# The HPV Vaccine in the Jewish Community: The Confluence of Health and Halacha

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Introduction

Human Papilloma Virus (HPV) is reported to be responsible for nearly 90% of cervical cancers, 90% of anal cancers and is a significant component of the etiology of vaginal, vulvar and oral cancers as well. Added to the morbidity and mortality secondary to these cancers, the virus causes precancerous cervical lesions and genital warts which in themselves cause pain, discomfort and require medical care. However, unlike with most other cancers, there is an approved vaccination against HPV, aimed at preventing the development of HPV related conditions and cancers. When the vaccine was first approved in 2006, the Center for Disease Control (CDC) published guidelines recommending that all girls receive the HPV vaccine, ideally starting at age 13-15. However, since then, in spite of multiple public service campaigns, the uptake remains low with rates of vaccination among female adolescents remaining at only 42% as of 2015. As part of Healthy People 2020 initiative, the CDC aims to have an 80% of all adolescents between the ages of 13-15 years old vaccinated by the year 2020. The barriers to increased vaccination acceptance are multidetermined and include socio-cultural factors among parents, adolescents and physicians. Religious beliefs are hypothesized to be one such element. This paper will outline the factors that impede vaccine adoption and provide an analysis of these factors with a focus on the Jewish perspective particularly in the American Orthodox community, along with potential suggestions for improved vaccination penetration.

This paper will focus only on female vaccination, as although the CDC now recommends that males be vaccinated as well, much of the research is based on parents vaccinating

specifically their daughters as a protection against cervical cancer. The form of the vaccine referenced in most of the research can be assumed to be either the quadrivalent or bivalent form, as the nonavalent form is still fairly new. Given that research comparing the three versions of the vaccine has found equivalent, if not higher efficacy, between the bivalent/quadrivalent and nonavalent forms, there is no reason to differentiate between findings, especially as it relates to perspectives and health beliefs, from one version of the vaccine to another form.

## The HPV Vaccine

Human Papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States. The CDC reports that nearly all sexually active males and females will most likely contract HPV at some point in their lives. Each year, over 14 million Americans are infected with HPV, fifty percent of whom are between the ages of fifteen and twenty-four. As with other STIs, HPV is transmitted during sexual contact with an infected partner through the skin and mucosa.

The clinical symptoms of the initial HPV infection are generally not particularly severe and may even be asymptomatic. In many individuals the infection resolves itself, often without medical attention. However, for the approximately 15% of cases where the infection remains, it can be hard to eradicate. The HPV virus has been shown to be the cause of multiple clinical syndromes ranging from genital warts to cervical lesions. Several strains of the HPV virus are oncogenic and have been implicated as the cause of over 90% of cervical,

oral-pharyngeal and various genital cancers. Although early research only implicated HPV in cervical and other genital cancers, recent research also implicates HPV in the development of almost all cases of oropharyngeal and anal cancers as well. The CDC reports that each year, about 17,500 women and 9,300 men are affected by cancers caused by HPV infection (CDC 2014). These diseases are accompanied by significant morbidity and mortality. For example, cervical cancer is the fourth most lethal cancer among women worldwide. The American Cancer Society (ACS) estimates that in 2017, approximately 4,210 women will die of cervical cancer in the United States alone (ACS 2016). It generally appears at around age 30 to 40 and even when not lethal, can cause serious health issues such as kidney failure, infertility, sexual dysfunction and lead to chronic pain. Cervical cancer can usually be detected during routine PAP smears, however, there are no routine screening methods that can detect the other cancers caused by HPV infection, which makes preventative care all the more crucial. Additionally, the vaccine has a strictly preventative effect. Once an individual is infected, administration of the vaccine does not increase viral clearance rates or decrease rates of resultant precancerous lesions and abnormalities. (Hildesheim et al 2016) .Therefore, it is imperative to receive the vaccine prophylactically, before there is any possibility of contracting HPV. Additionally, widespread use of the vaccine will help create a herd immunity effect, which serves to protect those non or under vaccinated.

The HPV vaccine was first introduced in 2006, with the CDC's Advisory Committee on Immunization Practices (ACIP) recommendation that it should be administered in a three dose series to all girls starting at age 13-15. This vaccine was quadrivalent, protecting against HPV 6, 11, 16, and 18. Genital warts are generally caused by strains 6 and 11, and

approximately 65% of cases of cervical cancer are caused by strains 16 and 18. (CDC 2016) In clinical trials involving over 12,000 women, the quadrivalent vaccine was found to have a 96% efficacy in preventing against HPV 6,11,16, and 18 but limited protection against other strains of HPV. In 2009 a bivalent version of the vaccine was released that targeted HPV strains 16 and 18. In clinical trials that involved over 18,000 women between the ages of 15-25, the bivalent vaccine was found to have 94.3% efficacy in preventing infection by HPV 16 or 18. It was also found to provide some level of protection against other oncogenic HPV types. The nonavalent form of the HPV vaccine was approved by the FDA in December 2014 and protects against HPV 6, 11,16, 18, 31, 33, 45, 52, and 58, the latter five causing about 15% of cervical cancers (CDC 2016). Phase III trials of the vaccine found a 95% efficacy against HPV 31,33,45, 52, and 58 and comparable efficacy to HPV 6, 11, 16, and 18. Analyzes of cost-effectiveness, an especially pertinent detail of the HPV vaccine, found it comparable in that aspect to the quadrivalent vaccine. (Yang 2016). As of May 2017, the nonavalent vaccine will be the only form of the vaccine administered. The long term efficacy of HPV vaccination cannot yet be studied as the first patients to receive the vaccine are just now entering the age range where cervical cancer generally develops. However, based on its proven efficacy against HPV and resultant genital warts and precancerous lesions, the theoretical impact on cervical cancer morbidity and mortality can be assumed until proven when the data becomes available (Luckett et al 2016)

The ACIP now recommends that both girls and boys begin the vaccination series at age eleven or twelve (CDC 2016) The immune response has been proven to be strongest at this age (Pederson et al 2007). Initiating the vaccine series at this age also allows for the series to

be completed and the immune response to develop before a child become sexually active and risk of acquiring the infection ensues. Additionally, during typical pediatric care a number of other vaccines are administered at this age and therefore they can all be administered during the same appointment, which increases the likelihood that they will be given on schedule. Even though the ideal time for vaccination is during the preteen years and before becoming sexually active, the CDC recommends that women up until age twenty-seven and men up to age twenty-two receive the vaccine if they have not yet or did not complete the series of vaccinations. The ACIP report even recommends the vaccine for individuals already infected by HPV, as the most current vaccine protects against nine different strains of the virus, and therefore it will protect against strains not yet transmitted which could develop into more serious health problems.

The most commonly reported side effects of the vaccine are mild, and not dissimilar from the side effects from other routine vaccinations, including pain at the injection site, fever, dizziness, and nausea. More serious side effects are rare and therefore should not be considered a concern from a medical standpoint. There have been no reported deaths related to HPV vaccine administration. (CDC 2016)

Barriers to Vaccination

In recent years, numerous studies have been performed in order to investigate the reasons for the low rates of vaccination, particularly in high income countries such as the United States of America. By identifying impediments to girls receiving the HPV vaccine,

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researchers hope to help dismantle those barriers and increase vaccination rates. Many of the already existing methods of overcoming documented barriers have been studied as well with the conclusion that both the barriers and the more effective solutions are multifactorial.

In the early surveys, the most commonly cited barrier to vaccination in the United States was financial, as the vaccination needed to be administered during three different doctor visits in a relatively short amount of time, each with an associated charge. Many individuals did not have full insurance coverage for the vaccine, with an increased financial burden on the un and under insured. The out of pocket cost of completing the three dose series was estimated at approximately $400, not including additional physician's office costs and other costs associated with the office visit. With the passing of the Affordable Care Act and resulting goal of universal health care, coupled with CDC immunization grants, such as the Vaccines for Children program that provides federally purchased ACIP recommended vaccines to the uninsured, it was expected that vaccination rates will rise significantly. Although the supporting data is not yet available, as of 2015 the rates of vaccination have not increased and in some Medicaid groups have actually decreased. Still, the updated ACIP guidelines require only two doses of the vaccine which should also mitigate the financial and logistical burdens.

Another major barrier to vaccination, is not surprisingly, the lack of knowledge about HPV, the HPV vaccine or the CDC guidelines among parents who chose not to have their daughters vaccinated. A National Health Institute Survey from 2010 found that only 63% of parents of children aged 8-17 had ever heard of the vaccine (Wisk et al 2015). In spite of

public service campaigns, at a three year follow up in 2013 that number had increased by a mere 5% to 68% of American adults reporting any awareness of the vaccine. There was also a common trend among parents, from all spectrums of society, of underestimating their child's risk of contracting HPV and resultant illnesses it can cause. The same 2010 survey found that 25% of parents who declined the vaccine claimed that it was because their daughters "do not need it". Overall, there is a significant amount of either incorrect or missing information among the public. Some parents, particularly from religious groups that discourage sexual promiscuity and premarital sex, believed that the vaccine was not necessary for their children as their religious principles encourage monogamy. There is also a fear among some parents that receiving the vaccine will encourage promiscuity or a lack of safe sex practices among their children. (Hendry et al 2013)

A related, often-cited reason for parents not vaccinating their children is absence of physician recommendation. Physicians are relied upon as sources for medical information and have much sway in acceptability of other vaccines. However, in the case of HPV many physicians would not recommend the vaccine if they deemed it culturally inappropriate, did not agree with the guidelines, perceived the patients as low risk for sexual activity, or shied away from discussing anything related to sexuality with patients and parents, which deprive parents of obtaining the necessary information (Beavis et al 2016). Pediatricians were quoted as saying "*There are just lots of docs who don't like to talk about sex with their patients. That will be a huge barrier*". [This was especially relevant for religious families who were] "*culturally more modest in terms of how they approach sexual issues…you'd see that in conservative Christian cultures as well*". In addition, many physicians self report not

recommending the vaccine to religious patients, out of risk of offending their cultural sensitivities. (Tissot et al 2007) thereby missing the potential opportunity to provide prevention.

Both parental and physician hesitations and discomfort at discussing sexual activity are exacerbated by the young age group that the ACIP guidelines recommend, which is generally earlier than the age at which teens become sexually active. (Holman et al 2015). In fact, a 2015 study (Bakir et al 2015) found that parents were three times more likely to initiate the vaccination series if offered between the ages of 16-18 than 11-12 as they felt that this was a more appropriate time. However, sexual debut of American teens often starts at a mean age of 17 (CDC 2015) and therefore the 16-18 age bracket is late to begin the vaccination series. Additionally, the same study also found that those patients whose parents defer the vaccine at the recommended age often never actually end up receiving the vaccine at all. Similarly, when parents deferred discussing the vaccine at the 12-year-old checkup pediatricians were less likely to raise it again in the future. Based on previously noted immunological and pragmatic reasons, the vaccine is most effective if administered before the age of 14. Therefore, parental education, especially in regards to the level of risk and safety of vaccine, is of paramount importance to raising the vaccination rates (Bakir et al 2015).

Studies have shown that in general, the teens themselves did not have much input or personal opinions about either receiving or denying the vaccine and largely left that decision to their parents, even in countries where a teen could override their parent's choice in the matter (Ferrer et al 2014)

Many of the objections to vaccines are a function of psychological factors that apply to the HPV vaccine as well. The Health Belief Model (HBM) is a psychological health behavior model developed by the US Public Health Service in the 1950's to predict and explain health related behaviors, specifically in regard to uptake and participation in health services. The HBM suggests that people's beliefs about health issues, perceived benefits of versus barriers to action, and self-efficacy explain their engagement or lack thereof in health-promoting behavior. The factors considered include perceived severity, perceived susceptibility, and perceived barriers, along with modifying variables such as personal and demographic factors which affect the above factors. Additionally, the HBM posits that a cue to action is necessary for an individual to engage in a health promoting behavior. This cue to action can either be internal, such as experienced symptoms of disease or bad health, or external, such as receiving information from peers or a health care provider (Glanz et al 2008). It remains one the most commonly and widely used theories in health behavior research and is particularly relevant to the topic of HPV vaccination and vaccination refusal. For example, among religious parents there may be a strong value of proper health and preventative care (see below), however it is overshadowed by low perceived severity and susceptibility compounded by barriers such as cost, discomfort with the issues, and fear of promoting promiscuity. The cue to action may also be missing for many religious parents, as educational materials may not be directed to their communities and, as mentioned in the previous section, physicians may not bring up the vaccine with them.

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Religious and sociocultural factors influence the way parents, children and health care practitioners relate to medical interventions including vaccines. In June 2013, a large scale study was conducted to determine the barriers to the vaccine acceptability in Israel (Fisher et al 2013), many of which can be used to hypothesize the barriers to accepting the HPV vaccine among the American Orthodox Jewish community. The first consideration is that rates of cervical cancer and other HPV related cancers are low in Israel relative to other countries. Correspondingly, cervical cancer rates are lower among Jewish women as compared to all religious groups, both in and out of Israel. The relatively lower rates of infection and cancer are thought to be secondary to several interacting factors including the higher rate of monogamy among religious populations which lessens the spread of the HPV virus as compared to other countries with a lower religious presence. However, there still is a statistically significant incidence of cervical cancer in Israeli women. In 2007 the incidence of 5.3 cases per 100,000 Israeli Jewish women and 2.3 per 100,000 Israeli non-Jewish women was reported with a resultant mortality rate of approximately 1.5 per 100,000 Israeli women. The incidence rates of other anogenital, oral cavity, and pharynx cancers are very low, below 1.0 per 100.000 Israeli women and men. However, the rate of genital wart incidence is similar to that of other developed countries (Shavit e al 2013). The incidence rates for premalignant lesions in Jewish women in Israel are similar to those observed in Western countries, even though the incidence of cervical cancer in Israel is low; this discrepancy is not yet clearly understood but may be related to the specific types of HPV infection or the frequency of gynecologic care even among the very religious.

Religious Jewish and Arab parents comprise a combined forty-five percent of Israel's population. Similar to other parental groups, these parents cited concern that the vaccine would encourage promiscuous behavior in their daughters as the rationale for opposing the vaccine (Fisher et al 2013)

It has also been suggested that HPV infection is less common in Israel than in other western countries due to the fact that approximately eighty percent of the male population is circumcised, and male circumcision is alleged to lessen the susceptibility to contracting HPV (Fisher et al 2013). However, the conclusions from various studies on the matter are not in agreement. A recently published report that analyzed thirty different studies on male circumcision and HPV infection found that male circumcision seems to reduce HPV prevalence rates by about a third. However, once infected, the rates of progressing to further illness and clearance rates were not significantly lower for circumcised males versus uncircumcised males (Zhu et al 2017). Accordingly, circumcision alone cannot be relied on as an effective means of preventing HPV infection in the Jewish community.

In 2011 a more detailed study of the reasoning for parental acceptance or declination of the HPV vaccine was conducted with British Jewish mothers of school age children. In the United Kingdom the HPV vaccine is administered via a school based program in the 8th grade, and therefore is not reliant on physician recommendation or associated with social stigma to the same extent as in the United States where it is part of medical care. Notwithstanding this caveat, the perspectives and opinions given by the British mothers seem to parallel those of American parents to a large extent. The mothers in this study were

recruited through their daughters' schools, one in which the student body was co-ed and the other "girls only". Both schools were self-defined as being of Orthodox denomination. A number of responses made reference to more religious segments of the population, which allows an assumption that the mothers in this study would fall into the characterization of Modern Orthodox. Many of the mothers had limited knowledge of cervical cancer and HPV. There was a general trend of those who were less knowledgeable having a greater likelihood of declining the vaccine. Some had heard that the risk of cervical cancer is much lower in the Jewish community due to religious sexual practices and male circumcision and therefore prevention of HPV may not be needed. Some of the mothers in both the accepting and declining groups expressed disappointment that the information they received through the vaccination program was not tailored to their specific concerns as Jewish parents, and this seemed to negatively impact their decision to vaccinate. One mother suggested "*I think possibly the school could have provided more information to that nature...possibly a covering letter saying you know you may have some misgivings about this because of its* [sexual] *nature but maybe consider these factors…".* She also suggested that having an Orthodox physician from the community give their professional opinion could have helped parents make an informed decision. Interestingly, even declining mothers generally felt that the vaccination was a 'good thing' that 'made sense', although clearly not for their own daughters at that time.

Among mothers who accepted the vaccination, there was a general feeling that while they could hope that their daughters would act in the future in accordance with the religious principles they were raised with, they could not predict with certainty future behavior and

therefore it was prudent to protect their daughters “just in case”. Several accepting mothers expressed a fairly straightforward view that this vaccine is “just another protective vaccine” and therefore this addition was nearly a non-issue. Declining mothers generally believed that their daughters’ perceived risk of contracting HPV or resultant disease was too low to justify administering the vaccination. This assessment was largely due to an assumption about their daughter's’ future sexual practices and the prevailing cultural norms at the school and in the community. Still, most of these same women also expressed concerns about the safety of the vaccine. They felt comfortable waiting until their daughters were older and the vaccine not so ‘new’. As one mother stated “had I considered my children to be particularly at risk of having cervical cancer early in life I would have considered the vaccine. My feeling was that they could wait...they are both religious, chances are they won't have sex before marriage...they could have it when they are 18 by which time it will be that much more tested”. It should be noted that almost all of the declining mothers planned to reconsider the vaccine when their daughters’ were older, and a few of them said that they would definitely vaccinate when their daughters reached a “more suitable” age. One aspect of faulty reasoning in this approach is that studies have shown a greater immunological response to the vaccine when administered at the recommended ages (above). One mother explained that the decision would be based on her daughter’s sexual behavior, specifically if in a couple of years’ time her daughter is sexually active then she would ‘maybe’ consider having her vaccinated. This reasoning also shows a level of misinformation, as all recommendations specify that the vaccination course should be completed prior to sexual debut. Both of these examples of misinformation or lack of information bolster the authors’ suggestion that education with a

focus on information tailored specifically to the Jewish community would increase vaccination coverage. (Gordon et al 2011).

There has been a dearth of information on the American Jewish community's response to the HPV vaccine, however studies and statements related to other religious groups may provide information that may be applicable to the Jewish community. Additionally, there is some research on the religious approach to vaccines in general which can help form general themes and perspectives. A 2012 review titled "What the World Religions Teach, Applied to Vaccines and Immunoglobulins" (Grabenstein 2013) discusses the similarities and differences in approach to vaccination from the Jewish, Hindu, Christian, and Islamic perspectives. Aside from Christian Scientists, who cite theological basis for declining to vaccinate, the general approach is one that promotes accepted medical practices such as vaccination. Interestingly, Judaic practice has the fewest religious concerns associated with vaccination. In general, those who chose not to vaccinate from the religious groups studied cited objections similar to the secular anti vaccine or antigovernment camps, not religious objections.

In terms of the HPV vaccine, however, there were some religious objections or concerns cited, most commonly that it would encourage promiscuous behavior and was being administered at a younger age than necessary. These were coupled with non-faith based concerns, such as the relative newness of the vaccine. (Shelton et al 2013)

Not all religious groups considered the concerns associated with vaccinating to override the relevant medical concerns. Most notably, Catholic providers and parents are generally in support of administering the HPV vaccine in line with CDC recommendations (Shelton et al 2013). In January 2007, fairly soon after the HPV vaccine was introduced, the Catholic Medical Association (CMA) published a statement in support of administering the vaccine in line with the ACIP recommendations "because it is effective, safe, and ethical to use, provided certain conditions are met". In explaining the ethical basis, the statement maintains that:

"The fact that HPV is spread primarily by sexual contact does not render vaccination against it unethical. Healing and preventing diseases, no matter what their source, are acts of mercy and a moral good. Prevention of HPV infection is distinct from, and should not be constructed as encouraging, the behavior by which HPV is spread." (CMA 2007)

The "certain conditions" mentioned likely refers to the caveat included in the statement that maintains that physicians do not undermine parental efforts to promote chastity and sexual morality as the most comprehensive means of prevention against all of the potential physical and mental health issues related to premarital sexual activity. In this statement, the CMA addressed many of the primary concerns cited by religiously affiliated parents who deferred or declined the vaccination for their daughters, most prominently being that it would encourage sexual promiscuity. It also advocated following the age recommendations set forth by the ACIP at that time, which were to vaccinate girls between the ages of 13-15. There has not been a follow up statement published and therefore it is unclear if that would

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be followed for the updated recommendation to vaccinate between the ages of 11-12, which is cited by many parents and providers as too young to be concerned with matters related to sexual activity, in their opinion.

In 2013, the Israeli health ministry began offering the HPV vaccine to 8th grade girls through a school vaccination program similar to what exists in other European countries. There was immediate and fierce backlash from religious leaders who felt that the vaccine was unnecessary for their communities. Rabbi Baruch Efrati was quoted as saying "There's certainly no place for such a vaccination in a religious school, since it rests on the fundamental assumption that the girls are steeped in the sins of Western culture, in which girls give their bodies to men and don't wait until the wedding.". "There is no religious prohibition on administering the vaccine in secular schools, where the danger of contracting HPV is greater", Efrati wrote. But, even then, parents are permitted to prevent their daughter from receiving the vaccine. (Linder-Ganz et al 2013[1])

On the other hand, segments of the Religious Zionist movement, which can be roughly paralleled to the American Modern Orthodox community, supported the vaccination program and spoke out against its detractors. Dr. Einav Mayzlish Gati, a biologist and member of the Religious Zionist group Ne'emanei Torah v'Avoda's leadership, wrote a letter to the education ministry in support of the movement and demanded that religious school leaders "renounce in a decisive fashion these voices [against the vaccinations], which are based on ignorance, fear-mongering and border on medical irresponsibility toward the girls who will listen to them.". The movement also demanded "not to bring in ulterior motives when

considering the medical need to prevent serious diseases, and not to hide important facts because of fears of 'modesty.' (Linder-Ganz et al 2013[2])

Vaccination in Halacha

There are a number of different Biblical, Talmudic, and halachic sources that can be seen as either advising or requiring recommended vaccinations, some for which the reasoning can be extended to cover the HPV vaccine as well, although, as discussed above, the risks associated with HPV contraction and infection are likely lower in the communities looking towards said halachic guidelines.

There is a wide reaching halachic requirement to protect oneself and family from possible danger, based on the biblical commandment to erect a guardrail around a roof or elevated porch in one's home, lest someone fall to their death (Deuteronomy 22:8). Rabbi Yosef Karo in the Shulchan Aruch[1] explains that "just as there is a positive commandment to build a guardrail around the perimeter of a rooftop lest someone fall, so too are we obligated to guard ourselves from anything that would endanger our lives". He views this as just one example of a potential danger present, but not the only example that must be guarded against. Rabbi Asher Bush (Bush 2011) makes the observation that Rabbi Karo does not mention any specific level or threshold of danger necessary to qualify prohibiting a certain activity or situation and it can therefore be inferred that anything generally considered dangerous is prohibited according to rabbinic law. This observation is bolstered by the technical rules of

[1] יו"ד סי' קט"ז, חו"מ סי' תכ"ז

what requires a guardrail. The Talmud[2] states that any porch or roof higher than ten *tefachim* (approximately three feet) above the ground must have a guardrail to avoid someone falling off of it to their death. Such a low elevation presents very little danger, as even if someone did fall off the side, which is unlikely to begin with, the chances of the fall being deadly seem extremely small. Nevertheless, this was considered a small enough threshold of danger to require a biblical commandment of avoidance. (Bush 2011). Rabbi Moshe Feinstein[3] takes a similar view in his responsa where he asserts that the rulings listed in the Shulchan Aruch include activities where there is at most a distant concern of danger, and these too must be taken very seriously. Rabbi Bush reads into Rabbi Feinstein's words that based on this that "it would seem that in each and every case where sound medical knowledge or common knowledge of our day informs us a conduct is dangerous, we would also need to refrain from it"

The most commonly quoted biblical source supporting vaccinations is in the fourth chapter of Deuteronomy, in which the Jewish people are twice warned to take special care to protect themselves from bodily harm. The first is in Deuteronomy 4:9 in which Moses commands "רַק הִשָּׁמֶר לְךָ וּשְׁמֹר נַפְשְׁךָ מְאֹד" which can be loosely translated as "but beware to guard yourself and guard your being well". The Netziv and Kli Yakar specifically translate the first part of the phrase as referring to one's physical body, as opposed to spiritual being. Maimonides[4] considers this as a positive commandment to remove all hazards and obstacles to good health and wellbeing.

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[2] כתובות מא

[3] Igros Moshe Orech Chaim ח"ב סי' ק)

[4] Laws of murder and guarding one's life 11:4

In the same exhortation to the Jewish people in Deuteronomy 4:15, the phrase " וְנִשְׁמַרְתֶּם מְאֹד לְנַפְשֹׁתֵיכֶם" is used, which the Netziv again maintains is a direct command to protect one's physical health and body. He bases this translation on a story in tractate Berachot 32b

> *"The Sages taught: There was a related incident, involving a particular pious man who was praying while traveling along his path when an officer [hegmon] came and greeted him. The pious man did not pause from his prayer and did not respond with a greeting. The officer waited for him until he finished his prayer.*
> *After he finished his prayer, the officer said him: You good for nothing. You endangered yourself; I could have killed you.*
> *Isn't it written in your Torah: "Take utmost care and guard yourself diligently" (Deuteronomy 4:9)?*
> *And it is also written: "Take therefore good heed unto yourselves" (Deuteronomy 4:15)? Why did you ignore the danger to your life?"*

From this story, it is clear that the basic meaning of the verse is a biblical command to protect one's life and physical health.

The *Chazon Ish*, in Kovetz Igrot, Vol.1, Chap. 138 expands the biblical commandment of visiting and caring for the sick to apply to one's own health. According to him, part of *bikur cholim* is tending to one's own wellbeing and obeying physician's instructions and recommendations.

The later halachic literature and commentaries also often dealt with issues of how a person should guard their health and what precautions are entailed. Many of these are specific to precautions during epidemics and plagues, which were common in the middle ages.

Rabbi Moshe Isserles in his commentary to the Shulchan Aruch[5] states that if a plague breaks out in a city, one should not wait until it spreads, but rather flee immediately to distance himself and avoid contracting the illness. According to Rabbi Yeshayah HaLevi Horowitz, this is not just an individual responsibility, but a parent is obligated to remove their children from the city and to a place safe from the epidemic. If he does not do this, he is held responsible for any negative fate that befalls his children if they contract the illness.

The first responsa directly dealing with the question of vaccinations, which were arguably far more dangerous at the time, is found in the Tiferet Yisroel on Yoma 8:3 written by Rabbi Yisroel Lipschutz. It was written in the nineteenth century after the discovery of the smallpox vaccine, which had a mortality rate of 1/1000. He maintained that even though there was a proven risk to life in obtaining the vaccine, it should still be administered as the protection against smallpox was a greater concern. This opinion was so widely accepted that when in 1896 an Orthodox Jew was imprisoned in London for failing to vaccinate his child, claiming religious objections, Rav Hermann Adler, the Chief Rabbi of Great Britain responded to his claim by saying that the prisoner "was not justified in making the statements contained in the letter; that the most competent medical authorities were agreed as to vaccination being a prophylactic against small-pox, and added that its use was in perfect consonance with the letter and spirit of Judaism." (Levy 1897)

Rabbi Shlomo Zalman Auerbach, one of the leading halachic figures of the twentieth century, even allowed for someone to be vaccinated on Shabbat if that was the only time a

[5] Yoreh De'ah 116:5

vaccine against a dangerous disease is available.[6] Although this allowance is limited in applicability, they give proof to the halachic idea that even preventative medicine in the form of vaccines is important enough that it would be included in the category of *pikuach nefesh*, danger to life, and Sabbath can be overridden for their administration.

The above cases all dealt with vaccines for highly contagious illnesses that children were exposed to in day to day life, even if infection rates were low. There is still not a clear answer if from a halachic perspective, vaccinations should be mandated if the risk is very low or would not be considered an epidemic which could impact the Jewish community in equal rates as their neighbors, which seems to be the case of the HPV vaccine in Orthodox communities. There is a suggestion that the Lubavicher Rebbi's response to a similar risk assessment of the polio vaccine could be applied to HPV. However, the ACIP recommendations may put the HPV vaccine into the category of normative medical practice, which is encouraged by many.

Maimonides in his philosophical writings[7] describes the healthy lifestyle necessary for proper service of G-d. He mentions the proper diet, activity level, and sleep required to optimally maintain one's health. As Rabbi Bush notes, these medical recommendations are based on what medical knowledge in Maimonides' time viewed as ideal and what normal practice was. Therefore, one could reason that Maimonides would recommend following normative medical practice in one's generation as part of living according to Jewish values and guidelines.

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[6] Minchat Shlomo 2:29:4
[7] De'os 80:4

Rabbi Akiva Tatz, in his book *Dangerous Disease & Dangerous Therapy*, (Tatz 2013) records a response from Rabbi Yosef Sholom Elyashiv when asked about parents refusing recommended vaccinations.

> "[*Rabbi Elyashiv] ruled that the parents should accede to immunization despite their concerns. When asked if the reason behind this ruling was the issue of fairness and the obligation to share responsibility, Rabbi Elyashiv indicated that it was; his reason was that since immunization of children is normal practice throughout the world, one should follow that normative course. In fact, Rabbi Elyashiv went so far as to assert that failure to immunize would amount to negligence." He then continues, "Refusing childhood immunizations on the basis of unsubstantiated fears of vaccine side-effects is irresponsible and out of order halachically. The danger of precipitating epidemics of measles, poliomyelitis and other diseases with potentially devastating complications is far more real than the dangers attributed to vaccines on the basis of anecdotal claims. Until objective evidence to the contrary accrues, the halachically correct approach is to do what is normal. In addition, a legitimate government's legislation concerning standards of medical conduct adds weight to their halakhic acceptability."*

Although this question was not asked in regards to the HPV vaccine, and it is very possible that Rabbi Elyashiv may have answered differently for that case, his answer is important in terms of recognizing the idea of following governmental recommendations over giving in to baseless concerns.

Additionally, there is biblical and Talmudic evidence to refute the argument that HPV, as it is an STI transmitted only through sexual contact, is not a concern for Orthodox Jews. In Leviticus 15:2 and 15:3 the symptoms and ritual purity laws as relating to a *"zav*" are listed. A number of medieval commentators describe this illness as contagious and spread through sexual contact, therefore giving it the status of a STI. Additional proof for its classification as an STI is that the *zav* is considered to have brought on his illness through "sins of youth" and because he "forsook the proper path [of Torah with forbids promiscuity and supports monogamy]". According to Dr. Avraham Steinberg (Steinberg 2013), among others, the

disease being described is gonorrhea, an STI caused by the bacterium *gonococcus*. As with HPV, gonorrhea is only spread through sexual contact (CDC 2016) and is highly contagious. Before the introduction of antibiotics as treatment, infection rates of males in western countries reached nearly 100% of the population, similar to the current rate of infection of HPV in the United States.

Overall, the general halachic approach culled from the above sources seems to support, if not mandate, following public health guidelines in the administration of vaccines proven to protect against dangerous illnesses. This argument considers receipt of the HPV vaccine as normative medical practice, which based on the relatively low rates of uptake in the United States, may not to be a completely accurate characterization. It seems to be but is not entirely clear to the author whether normative medical practice and public health guidelines are considered to be interchangeable by the rabbinic authorities cited, aside from where governmental legislation was specifically mentioned. At the very least, there does not seem to be reason to assume halachic objection to administration of the HPV vaccine, as there is a demonstrated risk involved in non-receipt. This discussion can be concluded with the words of Rabbi Moshe Isserless "that one need be more concerned with possible danger than with possible prohibitions." [8]

Survey questions

In speaking with college aged peers in the Modern Orthodox community, responses when the HPV vaccine is mentioned are commonly either surprise at the question, because it is "obviously not necessary in the orthodox community", or for those who did receive the

[8] *Yoreh De'eh* 116:5

vaccine, an assumption that they were in the serious minority. One college student mentioned that she received the vaccine after her Modern Orthodox high school biology teacher strongly recommended it to her students. However, she acknowledged that the teacher likely mentioned it because of assumed low rates of vaccination among students. Unfortunately, there is no research on the actual rates of vaccination uptake in the American orthodox community or perspectives of Jewish parents who decline the HPV vaccine. This paper has aimed to infer what some of the perspectives and potential barriers likely are, and how and why they should be overcome. Another point of interest is if some of these barriers would be dismantled, would women whose parents deferred their HPV vaccination receive it once responsible for their own medical care and decisions. According to a 2014 study (Kester et. al 2013**)** only 30% of American females aged 19-26 are initiating vaccination. However, after a sample of unvaccinated young adults were given a brief educational intervention, many expressed intent to receive the vaccine, which indicates that educational material addressed towards this age group may increase vaccination rates among this group no longer limited by parental medical decisions.

Attached to this paper (Appendix I) are prospective survey questions to be addressed to college aged Modern Orthodox females in future research on this topic. The purpose of this research would be multifunctional as it could solidify reasoning for vaccine necessity in the community and give insight as to what methods should be used to increase vaccine uptake in this population. The questions are based on barriers to vaccination found in other religious groups as well as American society at large. They also aim to gauge perceived and actual risk

which is estimated as being low, however without concrete data on sexual activity and STI prevalence in the Modern Orthodox community cannot be properly assessed.

## Summary and Solutions

The research and analysis provided above has formed a composite picture of assumed barriers and perceptions to uptake of the HPV vaccine in the American Orthodox Jewish community. The two primary assumed barriers, based on barriers studied in the general population and other religious groups in particular, are a lack of physician recommendations and lack of accurate information on the part of the parents. It is this author's opinion that the barrier that can be addressed most effectively and successfully for increased vaccine uptake is parental. Given that the reason stated by many physicians who did not recommend vaccination is a fear of offending religious and cultural beliefs, this author does not anticipate that trend changing drastically, as having religious and cultural sensitivity is a paramount importance in the medical profession. One way to indirectly change this trend would be by parents bringing up the vaccine with their daughters' physicians and explaining why they would like to have their daughters vaccinated, notwithstanding the lower risk faced. Reaching that point can be best accomplished through educational methods that directly address the concerns and risk levels in the Modern Orthodox Jewish community. One source for that information could be religious community leaders themselves addressing halachic concerns and supports for HPV vaccination. Although this author did not find sources that indicated a direct halachic objection, there was not a clear published statement from orthodox lay or rabbinic leaders that clarified this point. Another source could be targeted materials

published by national or regional health organizations, as would be helpful for a number of minority ethnic or religious groups. For example, there seems to be a general feeling among declining parents from across the spectrum that the recommended vaccination age is young, however the basic materials distributed by the CDC do not mention that the immune response is stronger in younger adolescents regardless of whether expected sexual debut is later. The author believes that such a multifaceted approach could increase vaccination uptake among the American Modern Orthodox community which would benefit individuals and create herd immunity for the population as a whole. However, further research is needed to solidify the parallels stated above and gauge exactly what vaccination uptake and HPV disease burden looks like in this community to bolster the targeted educational methods.

This author assumes based on the data and anecdotal evidence above that the prevailing attitude towards the HPV vaccine in the American modern orthodox community is one of "we do not need this because we are not at risk of infection", which, given the research and general knowledge of the character of the American Modern Orthodox community, is not fully accurate. It is true that the risk of HPV infection and development of cervical and other related cancers is lower than in the general population, although to what extent is not known. Nevertheless, the risk is absolutely existent, possibly to a higher degree than assumed. There is evidence of members of the global orthodox community presenting with HPV infection related genital warts, precancerous lesions, and cervical cancer in low but statistically significant numbers and therefore infection can be spread even within the community. Another point which cannot be overlooked is the turnover, so to speak, within the American Modern Orthodox community. While parents can educate their children in religious

guidelines and promote abstinence before marriage, there is unfortunately no guarantee that the children will maintain these practices or stay within the orthodox community at all. Even for those who do stay within the community, there still exists premarital sexual activity among teens and young adults, although it is rarely acknowledged. Additionally, the *Ba'al Teshuva* movement forms a significant portion of the Modern Orthodox community, and while this author is not suggesting that all individuals not raised orthodox were sexually active before adopting orthodox practice, it can be safely assumed that at least a portion who identified as secular during teenage and young adulthood also were sexually active to a similar extent as the general American population, which according to the CDC assumes that approximately 90% of the population has engaged in premarital sexual activity (CDC 2015). Given the prevalence rate of HPV infection in the United States, and the fact that the American Orthodox community is not completely isolated or sealed from American society, it is not realistic to assume that the community or its children are immune to contracting HPV. Therefore, there is an extant risk of contracting lethal cervical cancer among other health concerns from HPV infection. Based on this author's reading of the halachic sources above, would suggest a halachic value to vaccination against HPV which should impel greater community support of its uptake.

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Appendix 1- Suggested Survey Questions

1. **Have you ever heard of the HPV virus?**

a. If so what do you know about how it transmitted?
b. If so what do you know about its effects?
c. How did you learn this information?

2. **Have you ever heard of the HPV vaccine?**

a. If so what do you understand about its effectiveness?
b. If so what do you know about its side effects/safety?
c. If so, how did you learn this information?

3. **Did you receive the HPV vaccine?**

a. If so how old were you when you received the first dose?
b. Did you complete the series?
c. Did you have any side effects?
d. How do you feel about receiving the vaccine?
e. How likely are you to recommend your children be vaccinated?

4. **If you did not receive the vaccine:**

a. Do you think that was a good decision?
b. To the best of your knowledge why didn't you receive the vaccine?
c. Would you consider receiving the vaccine now?
d. How likely are you to recommend your children be vaccinated?

5. **How do you approach medical care?**

a. How active are you in your medical decisions?
b. What role, if any did you have in medical issues as a teenager?
c. What is your feeling about health versus illness driven medical care?
d. Do you do self-breast exams? Did you receive the flu vaccine this year?

6. **How would you describe yourself religiously?**

a. Do you describe yourself as religious?
b. If so what subgroup, if any?
c. Did you attend Jewish Day school? Hebrew School? High School?
d. Did your parents attend synagogue on a regular basis?

7. **What do you think of the HPV vaccine?**

a. Do you think it is/should be considered controversial?
b. How do you think your peers feel about this issue?
c. What would be the best way to increase knowledge about HPV and the vaccine in the Jewish community?