

Access to Catch-Up HPV Vaccination among Latina University Students

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HPV is the most prevalent sexually transmitted infection (STI) in the United States. The HPV vaccine protects against four HPV strains that cause 90 percent of anogenital warts and 70 percent of cervical cancers. The study's primary objective was to examine access to and knowledge of the HPV vaccine among Latina university students in Denver, Colorado. Between August 2007 and May 2008, 15 Latina university students and four key informants were interviewed. Critical medical anthropology frames the results of this qualitative exploratory study. Barriers at the macro-social, intermediate-social, micro-social, and individual levels hamper access to the HPV vaccine. Factors that affected access include: financial cost, the United States employer-based health insurance model, policies of health care facilities and educational institutions, relationships between participants and their health care providers, and individual knowledge and beliefs. Recommendations to increase access to the HPV vaccine are drawn from these factors.

Key words: immunization, *Human papillomavirus*, Latinas, university students, critical anthropology

Introduction

*H*uman papillomavirus (HPV) is the most prevalent sexually transmitted infection (STI) in the United States (Dunne et al. 2007). The quadrivalent HPV vaccine protects against four viral types that cause 90 percent of anogenital warts (Garland et al. 2007), 70 percent of cervical cancers (FUTURE II Study Group 2007), and are associated with a multitude of other cancers (Baden et al. 2007; D'Souza et al. 2007; Giuliano 2008; Markowitz et al. 2007). The more recent bivalent HPV vaccine protects against the two viral types that cause 70 percent of cervical cancers. Though the HPV vaccine is approved and recommended for girls as young as age nine, catch-up vaccination is recommended for women 13 to 26 years of age (CDC 2009). Because the FDA only approved the HPV vaccine in 2006,

the vast majority of women in the 13 to 26 year old age range were not immunized in early adolescence.

Widespread HPV immunization has proven difficult to implement in women over 18. Barriers to receiving the vaccine in women 19 to 26 include high out-of-pocket costs, lack of insurance, missed opportunities for vaccination within clinics, and low knowledge of HPV (Baer, Allen, and Braun 2000; Coleman and Testa 2008; Conroy et al. 2009; Dell et al. 2000; Henry J. Kaiser Family Foundation 2007; Philips et al. 2003; Vail-Smith and White 1992; Yacobi et al. 1999). As ethnic disparities in cervical cancer rates and mortality persist (see Barnholtz-Sloan et al. 2009; Finch, Vu, and Karp 2005; McMullin et al. 2005; United States Cancer Statistics Working Group 2007), it is clear that Latinas face additional barriers compared to non-Hispanic whites when seeking reproductive health care (see Lobell 1998; Lucero et al. 1996; Shah et al. 2006). These barriers include limited access to reproductive and preventive health care or clinics that provide reproductive health care, high numbers of uninsured persons, low knowledge of cervical cancer, and culturally-based embarrassment of revealing oneself to a health care provider (Breitkopf, Pearson, and Breitkopf 2005; Chavez et al. 1995; Cohen and Martinez 2007; de la Torre and Estrada 2001; Lindau et al. 2002; McMullin et al. 2005; Pruitt et al. 2005; Scarinci et al. 2003).

Most of these studies focus on individual level barriers, ignoring broader social, cultural, and structural factors that constrain access to essential health care resources. Critical medical anthropology (CMA) provides a framework for examining the interactions between individual knowledge

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and behavior and social, cultural, and structural barriers. Baer, Singer, and Susser (2003) propose four analytic distinctions: the macro-social, intermediate-social, micro-social, and individual levels. The macro-social level focuses on large-scale forces, including economics, politics, and the media. The intermediate-social level considers the policies formed and implemented within institutions. The micro-level examines interactions among individuals. The individual level of analysis includes an individual's support networks, knowledge, and beliefs.

Although a number of studies assess young women's attitudes towards the vaccine (see Sandfort and Pleasant 2009; Wong and I-Ching 2010), little research to date explores young women's access to the vaccine, especially with respect to Latinas. Accordingly, the primary aim in this study was to understand factors affecting Latina university students' access to the HPV vaccine. This discussion is framed in a broader exploration of access to reproductive health care because similar barriers affect access to the HPV vaccine. In this paper, we seek to explain these phenomena through the lens of CMA.

Research Design

Between August 2007 and May 2008, students between 19 and 26 years of age who self-identified as Latina were recruited to participate in interviews on the Auraria Campus in Denver, Colorado. The campus serves three distinct schools of higher education: University of Colorado Denver (UCD), Metropolitan State College of Denver (MSCD), and Community College of Denver (CCD). The campus hosts a diverse student population (UCD 2008), reflecting the diversity of Denver, 32 percent of whose population identifies as Hispanic or Latino. Of these, 69 percent are of Mexican origin (CSDO 2008). In this discussion, Latinas will refer to women with Mexican, Latin American, or Spanish heritage. The human subjects review board at the University of Colorado, Denver approved this study, and written informed consent was obtained from each interviewee.

Fifteen Latinas ages 19 to 26 who attend or attended classes on the Auraria campus were interviewed in English (students at Auraria campus are required to be proficient in English). Females below the age of 19 were not included because they have improved access to the HPV vaccine through various federal vaccination programs for which those older than 19 do not qualify. Women over the age of 26 were not included because the vaccine has not been FDA approved for them. To recruit student participants, flyers were distributed around campus, business cards were passed out to students, and participants were recruited in over 20 classes. Informants were given business cards so they could offer information about the study to others who they thought might be interested in participating.

Four clinicians were interviewed as key informants to help contextualize the findings from the primary interviewees. Three key informants were initially recruited prior to student

interviews from the student health center on campus, Denver Health,¹ and a local women's clinic that specializes in serving Latinas. These facilities were chosen because the clinicians frequently provide Latinas with reproductive health or family planning services, yielding general insights into Latinas' access to reproductive health care and the HPV vaccine. After all student interviews were completed, a clinician from Planned Parenthood was sought out as a key informant since many student informants named Planned Parenthood as a valued source of reproductive health care during interviews. Key informants were recruited by calling or visiting their place of employment.

This research employed inductive and exploratory methods with semistructured open-ended interviews, resulting in detailed and in-depth explorations of often-sensitive topics. An interview guide provided focus to the conversation, thus permitting some degree of comparability across interviews. The guide sought to capture perceptions, experiences, and those factors that restrict or facilitate access to health care. After knowledge of HPV and the HPV vaccine were assessed, the interviewer provided and reviewed the HPV Vaccine Information Statement (CDC 2007) and information about the financial cost of the vaccine at local clinics so that informants could more accurately assess their access to the HPV vaccine and whether or not they were interested in being vaccinated. Demographic characteristics of participants were elicited to provide context to informants' perspectives. The key informant interview guide focused the conversation on their experiences serving Latinas and adolescents, working in reproductive health care, and administering the HPV vaccine.

Since little information has been published regarding this topic, the interview guides were centered on assessing Latinas' access to the HPV vaccine but were developed without specific hypotheses in order to ground the results in the data (Patton 2002). However, the presence of multiple factors at the individual and broader cultural, economic, and political levels that affected access to the HPV vaccine were acknowledged as the study and data collection tools were developed. Therefore, students and key informants were asked about a multitude of issues that might affect access, including financial cost, availability of health insurance, the clinician-patient relationship, cultural values, and knowledge. The first author conducted all interviews. Interviews lasted from 40 minutes to an hour and one-half.

The data consisted of transcribed interviews and fieldnotes. Two of the key informants agreed to be interviewed but not recorded; therefore, extensive fieldnotes were used to record these interviews. All data were input into ATLAS-ti software (Muhur 2000). Variables and concepts from published research relevant to this study and emergent codes from these data were used to develop the initial coding framework. After all documents were coded, memos helped in the organization of themes that occurred throughout the interviews. Preliminary findings were presented for critique and clarification to participants and all comments were included in the final analysis of data.

Table 1. Latina Demographic Characteristics

Characteristic	N	%
Participants' Birthplace		
United States	13	86.7
Mexico	2	13.3
Parents' Birthplace		
United States	8	53.3
Mexico	6	40.0
Peru	1	6.7
Ethnicity ¹		
Hispanic	4	26.7
Latina	4	26.7
Mexican	4	26.7
Mexican-American	3	20.0
Cultural Identification ¹		
Mexican-American	8	53.3
Hispanic	3	20.0
American	1	6.7
Latina	1	6.7
Mexican	1	6.7
Peruvian-American	1	6.7
Language Ability		
English only	1	6.7
English with some Spanish	4	26.7
English and Spanish	10	66.7
Religion		
Roman Catholic	12	80.0
Evangelist Christian	2	13.3
Atheist	1	6.7

¹Ethnicity and cultural identification are self-reported. Participants were asked an open-ended question about their ethnicity and with which culture they identified with most.

Characteristics of Latina Participants

Freshmen through seniors, graduate students, and campus alumni were included in the sample. The age of participants ranged from 19 to 26, with a mean of 21.5 years. As seen in Table 1, the majority of participants were born in the United States, fluent in both English and Spanish, and identified as Roman Catholic. Students were asked their ethnicity and the culture they identified with most. Of the 15 participants, eight identified with their Mexican-American culture the most. All students were employed; the six participants who worked full-time year-round earned a mean annual income of \$29,333, below the mean annual income of \$49,365 for females working full-time in Denver County from 2006 to 2008 (USCB 2008).

Twelve of the participants knew of the HPV vaccine before the interview; however, nine participants had only heard of the vaccine and were unsure who should be vaccinated and what the vaccine protected against. Four participants had either completed or begun the HPV immunization series at the time of the interview. Three of these four participants were knowledgeable about the vaccine. Only one participant

was able to identify the possible symptoms and long-term consequences of HPV.

Results

The women in this study identified out-of-pocket cost as the primary factor that decreased their access to the HPV vaccine at the macro-social level. At the intermediate level, the employer-based model for health insurance in the United States, where health insurance is primarily provided through the employer and policies of health care facilities and education systems influenced access. Relationships between patients and health care providers affected access at the micro-social level. Lack of HPV knowledge and individual beliefs were embedded within the individual level of the CMA model.

Macro-Social Level

The primary determinant reported to facilitate or restrict access at the macro-social level was financial cost. All key informants named poverty as a major barrier to health care, and one key informant explained that limited resources force people to prioritize health needs, so prevention is often abandoned first. Student informants did not specifically indicate poverty as a barrier to health care, but the majority described how financial cost might impede access to health services. Women delayed getting birth control, Pap smears, and the HPV vaccine due to high out-of-pocket cost. A Mexican-American explains her experience with not having financial access to preventive health care:

I quit getting my Pap smears because I couldn't afford them, and it was hard for me to get my birth control because sometimes I couldn't afford it either. I'm on the NuvaRing, so I would get it late, you know I would always be a week late; I would have to wait for a paycheck to get it. It was a bummer, so now that I have access to health care, I mean I already got my Pap smear and a new prescription for my NuvaRing.

The HPV vaccine is particularly expensive. Each shot of the three-dose HPV series costs between \$120 and \$150 if not covered by insurance; however, the price of each shot ranged from no out-of-pocket cost to \$15 for the four insured women who had received all or part of the vaccine. The insured women said that their low out-of-pocket cost made the vaccine easily accessible for them. Women who had not been vaccinated who were interested in getting the HPV vaccine said they would have to determine how much the vaccine would cost them before they got vaccinated. The most participants said they could comfortably pay for one shot of the three-dose series was \$50. If the out-of-pocket cost exceeded the amount they could pay on their own, most participants said they could only afford the vaccine if their parents or boyfriends covered some of the cost. Several participants delayed getting the HPV vaccine when they were uninsured or when their insurance did not cover any of the immunization cost. When asked what she

knew about the HPV vaccine, one uninsured woman stated, “I know that it’s very expensive, and that’s why I haven’t gotten it yet.” She planned to get the vaccine once she was re-enrolled on her insurance plan.

The high cost of the HPV vaccine disproportionately affects poor women because they are less often insured and less likely to be able to afford high out-of-pocket costs. Several participants felt like they were financially marginalized in Colorado due to their Latino ethnicity. One woman felt ostracized by her environment because she was part of an ethnic minority and also low-income. “It makes me feel like, they really just put you down like you’re not worthy of like being here or something.”

The private system of research and development within a market-based economy in the United States increases costs of such services as the HPV vaccine. The bulk of vaccine research and development is in the hands of private pharmaceutical companies instead of being primarily supported by the public sector. Further, the regulation of vaccines through the FDA requires extensive evaluation and clinical trials costing pharmaceutical companies hundreds of millions of dollars. These high initial research and development costs lead to high expectations of return on investment. As one key informant indicated the infrastructure needed for the research, development, evaluation, and manufacture of the HPV vaccine required extensive funding by the pharmaceutical companies, and the high initial cost of vaccine development was passed along to the consumer. Unlike prescription drugs that are often taken daily, vaccines are generally administered only a few times in a person’s life. Therefore, pharmaceutical companies recoup research and development costs for the HPV vaccine over a three-shot series rather than years of daily use.

Intermediate-Social Level

The employer-based model of health insurance in the United States affected insurance rates among university students at the intermediate-social level. As their circumstances changed and they grew older, students were no longer eligible to be on their parents’ insurance. One informant had been covered by her father’s insurance, but was “kicked off” of the plan when she graduated from college. Students were often unable to obtain employer-based insurance because they did not work full-time and often worked at jobs without employer-provided health insurance. One woman was without insurance because she had several part-time jobs and none of the employers offered coverage to part-time employees. Being uninsured or underinsured increased out-of-pocket cost and, therefore, limited access to the HPV vaccine. Further, the multi-payer model of health care funding makes the process of determining insurance coverage for specific services difficult and resource intensive for health care institutions, making them less likely to provide the HPV vaccine. Significant alterations to the employer-based model of health insurance in the United States have proved difficult to make

due to political resistance in society from politicians, health insurance companies, and a pharmaceutical industry which derives substantial benefits from the current system.

Policies at health care institutions can impact access to care by creating barriers or facilitating access. The high cost of buying, storing, and administering the HPV vaccine has decreased the ability of some providers to offer the vaccine to clients. As many health care institutions are privately owned and must recoup cost from public health plans, private insurance companies, or individuals, they may be unwilling to provide services that cause a financial loss or even fail to generate profits. According to a key informant, a decision based primarily on budgetary considerations and the difficulty of determining insurance coverage was made at Denver Health to not provide the HPV vaccine in the STI clinic or in primary care clinics because of its high cost and the high rate of uninsured served at the facility who could not afford the out-of-pocket cost of the vaccine.

Alternatively, institutional policies can facilitate access to medical services as well. The local Planned Parenthood office participated in a plan provided by the vaccine manufacturer Merck that provides the HPV vaccine at a lower cost to low-income clients. All clinics had policies that women had to renew their birth control prescription annually in-person, thus, giving providers opportunities to recommend other important preventive services, such as the HPV vaccine. Policies at three of the four clinics where key informants were interviewed encouraged providers to recommend the HPV vaccine to all women who came in for an annual exam.

Health care policies within educational institutions also affect access. Full-time students attending MSCD were required to have health insurance; if they did not have private insurance, they had to pay for student health insurance. This policy ensured that all full-time students had access to services provided at the student health center, but the policy did not apply to part-time students and the insurance did not cover the HPV vaccine. The vaccine was not covered for the first year after it was FDA-approved because the schools on Auraria campus purchase student health insurance annually, and coverage can only be changed when the contract is renewed. A student health center nurse practitioner said she advocated for the HPV vaccine to be covered by student insurance after the first year, but was told by campus administrators that the vaccine would not be covered by student insurance in the foreseeable future. She hypothesized that the high cost of the vaccine prevented coverage. Since the center only accepted school insurance plans and the policies did not cover the vaccine, if a student wanted to receive the HPV vaccine at less than full-cost, they had to seek care elsewhere. Although the informant did not mention this aspect of insurance coverage, it is important to note that the HPV vaccine protects against a cancer that is generally not diagnosed in the age range of women primarily covered by student insurance. Providing the expensive HPV vaccine may not be cost-effective as student insurance is unlikely to have to pay for the consequences of HPV infection.

Micro-Social Level

The relationship between patient and health care provider affected access at the micro-social level. Building a relationship with a clinician was important to most women in the study, but many reported that finding a trustworthy provider was difficult. Women delayed getting reproductive health care when they were uncomfortable with their provider. The most common characteristics women looked for in providers were someone who they felt was trustworthy, cordial, and made them feel comfortable. The majority of women also preferred female clinicians. Several said they would refuse to see a male clinician and had delayed getting reproductive health care because they could not find a female clinician covered by their insurance. Most women said they preferred females because they faced less embarrassment and it made the experience more comfortable; "I think it would be a little awkward to go to a male, just because there's certain questions that you would have that he couldn't answer, I mean he could answer from a medical perspective, but not from actually like having it perspective." Still, several women expressed concern about going to their usual provider with a sexually transmitted infection because they would be embarrassed. Women viewed Planned Parenthood as a great alternative for receiving reproductive health services if they were uninsured or did not have a regular provider. "I love Planned Parenthood, they're just so welcoming...and they don't judge you...I just feel at ease when I'm there. I really feel like they're reliable."

Clinicians' recommendations influenced whether women received adequate reproductive health care. Two participants had not received the HPV vaccine because their clinicians recommended that they not be immunized. "I talked to my doctor, and he honestly told me it was basically that...if people have not been getting the shots and not been getting cancer for a long time and it doesn't run in my family, I don't have a high probability of having it." Conversely, women were often educated about reproductive health by their providers, began annual cervical cancer screenings, and wanted to get the HPV vaccine because of a provider's recommendation. All four of the women who had received the vaccine did so because their clinician recommended it. Most women were happy that they were educated by their providers and were pleased with the information they received. One woman found the information she received from her health care provider to be helpful, but wished she did not have to ask for the information she received. "I wouldn't really say that they give you the information without you asking for it."

Several factors may affect the clinician-patient relationship and disincline providers from recommending services to patients. The high cost of the HPV vaccine may prevent providers from recommending it if they do not think their clients can afford the high out-of-pocket cost or if their clinic does not offer it due to the high cost. One key informant said that she is less likely to recommend the HPV vaccine to a woman who is at a lesser risk of contracting HPV due to age or reported sexual activity and who would be financially

burdened by the cost of the vaccine. Another key informant said that providers in one of her clinics readily answer questions regarding the vaccine but are less likely to recommend the vaccine to patients who do not ask questions because the clinic is unable to provide it. Although perhaps unintended, these actions represent the paternalism that may appear in the hierarchical relationship between patients and their providers. Clinicians may be less likely to inform patients of recommendations for health services if they do not deem the services necessary or too expensive, rather than informing the patient of the recommendations and allowing the patient to make health care decisions.

Both patients and providers in this study valued having a trusting relationship, and patients often responded to provider recommendations. However, in a market-based health system, clinicians are expected to provide services to an overwhelming number of patients each day and may not have time to build a relationship or recommend services to each patient. One key informant valued the clinic she was employed in, but was frustrated that she did not have time to build relationships with patients because she was only given a few minutes with each patient. Another noted that she and other providers at her clinic did not have time to recommend preventive services to every client, but instead focused on recommending the HPV vaccine for women who were receiving Pap smears.

Lastly, the employer-based model of health insurance may disrupt the clinician-patient relationship because it does not provide for continuity of medical care. A quarter of participants were frustrated that they had to change providers because they or their parents changed jobs and therefore insurance plans. Every time they changed insurance, participants had to find a new provider they could trust.

Individual Level

The major factor that limited access to the HPV vaccine at the individual level was a lack of knowledge regarding HPV and the vaccine. Participants had limited knowledge of HPV and generally did not regard HPV as a common or serious STI. One woman thought that HPV was hereditary and non-communicable. There was confusion between HPV and herpes, and many women were unsure of the relationship between HPV and cervical cancer. Half of student participants did not know anything about cervical cancer. Most women knew that cervical cancer had serious consequences, including death, because they reasoned that all cancer had serious consequences. There was a generally favorable view of the HPV vaccine primarily due to the Merck Gardasil direct-to-consumer advertisements. Still, there were many misperceptions about the HPV vaccine. One interviewee confused the hepatitis C and HPV vaccines. Two participants had heard of the vaccine, but were not interested in becoming vaccinated because they did not think they were at risk of getting HPV. Three women had heard nothing about the HPV vaccine.

This general lack of knowledge reflects broader sociopolitical forces. Key informants and Latinas named the United States public media as a major source of information and misinformation about the HPV vaccine. The discourse around the HPV vaccine ranges between a negative labeling as the “promiscuity vaccine” to a more positive image of it as the first to protect women against cancer, without offering in-depth knowledge about HPV or immunization recommendations. In particular, Merck’s Gardasil direct-to-consumer advertisements created a positive perception of the vaccine among students. However, these advertisements do not offer in-depth information, as Merck’s goal within the market-based private health system in the United States is to sell its products to consumers rather than educate the public regarding a health concern. Most participants had heard of the HPV vaccine via the media but knew little else, as illustrated by this quote. “It’s just human papillomavirus virus, and there’s a shot, basically what’s in the commercial and that’s about it.”

Key informants and several students noted that differences between the United States and Mexican medical systems exacerbate the lack of knowledge about preventive health services offered in the United States. Every Mexican immigrant and Mexican-American’s parents who were immigrants in this study were from poorer communities in rural Mexico. Key informants, Mexican immigrants, and second-generation Mexican-Americans noted that they or persons they knew from Mexico were unaware of preventive reproductive health services because the services were not generally available in rural Mexico. Two women who were sisters said that they never learned about reproductive health from their mother, who had not heard about Pap smears until the previous year because the procedure had never been recommended to her in Mexico. Without access to preventive services, knowledge of immunization guidelines and clinician recommendations for vaccinations remains low.

Religious and cultural values shape the discourse of women’s reproductive health and limit access to health services because these values restrict access to knowledge within schools and families. According to key informants, comprehensive sexual education has been limited due to abstinence-only education policies and removal of sexual education altogether in both individual secondary public schools and throughout school districts in Colorado.² For the few participants who received comprehensive sexual education in middle or high school, all remembered the basics of reproductive health care and knew a few facts about HPV. Participants who did not have sexual education in school demonstrated no knowledge of HPV, and the two women who had no interest in being vaccinated had no sexual education in school.

Participants proposed that two cultural values regarding the negative stigma of STIs and of premarital sex inhibit open communication of reproductive health knowledge within families. A recent immigrant from Mexico demonstrated the strong negative stigma of acquiring a STI saying, “Once you, if you have it, you’re categorized and you’re kind of shunned from the community, the community and everybody else.”

The vast majority of participants had been taught by their parents and other family members that premarital sex was wrong and a sin within Catholicism. However, the majority of participants were sexually active. As reported by participants, cultural values do not always match with behaviors, which was problematic for the women in this study, as they felt uncomfortable discussing their behaviors with family members. Over half of participants felt they could not discuss reproductive health care with their family because sexual activity before marriage defied social norms. One Latina said she delayed seeking reproductive health care because she was hiding her sexual activity from her family. The typical conversation about sex that many women had with their parents was a monologue of their mother telling them to “wait until you’re married.” Women who did not learn about reproductive issues from their mothers tended to be older at their first appointment for reproductive health care. Only four participants had a semi-open dialogue with their parents about reproductive health care, with the caveat that premarital sex is undesirable. Women who received information about reproductive health care from their parents valued this openness, and almost all Latinas felt like open discussion with parents was important, even though they did not experience that openness.

Conclusions

The expense of the HPV vaccine and the system of private health insurance in the United States blocks access to vaccination at multiple levels. The relationship between health care providers and clients primarily affects access through provider recommendations, which may be impeded by such issues as provider paternalism and lack of time during health care visits. Shallow or contradictory information presented by the media, differential access to preventive health services in Mexico and the United States, and conservative cultural and religious values limit knowledge needed to make informed decisions about seeking recommended preventive care such as the HPV vaccine. Recommendations to increase access to the HPV vaccine are drawn from the conclusions that emerge from these data.

The considerable cost of the vaccine limits access through several mechanisms: women are unable to afford the high out-of-pocket costs required to become immunized, and some health care providers are unable or unwilling to offer the HPV vaccine in their clinics because they cannot recoup the associated costs through private insurance plans or public funding. Policies that may help decrease out-of-pocket costs are efforts to inform clients of the Merck program to provide the HPV vaccine at low to no cost to some women and recommendations that young women under the age of 19 routinely become vaccinated. Such a policy to recommend vaccination to women under 19 would reduce costs for the large number of young women who are eligible to receive the HPV vaccine at a highly discounted rate under the Vaccines for Children program, including children who are Medicaid eligible, uninsured, underinsured, or identify as American

Indian or Alaska Native (CDC 2010). Further, public-private partnerships between government entities and pharmaceutical companies may reduce the research cost of developing and distributing a vaccine, thus, reducing the cost to the consumer. Health care policies may also contribute to reimbursement barriers by making it difficult to determine coverage of the HPV vaccine through private insurance companies and such programs as Medicaid. Consequently, strengthening and sustaining health policies that reduce the out-of-pocket cost for clients and ensure higher reimbursement rates for providers is recommended to increase access to HPV vaccination.

The employer-based model of health insurance decreases access to health care, as many young women are no longer eligible for their parents' plan, are not covered by insurance through their employer, cannot afford individual health insurance, and cannot pay the full cost of health care, such as HPV immunization, out-of-pocket. The multi-payer model decreases access to health care by making it difficult for health care providers to determine insurance coverage rates of services such as vaccination. Policies to increase access to health insurance among young women at educational institutions by requiring coverage for all full-time and part-time students and within state and federal governments will increase access to health care in general. Policies to increase coverage of the HPV vaccine and to make insurance coverage clear will increase access to the vaccine. The recent passage of the Affordable Care Act (United States Congress 2010) may increase access to the HPV vaccine by increasing access to health insurance through the Health Insurance Exchanges, tax credits for persons unable to afford health insurance, and provisions to allow children under the age of 26 years to remain on their parents' health insurance policies. The Affordable Care Act also exempts preventive care, including the HPV vaccine, from deductibles or co-payments in health insurance policies created after March 23, 2010.

Although Latinas and clinicians in this study valued building a patient-provider relationship, this was often impossible due to a lack of continuity of health care within the employer-based model of health insurance. When women were dropped from or switched health insurance plans, they lost the trusting relationship they had built with their provider. Many participants felt like they had to find a new provider they could trust with their reproductive health. This can delay accessing reproductive health services because women generally wanted to receive services from someone they knew and trusted for reproductive care. On the other hand, several participants favored using a family planning clinic that provided anonymous care, such as Planned Parenthood, to seek treatment for STIs because they were embarrassed by having a culturally stigmatized infection. This indicates that availability of both providers with whom women can build a trusting relationship and more anonymous family planning clinics is important in serving individuals with diverse health concerns. Additionally, participants generally felt more comfortable with female providers and looked for specific characteristics in their providers. Therefore, women should

be given multiple options for health care providers under their insurance coverage so they are able to find a provider who is right for them.

Participants' knowledge and subsequent access to vaccination reflected health care provider recommendations, which were taken seriously and acted upon by participants. For immigrants, provider recommendation was especially pertinent because they did not receive similar recommendations for reproductive health services in their country of origin. Latinas took recommendations seriously, and the belief that clinicians endorse HPV vaccination was a predictor of vaccination in another study among 13 to 26-year-old-young women (Conroy et al. 2009). We recommend that clinicians take the time to inform clients of screening and immunization recommendations, especially among Latinas, in order to increase preventive health care utilization. Even if clinicians are unsure whether or not patients can afford health services, patients should be informed of all guidelines so they understand the available options. To achieve this, policies would need to be developed and gain the support of health care institutions to encourage their health care providers to recommend needed services, such as Pap smears and the HPV vaccine. Although these policies may exist, several clinicians noted that they may not be implemented because of time constraints inherent in clinician-patient interactions. Strategies to address time constraints during patient appointments might deal with providing reimbursement for prevention messages.

Knowledge of reproductive health care and the HPV vaccine are impacted at multiple analytical levels. Participants in this study lacked core knowledge concerning the HPV vaccine, although the public media has provided a shallow knowledge of the vaccine through commercials and popular television shows. Participants did note however that they received much of their health knowledge from health care providers and from comprehensive sexual education programs in schools when these programs were available. Instead of sexual education programs in schools that are based on fear and stigmatization, comprehensive sexual education programs should encourage open discussions on the science of HPV infection and effective prevention strategies (Baer, Allen, and Braun 2000).

Negative attitudes toward STIs and premarital sex decreased open conversation about reproductive health care and the HPV vaccine within families. Women were uncomfortable talking about reproductive health care, including the HPV vaccine, with their parents because they had internalized these cultural values. Even though women said that there was little conversation about sexuality and reproduction with their parents due to conservative cultural and religious values, the family was seen as an important source of information concerning health. According to Conroy et al. (2009), the belief that one's parents endorse HPV vaccination was a predictor of vaccination. In another Denver study, Latina mothers suggested the development of a program to help them teach their children about HIV/AIDS and STIs

(Lucero et al. 1996). A program that would support more comprehensive sexual education within the family would be worth testing among adolescents, including Latinas, and their families to see if this could increase access to HPV vaccination. Based on what participants discussed, it would be essential for such a program to be culturally appropriate and consider values or beliefs such as familialism and sexual conservatism.

This study provides an in-depth understanding of the access and knowledge Denver Latinas 19 to 26 years of age who were university students had to the HPV vaccine. The study was designed as an exploratory study of access to a new vaccine. The major limitation to this research is that it is not generalizable to the public at large. The study pertains in particular to Latinas who face barriers to health care in Denver and who have the opportunity to attend one of the three colleges or universities on the Auraria campus; therefore, it is only applicable to Latinas with similar experiences.

This information will prove valuable to clinicians and community health workers who want to increase HPV vaccination rates among young Latina college students. A study utilizing qualitative and quantitative methods with a larger number of participants both within and outside of the higher education setting would make this information more generalizable for other populations of Latinas. Further, the majority of the literature is based on access to other preventive reproductive health services, such as cervical cancer screening and STI screening. Although the barriers and facilitators to these services may be similar to the HPV vaccine, a larger study would have the power to discern which barriers and facilitators are common among these services and which are unique to the HPV vaccine.

Notes

¹Denver Health is Denver's public health hospital that provides health services to a multitude of underserved populations, including the poor and uninsured.

²According to Colorado House Bill 07-1292, which went into effect July 1, 2007, Colorado school districts and charter schools that had been offering any form of sexual education previously had to start offering "comprehensive sex education programs." These programs are still focused on abstinence but are required to offer students who are already sexually active information on contraceptive methods while also encouraging these students to return to abstinence. Each school district and charter school is allowed to create their own sexual education curriculum and may choose not to offer any sexual education. Students may be exempted from sexual education programs by parents or guardians. School districts that are receiving federal funds for abstinence-only education programs do not have to offer comprehensive sexual education (Colorado State Congress 2007).

References Cited

Baden, Lindsey R., Gregory D. Curfman, Stephen Morrissey, and Jeffrey Drazen
2007 Human Papillomavirus Vaccine—Opportunity and Challenge. *New England Journal of Medicine* 356(19):1990-1991.

Baer, Hans, Merrill Singer, and Ida Susser
2003 *Medical Anthropology and the World System*. Westport, Conn.: Praeger.

Baer, Heather, Susan Allen, and Lundy Braun
2000 Knowledge of Human Papillomavirus Infection Among Young Adult Men and Women: Implications for Health Education and Research. *Journal of Community Health* 25(1):67-78.

Barnholtz-Sloan, Jill, Nitin Patel, Dana Rollison, Karl Kortepeter, Jill MacKinnon, and Anna Giuliano
2009 Incidence Trends of Invasive Cervical Cancer in the United States by Combined Race and Ethnicity. *Cancer Causes and Control* 20(7):1129-1138.

Breitkopf, Carmen Radecki, Heidi C. Pearson, and Daniel M. Breitkopf
2005 Poor Knowledge Regarding the Pap Test Among Low-Income Women Undergoing Routine Screening. *Perspectives on Sexual and Reproductive Health* 37(2):78-84.

Centers for Disease Control and Prevention (CDC)
2007 Vaccine Information Statement Human Papillomavirus Gardasil. URL:<<http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hpv-gardasil.pdf>> (April 10, 2007).
2009 ACIP Provisional Recommendations for HPV Vaccine. URL:<<http://www.cdc.gov/vaccines/recs/provisional/downloads/hpv-vac-dec2009-508.pdf>> (June 1, 2010).
2010 VFC: Eligibility Criteria. URL:<<http://www.cdc.gov/vaccines/programs/vfc/providers/elig-scrn-rec-doc-req.htm>> (August 5, 2010).

Chavez, Leo R., F. Allan Hubbell, Juliet M. McMullin, Rebecca G. Martinez, and Shiraz I. Mishra
1995 Structure and Meaning in Models of Breast and Cervical Cancer Risk Factors: A Comparison of Perceptions Among Latinas, Anglo Women, and Physicians. *Medical Anthropology Quarterly* 9(1):40-74.

Cohen, Robin A., and Michael E. Martinez
2007 Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey, 2006. URL:<<http://www.cdc.gov/nchs/data/nhis/earlyrelease/insur200706.pdf>> (July 19, 2007).

Coleman, Lester M., and Adrienne Testa
2008 Sexual Health Knowledge, Attitudes, and Behaviors: Variations Among a Religiously Diverse Sample of Young People in London, United Kingdom. *Ethnicity and Health* 13(1):55-72.

Colorado State Congress
2007 Concerning the Adoption of Science-Based Content Standards for Instruction Regarding Human Sexuality. Colorado House Bill 07-1292.

Colorado State Demography Office (CSDO)
2008 Race and Hispanic Origin for Colorado and Counties. URL:<http://www.dola.state.co.us/dlg/demog/race_colo.html> (July 14, 2008).

Conroy, Kathleen, Susan L. Rosenthal, Gregory D. Zimet, Jin Yan, David I. Bernstein, Susan Glynn, and Jessica A. Kahn
2009 Human Papillomavirus Vaccine Uptake, Predictors of Vaccination, and Self-Reported Barriers to Vaccination. *Journal of Women's Health* 18(10):1679-1686.

de la Torre, Adela, and Antonio Estrada
2001 *Mexican Americans and Health*. Tucson: The University of Arizona Press.

- Dell, Diana L., Hillary Chen, Farah Ahmad, and Donna E. Stewart
2000 Knowledge About Human Papillomavirus Among Adolescents. *Obstetrics and Gynecology* 96(5):653-656.
- D'Souza, Gypsyamber, Aimee R. Kreimer, Raphael Viscidi, Michael Pawlita, Carole Fakhry, Wayne M. Koch, William H. Westra, and Maura L. Gillison
2007 Case-Control Study of Human Papillomavirus and Oropharyngeal Cancer. *New England Journal of Medicine* 356(19):1944-1956.
- Dunne, Eileen F., Elizabeth R. Unger, Maya Sternberg, Geraldine McQuillan, David C. Swan, Sonya S. Patel, and Lauri E. Markowitz
2007 Prevalence of HPV Infection Among Females in the United States. *Journal of the American Medical Association* 297(8):813-819.
- Finch, Jack L., Kieu O. Vu, and Shelley K. Karp
2005 Cancer in Colorado 1992-2002, Incidence and Mortality by County. Colorado Department of Public Health and Environment. URL:<<http://www.cdphe.state.co.us/pp/cccr/1992-2002/CancerInColorado9202WEB.pdf>> (July 13, 2007).
- FUTURE II Study Group
2007 Quadrivalent Vaccine Against Human Papillomavirus to Prevent High-Grade Cervical Lesions. *The New England Journal of Medicine* 356(19):1915-1927.
- Garland, Suzanne M., Mauricio Hernandez-Avila, Cosette M. Wheeler, Gonzalo Perez, Diane M. Harper, Sepp Leodolter, Grace W. K. Tang, Daron G. Ferris, Marc Steben, Janine Bryan, Frank J. Taddeo, Radha Railkar, Mark T. Esser, Heather L. Sings, Micki Nelson, John Boslego, Carlos Sattler, Eliav Barr, and Laura A. Koutsky
2007 Quadrivalent Vaccine Against Human Papillomavirus to Prevent Anogenital Diseases. *The New England Journal of Medicine* 356(19):1928-1943.
- Giuliano, Anna
2008 The Past, the Present, and the Future of the HPV Vaccine. Paper presented at the 26th Annual Epidemiologic Research Exchange, Denver, Colorado, April 18.
- Henry J. Kaiser Family Foundation
2007 Fact Sheet: Women's Health Policy Facts, HPV Vaccine: Implementation and Financing Policy. URL:<<http://www.kff.org/womenshealth/upload/7602.pdf>> (April 10, 2007).
- Lindau, Stacy T., Cecilia Tomori, Tom Lyons, Lizbet Langseth, Charles L. Bennett, and Patricia Garcia
2002 The Association of Health Literacy with Cervical Cancer Prevention Knowledge and Health Behaviors in a Multiethnic Cohort of Women. *American Journal of Obstetrics and Gynecology* 186(5):938-943.
- Lobell, Michael, Curtis Bay, Kelton V. L. Rhoads, and Barbara Keske
1998 Barriers to Cancer Screening in Mexican-American Women. *Mayo Clinic Proceedings* 73(4):301-308.
- Lucero, Maria Guajardo, John Campbell, Diana Romero, and Sandra Wieder
1996 *Nuestras Palabras...Latinas' Conversations About Health*. Denver, Colo.: Latin American Research and Service Agency.
- Markowitz, Lauri E., Eileen F. Dunne, Mona Saraiya, Herschel W. Lawson, Harrell Chesson, and Elizabeth R. Unger
2007 Quadrivalent Human Papillomavirus Vaccine: Recommendations of the Advisory Committee on Immunization Practices. *MMWR Recommendations and Reports* 56(Early Release):1-24.
- McMullin, Juliet M., Israel De Alba, Leo R. Chavez, and F. Allan Hubbell
2005 Influence of Beliefs About Cervical Cancer Etiology on Pap Smear Use Among Latina Immigrants. *Ethnicity and Health* 10(1):3-18.
- Muhr, Thomas
2000 *ATLAS.ti*. Berlin, Germany: Scientific Software Development.
- Patton, Michael Quinn
2002 *Qualitative Research and Evaluation Methods*. 3rd ed. Thousand Oaks, Calif.: Sage Publications.
- Philips, Zoe, Stacy Johnson, Mark Avis, and David K. Whyne
2003 Human Papillomavirus and the Value of Screening: Young Women's Knowledge of Cervical Cancer. *Health Education Research* 18(3):318-328.
- Pruitt, Sandi L., Patricia A. Parker, Susan K. Peterson, Tao Le, Michele Follen, and Karen Basen-Engquist
2005 Knowledge of Cervical Cancer Dysplasia and Human Papillomavirus Among Women Seen in a Colposcopy Clinic. *Gynecologic Oncology* 99(3):S236-S244.
- Sandfort, Jessica R., and Andrew Pleasant
2009 Knowledge, Attitudes, and Informational Behaviors of College Students in Regard to the Human Papillomavirus. *Journal of American College Health* 58(2):141-149.
- Scarinci, Isabel C., Bettina M. Beech, Kristen E. Kovach, and Terry L. Bailey
2003 An Examination of Sociocultural Factors Associated with Cervical Cancer Screening Among Low-Income Latina Immigrants of Reproductive Age. *Journal of Immigrant Health* 5(3):119-128.
- Shah, Mona, Zhu Kangmin, Hongyu Wu, and John Potter
2006 Hispanic Acculturation and Utilization of Cervical Cancer Screening in the United States. *Preventive Medicine* 42(2):146-149.
- United States Cancer Statistics Working Group
2007 *United States Cancer Statistics: 2004 Incidence and Mortality*. Atlanta, Ga.: Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute.
- United States Census Bureau (USCB)
2008 Denver County, Colorado Earnings in the Past 12 Months 2006-2008. URL:<http://factfinder.census.gov/servlet/STTable?_bm=y&-geo_id=05000US08031&-qr_name=ACS_2008_3YR_G00_S2001&-ds_name=ACS_2008_3YR_G00_&-redoLog=false> (April 28, 2010).
- United States Congress
2010 Affordable Care Act. United States House of Representatives Bill 3590. 111th Congress.
- University of Colorado Denver (UCD)
2008 About the University of Colorado Denver. URL:<<http://www.cudenver.edu/Who%20Am%20I/Prospective%20Students/About%20CU-Denver/Pages/default.aspx>> (September 11, 2008).
- Vail-Smith, Karen, and David M. White
1992 Risk Level, Knowledge, and Preventive Behavior for Human Papillomavirus Among Sexually Active College Women. *Journal of American Collegiate Health* 40(5):227-230.

Wong, Li Ping, and Sam I-Ching

2010 Ethnically Diverse Female University Students' Knowledge and Attitudes Toward Human Papillomavirus (HPV), HPV Vaccination, and Cervical Cancer. *European Journal of Obstetrics and Gynecology and Reproductive Biology* 148(1):90-95.

Yacobi, Eva, Colleen Tennant, Jeanne Ferrante, Naazneen Pal, and Richard Roetzheim

1999 University Students' Knowledge and Awareness of HPV. *Preventive Medicine* 28(6):535-541.