HPV knowledge and vaccine acceptability in Appalachian Tennessee and Kentucky, USA

The Central and South-Central sub-regions of rural Appalachia have the highest cervical cancer rates in the USA.¹ Low socioeconomic status, limited access to health care, geographic isolation, and fatalistic attitudes contribute to this disparity.² Since 99% of cervical cancers are caused by oncogenic strains of human papillomavirus (HPV),³ the two Food and Drug Administration (FDA)-approved HPV vaccines⁴ have huge potential benefits for this region. However, information is limited about the acceptance and barriers to HPV vaccine uptake among rural Appalachian residents.⁵ We wish to inform Journal readers of the results of an HPV knowledge and acceptability survey conducted in rural Appalachia that has implications for future HPV vaccination and cervical prevention strategies.

A questionnaire assessed HPV knowledge and vaccine acceptability from May to July 2008 at three family medicine clinics in eastern Tennessee and Kentucky. The clinic communities varied in size, level of isolation and socioeconomic status. Adults aged over 18 years were given risk and benefit information before participation. Data were analysed using descriptive statistics, Chi-square (χ^2) tests and multiple linear regression.

Of 418 respondents, 96% were Caucasian, 75% were female, and the largest age group was aged >55 years. Of the HPV knowledge questions, 5.3% of respondents answered 100% correctly, while the largest group of respondents (16.5%) answered none correctly. More than half had heard of HPV and the vaccine, but only 42% believed the vaccine could prevent cervical cancer. Some 33% of respondents recognised HPV as a sexually transmitted infection. The level of HPV and vaccine knowledge varied between the clinics, and the most isolated and poor community had the lowest HPV knowledge scores. Some 54.5% of respondents agreed that children in general should receive HPV vaccination, but only 5.8% had already vaccinated their children. If the HPV vaccine were free, 64.6% said they would vaccinate, while 5.1% declined. However,

when presented with the \$360 total cost of the vaccine, 45.2% thought it prohibitive. Finally, more than 70% named their doctor as the most influential person concerning HPV vaccination decisions.

A multiple linear regression analysis was conducted to determine the effect of various predictors on the HPV knowledge score. Those of male gender were expected to have 1–3 fewer points on the knowledge scale than females. Those aged 25–50 years were expected to have approximately 1–3 points more than those aged ≥ 50 years. Both those who strongly agreed and those who disagreed with vaccinating children against HPV had higher expected knowledge scores by 2–4 points than those with no opinion.

Our respondents had very little HPV knowledge. Only a small percentage disagreed with HPV vaccination, but 49% were unsure. The most common reasons cited both for and against HPV vaccination suggest that a combination of general receptivity towards vaccinations, a dearth of HPV vaccine-specific information, and a sensible aversion to exposing their children to an unknown drug contributed to this indecision (Figure 1). The regression finding that both those for and against vaccination had more knowledge than those with no opinion supports this hypothesis. Furthermore, the high vaccine cost was clearly a barrier, but sexual promiscuity was surprisingly rarely mentioned as a deterrent.

Our study illustrates an association between low HPV knowledge and people from isolated, socioeconomically-challenged communities, and shows that physicians have outsized influence over health care decisions in this Appalachian population. The development of culturally appropriate educational materials and emphasis on childhood HPV vaccination by health providers could drastically reduce the morbidity and mortality of cervical cancer in this region and Appalachia as a whole, as well as other medically underserved areas of the world.

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Figure 1 Reasons cited by survey respondents for and against human papillomavirus (HPV) vaccination of their own children.

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