to be backed by sufficient scientific evidence indicating its relevance. However, there is a difference between the individual and the group level. Scientific evidence can indicate that on average one group is different from another (e.g., individuals with dark skin are on average more at risk for HIV than others), but this statistical fact does not necessarily say something about the individual members of each group (a sexually active white drug user is more at risk than a celibate black person who never injects drugs). In order for a program not to be (perceived as) discriminatory the characteristic should be, as much as possible, relevant at the individual instead of the group level.

Privacy

The non-discrimination restriction will direct selective vaccination policies as much as possible towards relevant characteristics at the individual level. However, this can lead to infringements of privacy, since characteristics like sexual activity (or other behaviours in which disease transmission can occur) typically belong to an individual's private sphere. The protection of people's privacy will therefore restrict policy options. In this respect, only characteristics that clearly belong to the public domain (like age, gender, profession, et cetera) are legitimate bases for selective vaccination programs.

Non-Stigmatization

Groups that play a key role in the transmission of viruses are often groups that already have a negative public image: homosexuals, sex-workers, immigrants, drug users, homeless people, et cetera. The social dynamics that are created with singling out these groups for vaccination programs can result in a sort of stigma, which can play an important role in the lives of these population subgroups (Achkar and Macklin 2009). Public health benefits therefore require being weighed against the potentially negative effects of targeted vaccination policies on the social status, opportunities and outcomes of members of such groups.

These different considerations clearly push in different directions. Taking into account only efficiency and non-discrimination considerations, policy makers will,

¹ The term 'discrimination' appears to have two different uses. Although it is sometimes used to denote any form of differentiation between individuals, we want to focus only on illegitimate, unjust or prejudiced forms of discrimination, which arise when individuals are given differential treatment on the basis of characteristics that are not relevant to the case at hand.

for example, want to know which individuals face which health risks. However, gathering this kind of knowledge will probably violate people's privacy and may carry additional stigmatization. Valuing privacy and non-stigmatization highly, in contrast, makes targeted vaccination programs less justifiable, even when these are cost-effective means to achieve health gains.

The Case of HPV

The main argument for subsidizing HPV vaccines for girls but not for boys is based on considerations of efficiency. The idea is to use health care resources in a way that they maximally impact the aggregate disease burden. Cost-effectiveness analyses show that selective vaccination programs for girls are good value for money (Beutels and Jit 2010; Marra et al. 2009; Newall et al. 2007). Because of the lesser health risks for boys, vaccinating both sexes is far more costly and less efficient. Generally, it has been shown that vaccination of girls pre-sexual debut is relatively cost-effective. In carefully executed analyses, the marginal benefits of including boys depend on achievable coverage in girls (and thus the magnitude of herd immunity), the vaccine's cost and duration of effectiveness as well as the extent to which non-cervical HPV-attributable diseases are included (Brisson et al. 2011; Kim et al. 2007). Such studies show that, if vaccination costs are low enough and achievable vaccination coverage in girls is suboptimal, additional vaccination of boys can be considered cost-effective as well. If however, as is the case in many developed countries, vaccination coverage in girls is high, then the additional vaccination of boys is generally still considered to be too costly to justify on the basis of efficiency alone.

As indicated in the section "[A general framework](#)", morally justifiable vaccination policies should not be based purely on cost-effectiveness considerations. Privacy issues do not seem to be relevant to HPV as vaccination programs are typically targeted at girls and as such do not risk disclosing specific characteristics that people would rather keep protected in their private spheres. After all, an individual's sex is typically a publicly available characteristic. However, considerations of non-stigmatization, non-discrimination and justice can be relevant. Therefore the efficiency gains of targeting girls need to be weighed against the following considerations.

Non-Stigmatization

Even when targeting vaccination only at girls makes medical and economic sense, it risks conveying the (obviously false) messages that HPV-related diseases are limited to girls, that girls are more prone to promiscuous behaviour or, even worse, that girls are responsible for transmitting HPV. These beliefs can have stigmatizing effects.

Non-Discrimination

While the health risks are bigger and better documented for women, HPV infections can cause malignant cancers among men as well. For instance, the Centers for

Disease Control and Prevention estimated that in the United States from 2004 until 2008, 26,000 new cancers could be attributed to HPV, 18,000 of which affects females and 8,000 affects males (Wu et al. 2012). Not only are these non-cervical cancers and their aetiology less well understood, preventive and curative measures are also less well developed. Whereas cytological screening can prevent cervical cancer effectively, prevention is less widely available for throat, neck and penile cancers. Moreover, in specific male subgroups (e.g., men-who-have-sex-with-men) the risks of developing these cancers are substantially higher, perhaps even higher than in certain female groups (Machalek et al. 2012). The issue here is whether selective vaccination programs illegitimately discriminate against these males, and to what extent. Reimbursing HPV vaccines for girls only is not as evident as for example reimbursing contraceptive pills for girls only, since these are completely useless for boys. Reimbursing medical costs only for girls implies differentiation on the basis of one's sex, which is a relevant characteristic in the case of contraceptive pills (legitimate discrimination) but not necessarily in the case of HPV vaccines (illegitimate discrimination). While efficiency can be a relevant criterion to distinguish between sexes at a population level, it is less straightforward to apply as the main differentiating criterion at an individual level. Subsidizing vaccination for everybody but targeting educational and awareness-raising initiatives more at girls than at boys may be one way of addressing the moral concerns raised by discrimination.

Justice

Since the HPV vaccine in the first place generates benefits to vaccinated individuals, issues of justice do not arise in the distribution of burdens and benefits *within* the program. However, distributive concerns on a wider population level are relevant (Malmqvist et al. 2011, 2012) since society is paying for the costs of programs that have unevenly distributed benefits. While this is a complex issue, we want to limit ourselves to the question whether such programs succeed in protecting the worst-off groups. This is not necessarily the case, since the male members of those groups will not have access to vaccination and their lot will not be improved (unless vaccination coverage among girls is high and thus large herd immunity effects occur for boys). In addition, girls from less-advantaged socio-economic groups are less likely to be vaccinated, as well as undergo cervical screening later in life (Lefevre et al. 2011). Moreover, there will always be girls who cannot receive vaccination for medical reasons and who will remain at risk. More inclusive vaccination programs for both girls and boys would evidently cover a larger part of the population and thus further reduce the circulation and transmission of HPV. This would avoid that health inequalities between socio-economic groups grow deeper and it would consequently lead to a more comprehensive protection of the worst-off groups in society.

The weight of each of these arguments against targeting only girls depends both upon (1) a number of important empirical parameters that are not yet sufficiently known to date (for example, the duration of vaccine effectiveness and the extent of herd immunity through selective vaccination policies), and (2) on society's dedication to the underlying principles of justice, non-stigmatization and non-

discrimination. Therefore, whether they outweigh the efficiency gains remains an open question. One could argue that since more precautionary policies may prevent more cancers from occurring, the burden of proof lies on those who argue *against* expanding the program to boys.

Boys' Moral Obligation to Accept HPV Vaccination

In case governments decide to follow Australia, the first country to expand HPV vaccination to boys (Kirby 2012), the problem may occur that boys (or the parents who make the choice in their place²) insufficiently opt for vaccination to produce optimal herd immunity effects in both girls and boys. This raises the question whether boys have the moral obligation to participate in HPV vaccination programs. In this section, we discuss the strength of three arguments that will allow us to assess whether and why boys should become vaccinated. Whereas the first two arguments are well known in the broader debates on the ethics of vaccination, we want to draw attention to a third argument, which relates to the specific sexual nature of an HPV-transmission. However, before going into the arguments, it is important to clarify the following two points.

- (1) Although we want to distinguish the present issue from the more policy-related issue of targeted vaccination programs as discussed in the section “[Is Selective HPV Vaccination for Girls Morally Justified?](#)”, we do not believe that both issues are completely unrelated. In our view, if the arguments why boys should become vaccinated hold, they give additional force to the claim that HPV vaccination programs should be broadened to include boys as well. As Harris and Holm argue: “The reasonableness of expecting people to live up to their obligation [not to infect others] (...), depends on society reciprocating the obligation in the form of providing protection and compensation” (Harris and Holm 1995, p. 1215).
- (2) Debates on the ethics of vaccination are typically framed in liberal terms. In matters of health and bodily integrity, individual autonomy is considered paramount whereas paternalism is to be avoided. This of course ignores what could be seen as a powerful first argument pro HPV vaccination, namely that individuals have a duty to become vaccinated because they owe it to themselves, i.e., to their own health. While we think this argument can be a valid one,³ we do not want to elaborate on it. Remaining within the liberal

² In the remainder of the paper we will speak of boys' moral duty to become vaccinated against HPV, even though their parents are to accept vaccination given that the vaccine would be offered in their early teens. We thus speak of boys' duty to accept vaccination as shorthand for the parents' duty to accept vaccination for their sons on behalf of their sons.

³ Given the fact that HPV vaccination is most effective before one's sexual debut and is thus best administered in children's early teens, this concern for health is to be framed in terms of the parents' moral duties towards their children. In fact, arguing that individuals have the moral duty to promote their own health may be more controversial than arguing that parents have the moral duty to take care of their children's health (Archard and Benatar 2010).

framework, we focus on duties towards others, which typically are more stringent than duties to ourselves (Thaler and Sunstein 2008). In what follows, we will therefore focus on three arguments to show that boys have moral obligations towards others in general, towards society and towards their sexual partners more specifically. In doing so, we steer clear of the question whether or not the state can legitimately impose vaccination programs on people. After all, it is perfectly possible that people have a moral duty to do something (to tell the truth to their partner or to donate to charity) without requiring a state intervention.

Duty Not to Harm Others

A first argument relates to John Stuart Mill's well-known 'no harm principle': the idea that each member of a liberal society has the moral duty to avoid harming others (Beauchamp and Childress 2001; Mill 1869). Contagious diseases can definitely cause non-trivial harm to others and this through non-intentional action. If by accepting HPV vaccination, boys avoid doing harm to others, they would seem to have the moral duty to do so.

There are two considerations that mitigate the force of this argument in the present case. First, who is responsible for whose health? If we interpret the harm principle in a solidaristic way (I should prevent all forms of harm), it would have wider implications than if we interpret it in a responsibility-sensitive way (I should only prevent those forms of harm that others cannot avoid themselves). In the context of developed countries with publicly subsidized HPV vaccination programs, it is not unreasonable to expect girls to take care of their own health in the first place (and thus to accept a vaccine themselves), before asking the same thing of boys. In addition, girls have the option of undergoing regular cytological screening, which in case of a timely positive diagnosis will lead to treatment. The fact that the costs of both vaccination and such screenings are low to the individual patient (we would qualify both as inconveniences) suggests that it is primarily the duty of girls, not boys, to take care of the former's health. Only in the exceptional cases of some girls not being able to receive vaccination due to medical reasons or lack of access to screen tests due to socio-economic reasons, would the burden of prevention fall on boys.

Second, it is striking that risks that are similar or even bigger than those related to HPV are often considered acceptable in other spheres of life. Some level of risks and harms is unavoidable when driving a car, making dinner or shaking hands. If people would refrain from doing these things because they have the moral duty to avoid the risk of harming others, society would quickly become paralysed. The questions at stake are thus the following. Would the risks and harms caused by boys' vaccine refusal be bigger than the risks and harms caused by, for example, traffic accidents, air pollution and food contamination (risks and harms that we impose upon each other on a daily basis and that most of us do not find morally lamentable)? What exactly is the level of risk a society is willing to accept before judging the imposition of risks morally blameworthy?

Duty to Contribute to Public Goods

A second argument is based on considerations of fairness in the creation of public goods. Public goods are goods from which everyone benefits, typically created or maintained through collective action (like national security). They are (1) non-excludable (once a public good exists, it becomes impossible to exclude an individual from its benefits), and (2) non-rival (one individual's consumption does not reduce the amount available to others). Public health can be considered such a public good. Everyone benefits from it (either directly in reduced exposure to diseases or indirectly in reduced health care costs and productivity losses) and it is non-excludable and non-rival. The argument then goes that all citizens have a moral duty to contribute their fair share to the provision of this public good. Or, put the other way around, it is unfair towards others to enjoy the benefits of public health while at the same time to refuse making a small sacrifice for its provision. Such freeriding behaviour essentially implies shirking one's moral duty to uphold a liberal society's just institutions (Wellman 2001).

For this argument to hold, it must be shown that there are substantial societal benefits from vaccinating boys, with fewer HPV-attributable diseases being transmitted and fewer costs being imposed on society. Estimates of the additional herd immunity effects of boys' vaccination on the transmission and circulation of HPV is based on mathematical modelling studies of varying quality (Beutels and Jit 2010; Marra et al. 2009; Newall et al. 2007). More empirical research, such as observations on herd immunity inferred from girls' HPV vaccination on boys' incidence of genital warts (Ali et al. 2013), is needed to underpin further modelling studies. If the herd immunity effects of vaccinating boys are big enough, the public good argument can justify the claim that boys should accept vaccination. If these are not big enough, this argument breaks down or at least loses relevance. After all, this argument is only conceptually different from the non-maleficence argument if vaccinating boys effectively helps achieving the public good of herd immunity rather than merely protecting their sexual partners. While it can be argued that boys have a duty to become vaccinated in order to avoid the costs associated with *their own* HPV-related disease, such a net benefit to the public good would have to be balanced against the costs of vaccination itself. Whereas the vaccination of boys could be cost-effective in optimistic scenarios (with society judging its health benefits in relation to its costs), it is unlikely to be cost-saving (in which case there would be health benefits *and* net savings in HPV-related expenses) at current vaccination costs. For these reasons boys' contribution to public health (or at least evidence for it) seems to be limited, and the 'public goods' argument does not provide a solid basis for arguing that boys should become vaccinated.

In sum, both the 'harm to others' and the 'public goods' argument are not very convincing as to why boys who would refuse HPV vaccination would be morally blameworthy. The risks and harms of HPV can only be considered sufficiently serious if girls are expelled from their responsibility to take care of their own health, and if we accept that many risks in other contexts, which are commonly considered acceptable, are in fact unacceptable as well. The public good argument crucially

depends on the controversial assumption that vaccinating boys yields sufficient additional herd immunity to make it an essential element of public health policies.

Duties in a Sexual Context

Perhaps a third argument can be found in the nature of the transmission mode. Here, we want to explore whether the risks and harms involved in HPV are in any sense special because HPV is an STI. John Harris and Sören Holm took up this question in a seminal paper from 1995 and argue that the mode of transmission of a disease should be of no moral relevance (Harris and Holm 1995). In their view, people's moral obligations not to infect others are no different in the case of an STI as compared to air-, food- or vector-borne infections. While they acknowledge that most people have different intuitions and attitudes towards infecting others with, for example, herpes lesions on the lips (herpes labialis) versus on the genitals (herpes genitalis), they argue that there are no good reasons why these would raise different moral concerns. In their view, there are no valid explanations why the physical location of the same symptoms would be morally relevant or why sexual contact would constitute additional moral duties over other forms of contact. In answering the question—"is there a morally relevant difference at play, or is it just prejudice"—they clearly opt for the latter and suspect that we are dealing here "with the last remains of the puritan belief that pleasure is sin" (Harris and Holm 1995, p. 1216).

First, Harris and Holm try to explain the difference in intuition by appealing to the consensual nature of sex. Herpes genitalis is typically the result of consensual sex, whereas transmission of herpes labialis can occur without consent, as in the case in which two people share toothbrushes or cutlery (Whitley and Roizman 2001). Whereas consent is clearly relevant in attributing moral responsibility, a consistent view on individual responsibility would praise people who are careful not to become infected. Contrary to current practice, this would imply that we hold health care workers responsible if they get infected when treating ill patients (they knew the risks at stake) and that we praise rather than reproach someone who refuses to give mouth-to-mouth resuscitation in order to avoid infection. This (1) reveals the ambiguity involved in people's spontaneous attitudes (which disqualifies them as morally relevant justifications) or (2) shows that consenting to engage in risky activities is insufficient to explain the intuitive inclination to treat sexually acquired infections different from infections acquired through other routes of transmission.

Second, Harris and Holm analyze the relevance of a distinction between morally correct and morally blameworthy acts, not on the basis of consent but on the basis of the kind of act it is and the context in which it occurs. The moral difference, one could argue, lies in the fact that some acts are sexual and other acts are medical in nature. Here, however, the authors rightly argue that no criterion is sufficient to distinguish between both. The criterion of necessity does not hold because many forms of care—like a physician trying to appease a patient—are unnecessary from a purely medical perspective. The criterion of social usefulness does not work either, since many sexual acts are in fact extremely useful, as without them our societies

would cease to exist.⁴ In addition, it is far from clear whether physicians have a professional duty to expose themselves (at the risk of exposing other patients too) to communicable diseases. In sum, Harris and Holm conclude that—against most people’s intuition—there are no good reasons why the ‘sexual’ nature of an infection would yield special moral obligations.

If harm caused through sex is indeed not morally different from harm caused through casual contact, then we are left with the previous arguments, which do not make a very strong case as to why boys should have a moral obligation to become vaccinated. However, we think that the arguments of Harris and Holm lack rigor and that there is an important truth in the intuition that herpes genitalis is different from herpes labialis. In what follows, we give two reasons why we believe the mode of transmission is a relevant factor—next to purely physical health risks—in deciding which duties people have towards each other. Both of them are based on the hardly controversial claim that there is something special about sex, that it has a specific symbolic value that is not reducible to its observable characteristics. If we account for the symbolic value sex has, even in a contemporary society like ours which no longer regards pleasure as sin, then the harms caused by STI’s like herpes or HPV are qualitatively different from those originating from different transmission modes. In our view, there are special duties towards one’s sexual partners over and above the duties one has towards others in general. To be sure, this does not mean that we endorse the puritan view that STI’s are wrong for the simple reason that they involve sex, a view Harris and Holm rightly dismiss.

First, STI’s can cause additional harms that are neglected in purely physical accounts of diseases and their symptoms. Often, patients who have contracted an STI suffer from further psychological and emotional harm of potentially being exposed as having had sex, which is still widely regarded as one of the most intimate forms of human contact. Such psychological harms are absent in more casual forms of contact and depend on the social norms and expectations that one’s environment has towards sex. Harris and Holm are right in stressing that the mere fact that society treats sex as special does not in itself constitute a good reason why sex constitutes a special moral case. But that does not imply that it has no moral relevance. Even though the last remains of puritanism may not be a good reason in itself why sexual contact would constitute special moral duties, the harms that can result from sexual contact can be graver as long as those remains still exist. Just imagine a girl having to announce to her parents that she has genital warts (resulting from catching an HPV infection through sex) and that same girl with warts on her feet (resulting from swimming in a public pool). As long as her environment gives sex a special symbolic meaning, the girl will suffer more harm in the first case. This forms a legitimate argument why the mutual obligations between sex partners are more demanding than the obligations between people engaging in less symbolically laden activities. In addition, in a society where sex is considered something special, individuals are more likely—for themselves—to connect sex with intimacy. This

⁴ Whereas the usefulness of sex for the continuation of humanity is obvious, this is in itself no judgment regarding the desirability of humanity and societies continuing to exist. A case against the latter can be found in Benatar (2006).

has psychological relevance even for HPV patients who do not have to disclose their ailment to their family or friends. Think of a girl who has to undergo the ‘inconveniences’ of cytological screening, which carry additional emotional weight if she herself holds puritan beliefs about sex and sins.

A second, related argument concerns not the special nature of the harms involved but the special nature of the relationship between sexual partners. While some people may see sex as nothing special (and similar to going to the movies, for example), a majority still reserves the intimacy involved in sex to a limited number of people. Most of the time, our sexual partners are part of that group of people we consider ‘near and dear’. Here, virtue and care ethicists rightly argue that the special relationship that we have with people close to us gives rise to special moral obligations which we do not have towards people with whom we interact on a less intimate basis (Slote 2000). If our duties are proportionate to our distance towards others, intimate acts like sex invoke more stringent duties and responsibilities as compared to interactions with complete strangers or fellow citizens with whom we only have a purely formal relation. In our view, this also explains why most people perceive the same symptoms differently depending on the mode of transmission.

If these arguments against Harris and Holm make sense, they imply that the mode of transmission is not morally irrelevant. This provides additional support to the view that boys owe it to girls to show intergender solidarity and to become vaccinated. In a sense, the arguments here can be framed in terms of non-maleficence. Instead of adding a ‘third’ argument, one could therefore argue that the more general argument of not harming others is reinforced and strengthened. The conclusion then seems to be that boys have a moral duty to become vaccinated because they should not bestow harms on girls with whom they might interact sexually.

Conclusion

The aim of this paper was to discuss two conceptually distinct but related ethical issues that arise with regard to HPV vaccination. A first one relates to the policy many developed countries currently practice, which is to fund universal HPV vaccination for girls only. Whereas such a selective policy is mainly inspired by considerations of efficiency, ethical considerations of justice, non-discrimination and non-stigmatization provide reasons why boys could be included as well. That is, if the ethical reasons are considered to prevail over the more selective efficiency considerations, boys should be included as well. More empirical research is needed to indicate the cost-effectiveness of broadening vaccination programs in order to enable decision makers to judge whether the efficiency gains outweigh these other concerns. In view of expected further declining HPV vaccine prices, it seems likely that HPV vaccination of boys will also be considered cost-effective in countries where the vaccine is currently only funded for girls. A second issue concerned the question whether boys have a moral duty to become vaccinated once vaccination is reimbursed for them as well. Standard liberal arguments such as ‘no harm’ or ‘public goods’ are not particularly convincing in this case. If a boy wants to avoid

HPV-attributable diseases, then he should get a vaccine but it is not immoral if he chooses not to. However, once one considers the sexual nature of the mode of transmission, and one accepts that this can justify more far-reaching moral responsibilities, then it makes more sense to speak of a moral duty for boys to get vaccinated.

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