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**Male Perceptions of and Attitudes Toward the Human Papillomavirus
Vaccine: Effective Promotional Strategies**

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Male Perceptions of and Attitudes Toward the Human Papillomavirus Vaccine: Effective Promotional Strategies

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The Human Papillomavirus (HPV) is one of the most prevalent sexually transmitted diseases among American men and women. When first licensed by the United States Food and Drug Administration (FDA), the HPV vaccine was originally only approved for use in females ages 9-26 years. Promotional communications reflected this, using messaging strategies that effectively positioned the vaccine as a “women’s vaccination.” In 2010, the FDA approved the HPV vaccine for use in males ages 9-26, though advertising and marketing of the vaccine for this new population was limited. This study evaluated males’ knowledge of and attitudes toward HPV and the HPV vaccine, as well as message tactics for promotion of the HPV vaccine to male populations. Using an online survey and a convenience sampling technique, this study reached a young, highly educated sample of males within the “catch up” program age range. The results of the study indicated a basic understanding of HPV, but a limited understanding of the health-risks associated with the disease. Communication efforts using fact-based tactics were found to be the most effective at persuading males to seek vaccination.

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1.0 Introduction

More than 20 million people in the United States are currently afflicted with Human Papillomavirus (HPV), and it is assumed that most people will contract the disease in their lifetime, perhaps even unknowingly. Though the human body usually fights off the disease naturally, infected persons are at a greater risk for several types of cancers. A vaccine against the disease has been developed, tested, and ultimately proven safe over the course of a decade. Only half of the population, however, has been directly informed that the vaccine is available.

The initial release of the HPV vaccine was announced with a national advertising campaign targeted at females, drawing a heavy connection between HPV and cervical cancer. This was due to the fact that the vaccine was initially approved only for use in females, however, none of the messages released in the initial campaign mentioned the fact that HPV is a cause of concern for both men and women. This initial marketing strategy was effective for increasing vaccine uptake among women, but it may have been detrimental to the later approval of the vaccine program for males. Because of this initial campaign, HPV may face a branding issue as a “girl’s” vaccine.

The high prevalence of human papillomavirus increases the importance of ensuring both females and males are aware of HPV and the associated health risks, as well as the potential benefits of vaccination. The lack of information targeted toward males may contribute to low vaccine uptake among males in the “catch up” program age range who are responsible for making their own personal health decisions. Deciding against vaccination may lead to increased health risks as a result of contracting HPV later in life.

2.0 Literature Review

The Human Papillomavirus (HPV) is a group of more than 150 related viruses, 40 of which can be sexually transmitted (Lamming & Beckett, 2011). The vast amount of HPV virus types makes it one of the most prevalent sexually transmitted diseases in the United States; nearly all sexually active individuals will contract HPV at some point in their lives. Fourteen of the sexually transmitted HPVs are high-risk, and can cause genital warts and cervical cancer in women. HPV can also be detrimental to men's health, causing penile and anal cancers in addition to genital warts. HPV is most commonly seen in young adults (late teens – early 20s), but because the body often naturally fights off HPV before significant health problems arise, the majority of people who contract the disease are unaware of it (“HPV vaccine for preteens and teens”, 2014).

Two HPV vaccinations have been developed in the last 10 years. Cervarix is a bivalent vaccine licensed for use in females who are at least 10 years old and protects against HPV types 16 and 18. Gardasil is a quadrivalent vaccine licensed for use in individuals that are at least 9 years old and protects against types 16, 18, 6, and 11 (Lamming & Beckett, 2011). HPV types 6 and 11 can cause genital warts, but do not cause cervical cancer. The additional protection Gardasil provides against HPV types that can cause genital warts makes it an ideal option for men who are interested being vaccinated. Because the initial purpose and focus of both Cervarix and Gardasil was to protect women against cervical cancer, the second most common cancer worldwide, neither vaccine was immediately made available to men. In the last three years however, Gardasil has been approved for use in males to prevent genital warts.

When Gardasil and Cervarix were first approved by the U.S. Food and Drug Administration (FDA) public reaction was not immediately positive. Both vaccines were intended to be administered in 3 doses over the course of 4-6 months (“HPV vaccine for

preteens and teens”, 2014), and most vaccination programs were focusing immunization efforts on girls age 12-13, because immunization is most effective in individuals that are not yet sexually active. A “catch-up” campaign was simultaneously established for women over the age of 14. Table 1 provides an example of the age divisions in an initial HPV immunization program (Lamming & Beckett, 2011). Common side effects after vaccination include pain at the site of the injection, fever, dizziness, and nausea (“HPV vaccine for preteens and teens”, 2014) The CDC continues to monitor side effects related to HPV vaccinations using the Vaccine Adverse Event Reporting System (VAERS), Vaccine Safety Datalink (VSD) and the Clinical Immunization Safety Assessment Project (CISA). An 8-year study of health events related to HPV vaccination (reported to VAERS) was published in 2014, showing that approximately 92% of reports were non-serious (Centers for Disease Control and Prevention, 2015).

Table 1: Vaccination age ranges.

Females aged 0-12 years	Cervarix is licensed for individuals from 10 years old Gardasil is licensed for individuals from 9 years old Vaccination is not routinely recommended for those aged 9–12 years
Females aged 12-13 years	HPV vaccination is recommended for all girls at 12–13 years of age as part of routine childhood immunization schedule
Females aged 14 to <18 years	For most primary care organizations, the catch-up campaign is complete and therefore the only routine vaccination in all but three trust areas will be the school year 8 cohort, i.e. those aged between 12–13 years
Females aged 18 years or over	Vaccination is not routinely recommended for those aged 18 years or over. Gardasil is licensed for women aged 9–45 years. Cervarix is licensed for those aged 10–25 years
Females with unknown or incomplete immunization status	Where a female in the target cohort aged over 12 and under 18 years presents with an inadequate vaccination history, every effort should be made to clarify what doses she has had. A female who has not completed the schedule should complete the vaccination course at the minimum interval where possible. Females coming to the UK from overseas may not have been offered protection against HPV in their country of origin and should be offered vaccination where appropriate

“Cohort to be vaccinated under the HPV immunization programme” table extracted from “A brief guide to human papillomavirus vaccination” (Lamming & Beckett, 2011)

Negative perceptions and acceptance over both the Gardasil and Cervarix vaccinations stemmed from concerns over the general safety of the vaccine and anticipated side effects, changes in sexual behavior among vaccinated individuals, and the financial cost of the vaccine.

The HPV vaccine is designed as a preventative measure, and as such is meant to be administered to individuals before they become sexually active. Because approximately 37% of males and 28% of females admit to having sexual intercourse by the ninth grade (Blumenthal, et al., 2012)), it has been suggested that HPV vaccination regimens be directed at younger adolescent populations.

2.1 Perceptions and Acceptance

Many sexually active adolescents have a limited understanding of the Human Papillomavirus as a common sexually transmitted infection, and as such, many adolescents report a low perceived personal risk of contracting HPV. The lack of knowledge in regards to sexual health often contributes to hesitance in adolescent acceptance of the HPV vaccine (Blumenthal, et al., 2012)). In several studies of adolescent understanding and acceptance of HPV vaccination, teens reported that healthcare providers are an important and credible source of information. Other important sources for seeking advice on sexual health include peers and parents.

Studies of parental attitudes toward vaccination derived similar predictors of vaccine acceptance as studies of intents to be vaccinated among adolescent males and females. Parental views of the severity of HPV susceptibility, social norms (vaccine acceptance by important others) and normative beliefs (vaccine acceptance by other mothers) are common predictors of vaccine acceptability (Marlow, Waller & Wardle,

2007). Education level, history of sexually transmitted infections (STIs) and level of parental monitoring among peers are additional factors that can predict intents to have children vaccinated (Rosenthal et al., 2008).

Numerous studies have been conducted to examine factors for HPV vaccine acceptances – several of which were conducted prior to the approval of the vaccine for males. In a review of 28 such studies, reviewers (Brewer & Fazekas 2007) found that key factors for vaccine acceptance or rejection were widely universal and could be reasonably predicted. Factors of higher acceptability, for instance, include perceived vaccine effectiveness, recommendation of the vaccine program by a healthcare provider, high perceived risk of HPV infection, and a belief that key “others” (parents, partners) also view the vaccine favorably. Factors contributing to negative vaccine acceptability include low perceived risk of HPV infection (Brewer & Fazekas 2007). Convincing men to commit to the vaccination program has proven difficult for several reasons, and factors contributing to male intents to be vaccinated vary based on age, sexual preferences, and current understanding of HPV and its associated risks.

Major factors contributing to vaccine acceptance and intent to vaccinate include: education, perceived risk, current relationship status, general and specific concerns over vaccine safety, moral concerns regarding the promotion of promiscuous behavior, and source of the vaccine recommendation.

2.1.1 Education

Lack of knowledge is often cited as a reason for uncertainty in regards to vaccination; many males note that they need additional information before making a decision about vaccination (Forster, Marlow, Wardle, Stephenson & Waller, 2012). Studies among women showed that individuals who were less likely to report acceptance

of the HPV vaccine had limited knowledge of HPV and the health risks associated with the disease (Crosby, DiClemente, Salazar, Nash & Younge, 2011). In addition, many sexually active adolescents have a limited understanding of the Human Papillomavirus as a common sexually transmitted infection, and as such, many adolescents report a low perceived personal risk of contracting HPV. The lack of knowledge in regards to sexual health often contributes to hesitance in adolescent acceptance of the HPV vaccine (Blumenthal, et al., 2012). Among students surveyed in Turkey, early diagnosis of cancer was deemed important but knowledge of cervical cancer prevention was limited (Zeliha, 2014). Individuals surveyed in an Australian study were largely unable to identify HPV as the cause of cervical cancer. Among those participants in the study that were aware of HPV as a cause of cervical cancer, women were more likely to be knowledgeable than men (Marshall, Ryan, Robertson & Baghurst, 2007).

Studies conducted by Merck, the manufacturer of Gardasil, demonstrated the vaccine has a 90% efficacy in preventing external genital lesions caused by HPV in men (Chitale, 2009), however, men that are less likely to report acceptance of the vaccine have little to no knowledge of this information (Crosby et al., 2011). Additionally, because incidences of penile and anal cancer are less common than incidences of cervical cancer, and because HPV related cancers often occur much later for men than for women (Chitale, 2009), young men are less likely to be informed of HPV and HPV related health risks.

Medical staff in a clinic study noted that mothers who had previously received an abnormal Pap test, or knew someone who had, were more likely to request the HPV vaccine for their daughters (Javanbakht et al., 2012). In another study of male acceptance of the HPV vaccine, fathers were specifically cited as less likely to be knowledgeable

about the vaccine, and thus would be less aware of their child's intent to be vaccinated (Gutierrez et al., 2013).

2.1.2 Perceived Risk

A major factor contributing to negative vaccine acceptability is low perceived risk of HPV infection (Brewer & Fazekas 2007). Low perceived risk of contracting HPV correlates with a low intent to vaccinate (Marshall, et al., 2007). Lack of education and knowledge about the prevalence of HPV and the health risks associated with HPV may contribute to the low perceived risk among both males and parents making the decision to vaccinate. Additionally, because HPV is regarded as a personal risk, it also lacks a source of authority in mandating vaccination, which might also contribute to the diminished perception of risk of contraction. Unlike vaccinations that are required for school, the HPV vaccine has no source of authority which encourages vaccination of children in the recommended age range (Javanbakht et al., 2012).

HPV vaccination among males also faces a barrier in distribution of responsibility. Because the vaccine has been available for females (and has primarily been promoted as a "girl's vaccine" for several years) some male populations do not feel the need to be vaccinated, as they are protected from contracting HPV by their vaccinated partner. In one study, partner vaccinations alleviated the responsibility males felt to be vaccinated. Participants indicated that if their partner were to be vaccinated, this would protect both parties (Gutierrez et al., 2013). This thought process has been demonstrated in studies of both heterosexual and MSM (men who have sex with men) male populations.

Current level of sexual activity correlates with perceived risk as well. Males that are not sexually active, or that do not perceive any risk of contracting HPV in their current sexual relationship show a low intent to vaccinate (Forster, et al., 2012).

Additionally, age has been shown to influence perceived risk. Age as a cultural factor impacts decisions to vaccinate among some male student populations; students at a Turkish university believed they were too young to receive the vaccine (Zeliha, 2014).

In a study of psychosocial motivational factors correlating to intent to be vaccinated in male populations, researchers found that individuals who were currently sexually active and who had multiple sexual partners were more likely to report a positive acceptance of the Gardasil vaccine and a higher intent to be vaccinated (Crosby et al., 2011). Additionally, men with a large number of lifetime female sexual partners are more likely than men currently in committed relationships to show vaccine acceptance (Ferris et al., 2009).

2.1.3 Vaccine Safety Concerns

Mistrust of vaccinations in general is a common reason cited among males who choose not to be vaccinated (Forster, et al., 2012). The possibility of adverse side effects is also frequently cited as a reason for low intent to vaccinate (Zeliha, 2014), and uncertainty about vaccine side effects in general is commonly identified as a main vaccination concern (Marshall et al., 2007).

Vaccine safety is a concern among healthcare professionals as well as parents (Marshall et al., 2007); however, most healthcare professionals have now accepted the HPV vaccine as safe. Personal beliefs in vaccination ethics and necessity also affect parental consent; among some parents there exists an assumption that children past a

certain age do not need vaccinations. This limits the ability of healthcare professionals to promote vaccine programs (Javanbakht et al., 2012).

Misconceptions also surround no-cost vaccine programs. Some parents believe that no and low cost vaccine programs are only available for young children and infants (Javanbakht et al., 2012). Additionally, HPV vaccination programs have seen limited support. Genital warts, the most commonly cited health risk associated with HPV for males, is non-fatal, and while it may have a high monetary and mental cost for infected individuals, it is not seen as a cost-effective reason for supporting male HPV vaccination programs (Schwartz, 2010).

While tenderness of the vaccination site, nausea, fever and dizziness are also noted as common side effects of receiving the HPV vaccine, few studies assessed 1) the child's feelings about receiving the vaccination, or 2) parental considerations of the child's feelings. In only one study, the child's feelings about receiving a 3 shot series was shown to influence acceptability and intents among parents (Rosenthal et al., 2008).

2.1.4 Moral Concerns

Unlike other diseases for which vaccination is required, contraction of HPV is dependent upon an individual's personal choices and behavior. For this reason, many parents hesitate to have their children vaccinated at the recommended age. Parents across numerous studies expressed concern that having their child vaccinated for HPV would encourage the child to engage in sexual activity at a younger age.

In early studies (conducted prior to the vaccine being approved for use in males), mothers showed enthusiasm for having their daughters vaccinated, but expressed hesitation over concerns that the vaccine would condone sexual behavior at an earlier age (Marlow et al., 2007). In one study, Australian mothers were more concerned than fathers

that HPV vaccination would condone promiscuous behavior (Marshall et al., 2007). A quote from New Scientist in 2005 summarizes moral concerns: “Giving the HPV vaccine to young women could be potentially harmful, because they may see it as a licence to engage in premarital sex” (MacKenzie, 2005).

Misunderstandings over the HPV vaccine being preventative, rather than curative, contribute to parental assumptions that having their children vaccinated will promote and condone sexual activity (Javanbakht et al., 2012). While health care providers have largely accepted HPV vaccination programs, parents hesitate at the young age recommendation for vaccination (Marlow et al., 2007). A 2012 study found that while concerns over the possible promotion of sexual activity were widespread, vaccination of girls in the recommended age range did not increase sexual activity (Bednarczyk, Davis, Ault, Orenstein, Omer, 2012).

In addition, some parents feel they are unprepared to discuss sex with their children at such a young age, and that having their children vaccinated will force them to have discussions prematurely (Javanbakht et al., 2012). In one Australian study, a mean age of approximately 13 years was identified as appropriate for discussions of HPV vaccination, and a mean age of 14 years was identified as appropriate for starting the vaccination treatment (Marshall et al., 2007).

2.1.5 Source of Vaccine Recommendation

The source of vaccine recommendation plays an important role in affecting male and parental attitudes and intents toward vaccination. Until 1997, when pharmaceutical companies began marketing product information directly to consumers, patients’ primary source of health information came from a healthcare provider (Grantham, Ahern & Connolly-Ahern, 2011). Success for HPV vaccination programs is dependent upon three

tiers of acceptance: health care providers', from whom recommendations are needed; parents, from whom permission is often required; and individuals' (Zimet, 2005). Clinic staff from a 2009 study noted friends and family as effective at reinforcing HPV beliefs, notably beliefs that the vaccine is not necessary because it is not a mandatory vaccine required by schools (Javanbakht et al., 2012).

Males obtain their knowledge of HPV and the HPV vaccination from a variety of messaging sources. These include: health education classes, television, and peers (Gerend & Barley, 2009), as well as newspapers, magazines, youth clinics and their parents (Nandwani, 2010). Among university students, TV, magazines, the Internet and books serve as primary sources of information about HPV (Zeliha, 2014). Males in one study indicated that parents or guardians play a key role in influencing their decision to be vaccinated (Gutierrez et al., 2013). Differences in where men obtain their sexual health information varies – a study of young Australian males found that participants' experience with STIs stemmed largely from their personal experience contracting an STI, and from “banter” among peers at school, while a study of males in the United States reported that participants were most likely to seek information about HPV on the Internet or from a healthcare provider (Nandwani, 2010).

2.2 Messaging Strategies

In terms of messaging strategies, it is suggested that gender-neutral promotions simplify the messaging effort required for a campaign (Schwartz, 2010). With the release of the HPV vaccine for females, parents in Australia and the UK were made aware of the availability of the HPV vaccine for girls by drug company advertising, but the same advertising has not been put into effect for the vaccination of males (Wilkinson, 2012). However, for health communication topics such as this, direct-to-consumer advertising

may not be as effective as other sources of messaging. Competing vaccine producers could provide mixed messages that take the focus of the larger picture of HPV prevention programs and vaccination importance (Schwartz, 2010), however, at this time only Gardasil is licensed for use in males, and mixed messaging is not a primary concern.

Several studies have tested the messaging schemes of self-protection and partner protection to determine which, if either, is more effective at motivating vaccine acceptability among males. In Gerend and Barley's study, which was conducted prior to approval for use of the HPV vaccine in males, interest in the vaccine did not differ by messaging scheme (2009). Predictability of intents to be vaccinated was similar to those found in later studies, however. Level of sexual activity, perceived susceptibility to HPV, perceived benefits of the vaccine, cost/difficulty of obtaining the vaccine, and perceived social norms surrounding vaccination were defined as factors influencing vaccine acceptability (Gerend & Barley, 2009).

It is important to distinguish between attitudes toward vaccination and intent to be vaccinated, particularly in discussions of messaging effectiveness. For instance, while the issue of protection against an incurable disease was a highly motivating factor for vaccination among both MSM and heterosexual males, intents to vaccinate were lower than attitudes toward vaccination for both groups (Gutierrez et al., 2013). Variables showing significant correlation to intent to be vaccinated include: concern over side effects and vaccine safety, existing emphasis on the importance of vaccination, familiarity with the HPV vaccine, and knowledge of the importance of the HPV vaccine (Ferris et al., 2009).

With the release of the HPV vaccine for women, most campaigns utilized risk message frames to promote vaccination. Initial educational campaigns about HPV created a demand for the vaccine by creating a perception of high-risk among target

populations. HPV vaccine manufacturers used messaging strategies that empowered women, put them in control of their health decisions, and reduced anxiety about HPV and its related side-effects (Grantham et al., 2011).

2.2.1 National Campaigns

Because the HPV vaccine has been licensed for, and used in, females for nearly ten years, a significant amount of literature exists that discusses the initial marketing campaigns of vaccination makers Merck and GlaxoSmithKline to both promote their respective products and raise awareness about HPV in general. The latter campaigns, used to heighten awareness, are argued by some to have unfairly equated HPV with cervical cancer, thus creating a demand for a product that would not have otherwise existed. With the initial release of the vaccine to women, the media played a significant role in amplifying the messages produced by the vaccine manufacturers. Researchers have argued that the evolution of HPV as a serious issue in the media – a message likely catalyzed by Merck’s initial awareness campaign – played a significant role in vaccine uptake among females.

Merck’s “Tell Someone” campaign was released prior to FDA approval of Gardasil in 2006. While the manufacturer maintained that the campaign was released as a public service message to simply raise awareness about a serious health issue; the resulting media coverage, and the consequent approval of Gardasil by the FDA, has led many scholars to doubt this claim.

The “Tell Someone” campaign debuted in spring, 2006. The \$107 million direct-to-consumer campaign included national commercials, a campaign specific website, and print (Landau, 2011). The commercials, which were unbranded, didn’t make any reference to cures or preventative strategies. Instead, they focused on several female

spokespersons from various ethnic backgrounds communicating their surprise at just learning that “cervical cancer is caused by certain types of a common virus. Cancer caused by a virus. HPV. Human Papillomavirus.” (funionsyeh1, 2010) The dialogue is scripted to emphasize HPV as a common virus. The call to action in the message is clear: tell someone, anyone, about HPV and its link to cancer. Men were not included in the “Tell Someone” campaign, which some have argued was misleading, stating that the campaign portrays a “limited course of health prevention under the guise of a public health campaign” (Landau, 2011).

In terms of raising awareness, “Tell Someone” was highly effective, increasing conversations about HPV in news outlets across the United States. Following the success of “Tell Someone” as an awareness campaign, and FDA approval of the HPV vaccine, Merck released a heavily branded one minute commercial focused on promoting Gardasil. The commercial, released in November 2006, reiterates concerns from the awareness campaign, stating that millions of women are diagnosed with cervical cancer each year. In contrast to “Tell Someone,” which featured women in an age range just outside of the recommended vaccine program (but within an age-range of mothers likely making vaccination decisions for their daughters), the “One Less” promotional campaign featured young female spokespersons likely in the catch-up age range (15-23). These young women were shown in a variety of settings and partaking in various activities, proclaiming that they could be “one less.” (modelinthecity, 2006)

The young women in the “One Less” campaign are depicted as strong and independent, and their characters “appeal to mothers’ protective instincts and to teen girls’ desire for rebellion” (Branson, 2012). The messaging strategy of “One Less” utilizes a risk framing strategy that depicts potential loss (by not getting vaccinated,

women will get cervical cancer) but also provides a solution by empowering women to be vaccinated (Grantham et al., 2011).

In addition to the “Tell Someone” and “One Less” campaigns, Merck supported public health campaigns such as “Make the Connection,” a public education campaign sponsored by the Cancer Research and Prevention Foundation (“Make the connection”, 2006) and “Spread the Word, Not the Disease,” a similar public education campaign in Canada (Polzer & Knabe, 2012).

Merck created a media sensation with “Tell Someone,” making HPV a top health topic and concern among national media. News coverage on the topic of HPV following Merck’s campaigns is argued to have promoted an unfair positioning of the disease which de-stigmatized the virus through globalizing statements, which referred to the various strains of the virus as one and equated all with cervical cancer; comparisons with dissimilar diseases; and statistics (Polzer & Knabe, 2012). Additionally, the emphasis on adult women in “Tell Someone” presented a skewed perception of who can contract HPV while also equating amplifying the connection between HPV and cervical cancer (Landau, 2011). “One Less” continued the conversation, and was timed to ensure an equal (or greater) amount of news coverage to maximize message penetration among parents of females under 18, and among females 18-23. The promotion and branding of Gardasil in 2006 earned Merck “Brand of the Year Winner in 2006” by Pharmaceutical Executive (Branson, 2012). Unlike this major debut of the HPV vaccine for women, Merck has not released a national campaign promoting the HPV vaccine for men, which leads to questions over whether the initial campaigns targeted at women alienated the male population, and what messaging strategies would be effective in marketing to men.

2.2.2 News and Media Coverage

Manufacturers of the HPV vaccine catalyzed the HPV conversation with nation campaigns, but news and media coverage of the topic served to disseminate and sensationalize the demand for vaccination among women in the early years of the vaccine's release (Kata, 2010). Leading story lines like "Deaths from cervical cancer could jump fourfold to a million a year by 2050" (MacKenzie, 2005), created a sense of dread among the public, but were quickly followed with hope from "soon-to-be-approved vaccines against the virus that causes most cases of cervical cancer" (MacKenzie, 2005).

The topic of HPV, catalyzed by manufacturers and disseminated by traditional media, also spread across non-traditional and online media outlets. Initial content analysis of online sources of HPV and HPV vaccine information were largely rated as neutral or mostly positive, perhaps because, at this time, the general public was simply gathering information (Habel, Liddon & Stryker, 2009). An analysis of opinions of the HPV vaccine from males and females on the social media site MySpace found that men were more likely to share negative opinions than women (Keelan, Pavri, Balakrishnan & Wilson, 2010). YouTube, which was founded shortly before the licensure of the HPV vaccine, also became a popular forum for vaccine discussion. A 2008 study found that, while there was a higher percentage of videos with positive portrayals of the HPV vaccine (74.7%), the negative videos (25.3%) were more likely to be viewed and given higher star ratings (Ache & Wallace, 2008). A later study found that the largest percentage of videos with HPV related content produced on YouTube were from news sources, closely followed by user-generated videos, while less than 10% of videos were produced by medical centers or hospitals (Briones, 2010).

2.3 Summary

Similar discussions and evaluations of message framing strategies for the licensure of the HPV vaccine for use in males are limited. Manufacturers of the vaccine did not produce similar messaging campaigns for the new introduction of the vaccine, which has created a deficit in awareness that the vaccine even exists for men at all. Additionally, the primary promotional efforts used to increase awareness and vaccine uptake among women have led to the HPV vaccine being branded as a “girl’s vaccine.”

This study was developed to understand what promotional tactics and message framing strategies would be most effective in encouraging males to seek vaccination. It is assumed that young males in the primary age of initial vaccination (11-13 years old) will require parental approval for vaccination, and strategies to promote vaccination to parents will be largely similar to those used previously in female vaccination programs. This study instead focuses on males in the catch-up age group (18-26), who are responsible for making personal health decisions on their own. Using factors of intent to vaccinate, which have significant literature devoted to their understanding, this study seeks to understand what messaging strategies would be most effective for persuading males to commit to vaccination.

3.0 Methodology

This study was designed to evaluate the effectiveness of vaccine promotion to males in the HPV vaccination program catch-up range (age 18-24). As mentioned previously, a multitude of literature exists which examines factors contributing to male perceptions and acceptance of the HPV vaccine, however, little research exists which actually tests the effectiveness of promotional strategies across various media.

Two primary research questions informed the design of this study:

RQ 1: What are males' knowledge of and attitudes toward the HPV vaccine?

RQ 2: What are the best messages and tactics for HPV vaccine promotion to males?

Within this study, successfully answering the first research question would validate and confirm past research, laying a foundation for analyzing the messages and tactics of the second question. Answering the second question would provide guidance for the development of larger-scale evaluations, and campaigns specifically tailored to promote male vaccination programs.

A survey questionnaire was developed for the purposes of this study, which can be found in Appendix A. Respondents accessed the survey online through a link distributed to students recruited from The University of Texas Department of Advertising student pool. The use of an online survey allowed for an expedient response time and ease of distribution, both of which were deciding factors when choosing the method of administration for data collection.

The questionnaire was divided into 4 parts: The first set of questions was designed to collect data to understand participants' general health knowledge and sources of authority. Likert scale questions were used to determine how much value participants

placed on the opinions of peers, family, and healthcare providers, as well as the level of comfort they feel discussing topics of sexual health with others.

The second set of questions was designed to collect data to understand participants' knowledge and perceptions of HPV and the HPV vaccine. Previous studies found that low acceptance of the vaccine was often based on limited knowledge of HPV and related health risks (Crosby et al., 2011). True or false questions about vaccine approval and preventive intentions were used to determine whether participants understood the extent of HPV's connection with various cancers and genital warts, as well as whether participants had been made aware of the availability of the vaccine for men.

The third set of questions focused more closely on motivators for vaccine acceptance and sources of authority specifically sought out for information on HPV and the HPV vaccine. First, participants were asked whether they had received the vaccine. Those that had were specifically asked what their primary motivations were for receiving the vaccine. Options ranged from perceived personal risks, which are more likely to contribute to high vaccine acceptability (Brewer & Fazekas 2007), such as prevention of HPV contraction, prevention of genital warts and cancer to external factors, such as quelling the spread of the disease to future sexual partners. Participants that had not received the vaccine were given three questions which presented them with facts about HPV or the HPV vaccine. The first fact noted the approval of the vaccine for men for the prevention of genital warts and penile and anal cancers. The second fact used statistics, citing 1 million American men have genital warts caused by HPV. The third question was less factual, but notes the possibility that vaccinating males against HPV may also reduce incidences of HPV in females. Respondents were asked to rank how likely they were to receive the HPV vaccine in the next year after reading each fact.

The fourth set of questions focused on the evaluation of two HPV vaccination promotions. Questions in this section used Likert scales to have participants rate how much attention they paid to each message, whether they concentrated on the messages, how much thought each message required to evaluate, and whether or not the messages were relevant to participants' needs. Respondents also rated the strength, persuasiveness, importance and believability of the messages.

Two media selections were chosen for the evaluation of messaging tactics for HPV vaccine promotion among males. The first selection is a 30 second advertisement created and distributed by the CDC entitled "Close the Door to Cancer!" This immunization public service announcement, found on the CDC's website (video link included in the questionnaire, found in Appendix A) is not specifically tailored to men, and may actually be better suited for parents of children (both male and female) ages 11-12. The video was chosen, however, because it uses HPV related facts about the general population of the United States, and facts specifically affecting men to emphasize the importance of the HPV vaccine. The video opens with dramatic music and text that tells the viewer "Every year in the U.S. 14,000,000 people become infected with HPV" and later displays text that HPV causes "9,000 HPV-related cancers in MEN." These "scare tactics" are similar to the sensational headlines used by media to sell the topic of HPV and related dangers when the vaccine was first licensed for use in females.

The second media selection is a promotional flier designed by The University of Maryland, and is highly targeted toward college-aged males. The flier, which can be viewed as part of the questionnaire in Appendix A, was selected in part because of availability (promotional materials specifically designed for men are limited), but also because the message specifically combats the possible perception among males that the HPV vaccine is a "girl's vaccine." For the purposes of this study, information

specifically related to The University of Maryland, including the University Health Center logo, tagline, and website, was redacted, so that participants would focus only on the message in the survey, not the source.

3.1 Sample

This study utilized a convenience sample, or non-probability sampling technique, due to restrictions of both time and resources. The study analyzed the results from 61 completed surveys collected over a one month period. While all participants fell within the 18-26 age range, the majority of respondents were between the ages of 19 and 21. The majority (66.7%) of respondents identified as white/Caucasian, with 1.8% of participants identifying as African American, 11.1% as Hispanic or Latino, 18.5% as Asian or Pacific Islander, and 1.8% as biracial or multiracial. 85.2% of respondents identified as heterosexual, with the remaining 14.8% identifying as gay.

3.2 Limitations

Due to the restrictions of time and resources for this study, a relatively small convenience sample was collected. A sample of 61 respondents should be adequate for the statistical analysis of this study. The collection of survey responses could not be randomized for this study, which may affect the results. Additionally, the survey was distributed to males aged 18-26 attending The University of Texas, which may skew results as the knowledge and perceptions of this highly educated portion of the population may not be representative of similarly aged males that have not attended college. Further, the sensitive nature of this particular topic incurred a high dropout rate from the online survey. Finally, the selection of media for this study was limited due to the limited

amount of promotional advertising for the HPV vaccine specifically designed to target males.

4.0 Results

The results of this study, presented below, are organized by the two primary research questions which guided this investigation.

4.1 RQ 1: What are males' knowledge of and attitudes toward the HPV vaccine?

The first half of this study discerned males' understanding of HPV, HPV related health risks, and the HPV vaccine. It also confirmed primary sources of authority on health related topics, as described in previous research studies.

While the convenience sample of 61 males is comparatively small, it was sufficient to validate the findings of previous research studies. The majority of respondents indicated that they receive the majority of their health-related information from the Internet (75.9%), healthcare providers (72.2%), parents (55.5%) and peers (42.6%). Mass media sources, such as television (16.6%) and magazines (5.5%) ranked comparatively low as sources of authority on health-related topics.

Respondents were asked to rank the value they place on the opinions of others as well as the level of comfort they feel when discussing topics of health with peers, family, healthcare professionals, and significant others. Comfort level and value of opinion were ranked on a 5-point scale, with 1 indicating strong disagreement and 5 indicating strong agreement. Participants indicated a high value of the opinions of healthcare providers ($M = 4.33$) and family members ($M = 4.13$), and a slightly higher than neutral value of the opinions of significant others ($M = 3.67$) and peers ($M = 3.54$). Participants also indicated a slightly higher than neutral level of comfort discussing topics of sexual health with healthcare providers ($M = 3.74$) and peers ($M = 3.70$), and a low level of comfort discussing such topics with parents ($M = 2.74$).

Table 2: Value of opinion and level of comfort when discussing topics of sexual health among sources of authority.

	Value of Opinion	Discussion Comfort Level
Healthcare Providers	4.33	3.74
Family/Parents	4.13	2.74
Peers	3.54	3.70

Almost all (92.6%) of respondents had heard of HPV. Respondents indicated healthcare providers, health classes, friends and the Internet as sources for first hearing about HPV. Knowledge of HPV varied, but was largely consistent with previous studies.

Participants were asked to identify basic facts about HPV, and health risks associated with the disease. Less than half of respondents were aware that there are numerous types of HPV (39%), though slightly more than half (64%) were aware that HPV is the most common sexually transmitted infection in the United States. Slightly less than half of respondents (57%) were aware that individuals with HPV do not often show symptoms, and that HPV can cause cancer. Two thirds of respondents (66%) connected HPV with cervical cancer; however, few were aware that anal cancer (25%) and penile cancer (28%) are also risks related to HPV. Slightly more than half of respondents were aware that HPV can cause genital warts (58%). Half of respondents believed women have a higher risk of contracting HPV than men.

Almost all respondents (85%) had heard of the HPV vaccine. The majority of respondents (75%) were aware that the HPV vaccine was available for both males and females; and had knowledge of FDA approval of the vaccine for use in men and women. Slightly less than half of respondents (42%) had received the vaccine. Respondents knowledge of the vaccine as a preventative for genital warts (60% aware), cervical cancer (64% aware) and anal/penile cancers (42% aware) was consistent with findings reported in previous studies.

Of the respondents that had received the vaccine, almost all (91%) indicated that protection from HPV was their primary motivating factor for electing to be vaccinated. Protection against genital warts (39%), reduction of the spread of the virus to others (34%), and preventing cancer (21%) were also motivating factors for males that had been vaccinated. One respondent added the insight “why would I not receive a vaccine?” as a motivation.

4.2 RQ 2: What are the best messages and tactics for HPV vaccine promotion to males?

Participants that had not been vaccinated were asked to respond to three messaging questions, ranking the likelihood of receiving the HPV vaccination in the next year after reading each message on a scale of 1 (not likely at all) to 10 (highly likely).

The first question appealed to the safety of the vaccine as a messaging strategy, using federal approval to promote the vaccine as safe for men. Respondents did not react significantly to this question ($M = 5.23$); only 35% of respondents were likely (indicating a ranking between 7 and 10) to receive the vaccine after receiving this information.

The second question used facts and fear appeal as a messaging strategy, indicating 1 million cases of American men suffering from genital warts as a result of contracting HPV. This tactic appeared to be the most positive in terms of responses in the 7-10 range (42%), though reactions overall were not significant ($M = 5.52$).

The third question appealed to the reduction of HPV-associated disease among the female population as a result of the vaccination of the male population. This question received the most positive reaction overall ($M = 5.62$), though only 34% of respondents ranked in the 7-10 range.

All respondents were then asked to view a 30-second, fact-based public service announcement created by the CDC, and rate the message based on the level of attention, concentration, evaluation and relevance they felt it demanded (scale of 1-7). The message scored highest in the level of attention respondents paid to it ($M = 4.84$), and lowest in relevance to respondents needs ($M = 4.13$). Concentration ($M = 4.25$) and evaluation ($M = 4.53$) fell in expected ranges. 48% of students agreed that the message was informative ($M = 3.64$), and effective at conveying the intended message ($M = 3.47$), however 69% of respondents agreed that students are likely to ignore this type of message ($M = 3.78$). Ratings of message strength ($M = 5.57$), persuasion ($M = 5.28$), importance ($M = 7.11$) and believability ($M = 6.87$) were ranked mostly above average. Participants that had not yet been vaccinated were asked to rate (on a scale of 1-10) how likely they were to receive the HPV vaccination within the next year after viewing this message. Average responses ($M = 4.53$) indicated a low likelihood of future vaccination.

Respondents then viewed the static print ad, and ranked it on the same scales as the public service announcement. Attention ($M = 4.58$) and evaluation ($M = 4.22$) were rated slightly lower than the CDC message, while concentration ($M = 4.44$) and relevance ($M = 4.18$) were rated slightly higher. Message strength ($M = 5.12$), persuasiveness ($M = 4.82$), importance ($M = 6.40$) and believability ($M = 6.00$) all ranked lower than the CDC message. Participants that had not been vaccinated indicated a low likelihood of future vaccination ($M = 4.33$).

Finally, respondents that had not yet been vaccinated prior to taking the survey were asked whether they were likely to receive the vaccine in the near future. Respondents that indicated they would not be seeking vaccination were asked to select from a predetermined list of reasons why they would still not seek vaccination. Cost of the vaccine, uncertainty about side effects or the specific effects of the vaccine on men,

and beliefs that the vaccine was not effective at preventing genital warts or cancer were common reasons for not seeking vaccination. Few respondents indicated the vaccination should be the responsibility of females. Additional comments given in response to this question further stated uncertainty about the vaccine, and safety in abstaining from sexual activity.

Table 3: Comparison of messaging strategies.

	:30s Video	Print Ad
Paid attention to message	4.84	4.58
Concentrated on message	4.25	4.44
Put thought into evaluating message	4.53	4.22
Relevant to your needs	4.13	4.18
Message Strength	5.57	5.12
Message Persuasiveness	5.28	4.82
Message Importance	7.11	6.40
Message Believability	6.87	6.00
I learned a lot from this message	3.64	2.82
Message is effective for students	3.47	3.07
This message changed my views	3.20	2.72
Students ignore messages like this	3.78	3.71

5.0 Discussion

Disseminating health-related information can be incredibly difficult in the modern day. Individuals have access to numerous sources of authority, each with varying levels of credibility, knowledge, and believability. Healthcare marketers and pharmaceutical industries promoting vaccines need to understand the importance their target audience places on each of these sources in order to successfully sell their product. In addition, they need to understand the level of existing knowledge the target population has in order to fill in gaps in information which would effectively convince individuals that the vaccine is worth seeking.

This study sought to examine existing knowledge and perceptions of HPV and the HPV vaccine among males, and use this information to make suggestions for effective messaging strategies that will encourage males to seek vaccination. Several interesting conclusions can be drawn from this study, the most notable of which is that fact-based messaging is the most effective strategy for increasing vaccine acceptance and uptake among males.

While the majority of respondents had heard of HPV and were aware of the HPV vaccine, knowledge of HPV-related diseases was limited. These results were consistent with previously conducted studies by Crosby et al., and Blumenthal et al., and as such were expected. Messaging strategies that filled in this “knowledge gap” showed higher rates of improving intents to vaccinate. The fear appeal ranking question, which used the statistic that one million men suffer from genital warts as a result of contracting HPV, was the most effective of the three ranking questions used to determine the best overall tactic for vaccine promotion. 41% of respondents had previously indicated a lack of knowledge between the connection of HPV and genital warts – this question effectively bridged this knowledge gap and appealed to the target audience. Additionally,

the CDC public service message, which is largely fact-based, outperformed the static vaccination poster in almost every question. It was ranked highest on message importance, strength, persuasion and believability. While the strength of these scores might be attributed to the message source, it is also reasonable to assume the success of the message stems from the content, based on reactions to the previous tactic question. Based on the responses to questions about the effectiveness of the messages and whether students are likely to ignore these messages, it can be reasonably assumed that males in the catch-up age range are more concerned with informative messages than messages that seek to break the stereotype of the HPV vaccine as a “girl’s” vaccine.

There are several continuing misconceptions and a lack of knowledge about health risks related to HPV that could be used in messaging strategies to further encourage males to seek vaccination. Respondents that had been vaccinated cited protection from HPV as their primary reason for seeking vaccination; few cited protection from cancers or genital warts as reasons for seeking vaccination. Messaging strategies that further connect HPV with genital warts and penile and anal cancers may be particularly effective. Perpetuating the connection of the vaccine with cancers will also be consistent with messaging from previous campaigns for females.

Finally, in basic discussions of sources of authority among the surveyed group, it is interesting to note the differences between value of opinion and level of comfort expressed in each source. Among respondents, the opinions of healthcare providers were the most highly valued; healthcare providers were also ranked the source that respondents felt most comfortable engaging in conversations about sexual health. Parents and family members, while ranked second in terms of value of opinion, were ranked lowest in terms of conversation comfort level. Healthcare promotions often rely on spokespersons; understanding the existing relationships audiences have with particular sources of

authority will help to improve message receptivity and resonance. Future studies may further investigate the effectiveness of healthcare providers and parental figures as spokespersons in advertising to determine whether these are effective sources of authority in one-way messaging (such as commercials).

Advertising for healthcare and health-related products has many opportunities for enhancing effectiveness. Further understanding sources of information and authority, as well as current knowledge of a population, can be used to increase both dispersion of messages to the target market, and resonance of the message. In the case of HPV vaccination programs, the majority of respondents indicated the Internet was a primary source of information for learning more about HPV and the HPV vaccination, however sources of Internet marketing are limited. Numerous sources of opinions on the subject of HPV can be found on the Internet, as evidenced in Ache & Wallace's 2008 study, and Briones' 2010 study, though future research may investigate where across the Internet males seek information, what the credibility of these sources is, and how they can be used to further the promotion of HPV vaccination programs.

6.0 Conclusion

Selecting the correct communication strategies and sources of authority for distributing messages is critical for all marketing communications, but can be more difficult for healthcare marketing because of the prevalence of opinions and sources of information available. Promotion of vaccine programs to young adults often occurs through recommendations from healthcare providers or through academic classes and institutional programs. The HPV vaccine lacks support through institutional programs because of the nature of STIs as a personal health risk, which makes alternate messaging strategies particularly critical.

Lack of information about HPV and HPV related risks is a primary contributing factor to the low vaccine uptake among males in the vaccination catch-up age range. Currently, males' primary motivation for seeking vaccination is to protect themselves from HPV; few males are aware of the connection between HPV and various cancers or genital warts. Messaging strategies that promote this connection through statistics and fear tactics may encourage an increase in vaccine acceptance.

This study used a non-probability sampling technique to collect responses, which resulted in a respondent pool of highly educated individuals. The results of this study may vary if a random sampling technique were used, which is a notable limitation that can be addressed through further research. Future studies may find that a less educated population has a similar lack knowledge of HPV and related health risks, but is more affected by messaging strategies that emphasize cancer as a primary risk of HPV.

Finally, further research may identify messaging strategies that not only provide key information about HPV and related health risks, but also keep the attention of the target audience. Male respondents in this study indicated lack of interest in both

messaging strategies presented, and ranked them as highly likely to be ignored by other males in the catch-up age range.

Appendices

APPENDIX A – SURVEY

Demographics

Please provide the following information about yourself:

“What is your age?”

Are you

- ☐ Male
- ☐ Female

How do you usually describe yourself?

- ☐ White/Caucasian
- ☐ Black or African American
- ☐ Hispanic or Latino
- ☐ Asian or Pacific Islander
- ☐ American Indian or Alaskan
- ☐ Biracial or Multiracial
- ☐ Other

Do you identify as:

- ☐ Heterosexual (straight)
- ☐ Gay or Lesbian
- ☐ Bisexual
- ☐ Prefer not to answer

General Health Knowledge / Sources of Authority

From which of the following sources to you get the majority of your health-related information? (select all that apply)

- ☐ Healthcare professionals (family physician, doctor, nurse)
- ☐ Internet
- ☐ Television
- ☐ Magazines
- ☐ Peers
- ☐ Parents
- ☐ Other family members _____
- ☐ Other _____

For the following questions, please select the response that best describes how you feel.

1. The opinions of my peers influence my personal health choices.

Strongly disagree :_____:_____:_____:_____:_____:_____:_____: strongly agree

2. The opinions of my parents/family influence my personal health choices.
Strongly disagree :____:____:____:____:____:____:____: strongly agree
3. The opinions of healthcare professionals influence my personal health choices.
Strongly disagree :____:____:____:____:____:____:____: strongly agree
4. The opinions of my significant other influence my personal health choices.
Strongly disagree :____:____:____:____:____:____:____: strongly agree
5. I am comfortable discussing topics of sexual health with my medical care provider (family physician, doctor, nurse).
Strongly disagree :____:____:____:____:____:____:____: strongly agree
6. I am comfortable discussing topics of sexual health with my peers.
Strongly disagree :____:____:____:____:____:____:____: strongly agree
7. I am comfortable discussing topics of sexual health with my parents.
Strongly disagree :____:____:____:____:____:____:____: strongly agree

Knowledge of HPV / HPV Vaccine

8. Have you heard of HPV? (HPV stands for Human Papillomavirus)
Yes / No
9. If yes, where did you hear about HPV?
 - ☐ Private medical care provider (family physician, doctor, nurse)
 - ☐ Health Class
 - ☐ Campus medical care provider
 - ☐ Parent
 - ☐ Friends
 - ☐ Internet
 - ☐ Magazine
 - ☐ Newspaper
 - ☐ Other
10. Which of the following are *true* of the Human Papillomavirus (HPV)
 - ☐ There are many types of HPV
 - ☐ HPV is the most common sexually transmitted infection (STI) among sexually active people in the United States
 - ☐ Condoms provide full protection against HPV
 - ☐ Individuals with HPV do not often show symptoms
 - ☐ HPV can cause cancer
 - ☐ Women have a higher risk of contracting HPV

11. Which of the following are risks related to HPV?

- ☐ HPV can cause cervical cancer
- ☐ HPV can cause anal cancer in men
- ☐ HPV can cause penile cancer
- ☐ HPV can cause genital warts
- ☐ None of these are risks related to HPV

12. Have you heard of the HPV Vaccine?

Yes / No

13. If yes, where did you first hear about the HPV Vaccine?

- ☐ Private medical care provider (family physician, doctor, nurse)
- ☐ Health Class
- ☐ Campus medical care provider
- ☐ Parent
- ☐ Peers
- ☐ Internet
- ☐ Magazine
- ☐ Newspaper
- ☐ Other

14. Who is the HPV Vaccine for?

- ☐ Males
- ☐ Females
- ☐ Both males and females

Please mark the following statements *true* or *false* based on your existing knowledge of the Human Papillomavirus (HPV) and the HPV Vaccine.

15. The HPV vaccine has been approved by the FDA (United States Food & Drug Administration).

16. The HPV vaccine is approved for women.

17. The HPV vaccine has been approved for men.

18. The HPV vaccine prevents against genital warts.

19. The HPV vaccine prevents against cervical and vaginal cancers.

20. The HPV vaccine prevents against anal and penile cancers.

Promotional Messages / Sources of Authority / External Motivators

21. Have you received the HPV vaccine?

Yes / No

If yes:

What were your primary motivations for receiving the vaccination? (please check all that apply)

- ☐ Protect myself from contracting HPV
- ☐ Protect myself from genital warts
- ☐ Protect myself from cancer
- ☐ Prevent the spread of the virus to future sexual partners
- ☐ Other _____

If no:

The Human Papillomavirus (HPV) vaccine is approved for use in females, and has recently (in the last 5 years) been approved for use in males to prevent genital warts and penile and anal cancers. Knowing this, how likely are you to receive the HPV vaccination in the next year?

1 (not likely at all) – 10 (highly likely)

Approximately 1 million American men have genital warts caused by HPV. An estimated 2 out of every 1,000 men in the United States are newly diagnosed with genital warts annually. Knowing this, how likely are you to receive the HPV vaccination in the next year?

1 (not likely at all) – 10 (highly likely)

Vaccinating men against HPV may also effectively reduce HPV-associated disease in females. Knowing this, how likely are you to receive the HPV vaccination in the next year?

1 (not likely at all) – 10 (highly likely)

PARTICIPANTS VIEW :30s CDC ADVERTISEMENT “CLOSE THE DOOR TO CANCER!” (VIDEO LINKED FROM CDC WEBSITE; LINK INCLUDED IN APPENDIX) AND ANSWER THE FOLLOWING QUESTIONS ABOUT THEIR RESPONSE TO THE MESSAGE.

<http://www.cdc.gov/vaccines/cdcmediaresources/index.html?tab=2#TabbedPanels1>
Message Sensitivity Measure

Please rate the message you just saw on the following scale. For example, on the first pair of adjectives if you thought the advertisement enticed you to pay attention, give a “1.” If you thought the advertisement did not entice you to pay attention, give it a “7.” If you thought it was somewhere in between, give it a 2, 3, 4, 5, or 6.

1. Paid attention to message: __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : Did not pay attention to message

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