

# Human Papillomavirus (HPV) Vaccination in Kentucky: An Environmental Scan

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## Objective

The National Cancer Institute (NCI)-designated University of Kentucky Markey Cancer Center (MCC) was one of 18 funded cancer centers to receive supplemental NCI funding for a project focused on assessing current HPV vaccination efforts. The objective was to conduct an environmental scan of Kentucky's HPV vaccination environment with emphasis on MCC's catchment area of Appalachian Kentucky (Figure 1).



Figure 1. Markey Cancer Center service area.

Appalachian Kentucky faces disproportionately high incidence and mortality rates of HPV-related cancers, and Kentucky's HPV vaccine initiation and completion rates are below national estimates for both male and female adolescents (Figure 2). Kentucky's goal of having 80% of adolescents fully immunized against HPV infection by 2020 aligns with the national goals of Healthy People 2020.

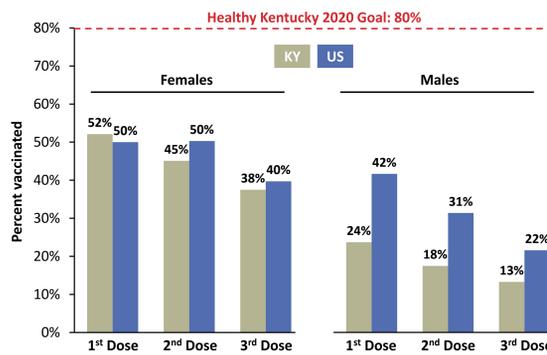


Figure 2. HPV vaccination by dose and sex, adolescents age 13-17 (2014).

## Methodology

**Key Informant Interviews** – The project coordinator engaged select statewide academic, clinical, community, and public health partners through key informant interviews. This process started with the Kentucky Department for Public Health (KDPH) Immunization Branch, one of the largest partners established during the process. Emanating from connections made through KDPH and MCC, multiple stakeholders were identified and assessed for how they could inform the environmental scan. During the key informant interviews, thorough notes were recorded, profiling each participant and capturing detailed information about their HPV vaccination-related projects and initiatives.

**Health Provider Survey** – A survey tool was created, piloted, and distributed to providers across Kentucky through various professional organizations. Physicians, physician assistants, nurse practitioners, nurses, and pharmacists were included. The survey assessed providers' perceptions about HPV vaccination culture in their practices and across Kentucky, barriers and facilitators to uptake and series completion among their patients, and plans for HPV9.

**Health Provider Interviews** – Providers in Appalachian Kentucky with high HPV vaccine uptake rates were identified using Comprehensive Clinical Assessment Software Application data. Additional funding from the UK Appalachian Center was used to interview six providers from three practices in Pike County about their experiences and best practices with the vaccine.

**Media Scan** – The UK Department of Communication assisted in a media scan through their University-developed CommTV system: a searchable, streamable television archive with a processed transcript and automatic time code to video of 20 channels in half-hour segments 20 hours per day. A query of HPV vaccine-related terms, including coverage of HPV9, was assessed. Comprehensive results are pending.

## Key Informant Interviews

Key informant interviews with partners across the state provided invaluable information about the HPV vaccination environment in Kentucky. The following organizations were interviewed; many demonstrate opportunity for further partnership and research collaboration.

Key Informant	Feedback
KDPH Immunization Branch	<ul style="list-style-type: none"> <li>CDC Prevention and Public Health Fund Grant Activities</li> <li>Immunization Registry Update</li> </ul>
KDPH Division of Women's Health	<ul style="list-style-type: none"> <li>HPV Vaccine offered through division programs (Family Planning/Breast and Cervical Cancer Screening Programs)</li> </ul>
KDPH Office of Adolescent Health	<ul style="list-style-type: none"> <li>School policies around education and vaccination</li> </ul>
KDPH Office of Health Equity	<ul style="list-style-type: none"> <li>Interested in collaborating to address racial/ethnic disparities in HPV vaccine uptake; no current funded efforts</li> </ul>
KDPH Office of Oral Health	<ul style="list-style-type: none"> <li>Dentists promote vaccines (ex. measles) but currently not HPV vaccination. The Kentucky Dental Association is reviving their oral cancer screening program</li> </ul>
KDPH Commissioner's Office	<ul style="list-style-type: none"> <li>Policy overview: no state mandate, three failed house bills</li> <li>Affordable Care Act (ACA) Medicaid Expansion State</li> </ul>
Northern KY Immunization Coalition	<ul style="list-style-type: none"> <li>Overview of ongoing media campaigns</li> </ul>
Kentucky College Health Association	<ul style="list-style-type: none"> <li>Interest in collaborative research project with 'catch-up' group (young adults)</li> </ul>
UK Center for the Advancement of Pharmacy Practice (CAPP)	<ul style="list-style-type: none"> <li>Ongoing research with pharmacists providing immunizations, including HPV. Interested in collaboration</li> </ul>
UK Department of Pediatrics	<ul style="list-style-type: none"> <li>Identified current HPV vaccination champions</li> </ul>
UK Department of Communication	<ul style="list-style-type: none"> <li>The department has participated in funded HPV vaccine media strategies and is interested in D&amp;I projects</li> </ul>
Kentucky HPV Initiatives Team	<ul style="list-style-type: none"> <li>Strategic Plan</li> </ul>
Local Health Departments	<ul style="list-style-type: none"> <li>Overview of typical local health department efforts around HPV vaccination</li> </ul>
Kentucky Department of Juvenile Justice	<ul style="list-style-type: none"> <li>Overview of immunization practices in facilities, statewide</li> </ul>
Local Immunization Field Representative	<ul style="list-style-type: none"> <li>Vaccines For Children (VFC) providers losing designation when they do not promote recommended vaccines</li> </ul>
Kentucky ACS Representatives	<ul style="list-style-type: none"> <li>Federally Qualified Health Center Grant</li> </ul>
Barren River Health Department	<ul style="list-style-type: none"> <li>NACCHO Grant Recipient</li> </ul>
KY Rural Cancer Prevention Center	<ul style="list-style-type: none"> <li>1-2-3 Pap Initiative on NCI's RTIPS site</li> </ul>
KY Vaccines for Children Program	<ul style="list-style-type: none"> <li>HPV9 available in all VFC providers' offices, July 2015</li> </ul>

## Healthcare Provider Survey

Health professionals (N=182) across the state were asked to respond to a survey regarding HPV vaccine practices in their offices and across Kentucky. Figure 3 categorizes the providers by profession and care setting.

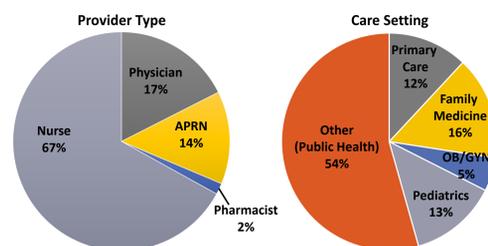


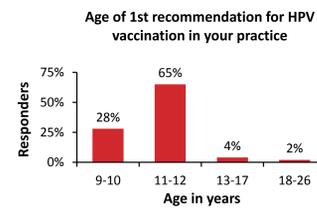
Figure 3. Provider survey respondents, by provider type and care setting.

## Findings

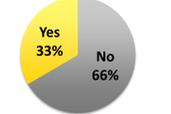
### Healthcare Provider Survey: Results

Providers identified the age at which they most commonly recommend the vaccine to their patients. Only one provider indicated that they do not recommend the vaccine to any of their patients. Office practices, barriers, facilitators and common reasons for parental/patient refusal were assessed.

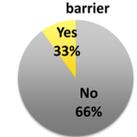
#### PROVIDER FACTS:



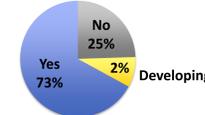
#### Do you have any barriers to providing HPV vaccine?



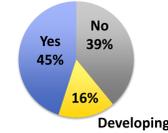
#### Cost of keeping vaccine in stock is a barrier



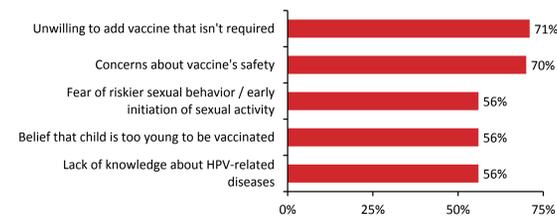
#### Reimbursement: Do you have capacity to bill 3rd party payers?



#### EMR/EHR: Are you equipped for electronic medical records?



#### Parents' and Patients' Most Common Reasons for Refusing the HPV Vaccine



#### OTHER FINDINGS FROM THE PROVIDER SURVEY:

According to 81% of responders, the biggest **facilitator** for providing the vaccine is participation in the national Vaccines For Children (VFC) program. Ninety-three percent of respondents are current VFC providers.

Phone calls and mail are the most common means of distributing reminders among surveyed providers.

Several of the open-ended responses about barriers and refusals to vaccination initiation point to misinformation on the internet and "fear-mongering on social media."

Providers answered that parents have different reasons for choosing to not vaccinate their male and female children, including difference in perceived risk of HPV-related infections and diseases.

#### Top responses for choosing to not vaccinate:

Females are not vaccinated because:	Males are not vaccinated because:
There is no need to vaccinate girls who are not sexually active.	Boys are at low risk for HPV-related cancers.
Lack of knowledge among parents/guardians that vaccine is a series of shots.	Girls/women should be the ones responsible to take preventive steps against HPV-related diseases such as cervical cancer.
Concerns about safety or side effects.	Boys are at low risk for genital warts.

### Healthcare Provider Interviews

Six providers agreed to participate in interviews. Highlights are presented here as **Common Themes** and **Powerful Messages/Best Practices**.

Common Themes Among All Providers Interviewed
Believe parents understand the connection between the virus, infection, and disease.
Agree that the link between HPV and other types of cancer, such as oropharyngeal, was not yet widely known/understood by the parents of their patients.
Stated that they felt comfortable discussing sexual transmission with parents/patients.
Have adequate stock/inventory of the HPV vaccine.
Schedule follow-up appointments at first dose, phone call reminders, flashing calendar magnets from the pharmaceutical company.
Report that the patients find the shot painful.
Offer HPV9 in their offices.
Powerful Messages/Best Practices
Providers speak with parents of males emphasize protection against genital warts, cervical cancer of future partners/wife, and cancer prevention.
Parents have been surprised to find that the vaccine is for boys, too.
Parents are more agreeable to vaccinating their boys if the boys have older sisters.
Providers, including nurses, share with parents that they vaccinated their sons.
Two providers reported that their insured patients pose the biggest problem with affording the vaccine: uninsured patients are covered under VFC, but patients with private insurance pay the full price out of pocket if they haven't met their deductible.
For some, religion is a big influence on not getting the vaccine (sexual connotation); for others, religious influence is overridden by family history or provider recommendation.
More educated parents were less likely to get their child(ren) vaccinated, as they had researched online (mommy blogs, etc.) and were skeptical about its safety. Patients with less education are more likely to trust the provider's recommendation; anti-vaccination movement influence was recognized in this group.
Barriers cited as the biggest reason for not getting the vaccine: it isn't required; they heard something negative about it from a family member, friend or neighbor; negativity on social media.
Providers are diligent about administering follow-up doses when patients come in for other reasons (i.e., a cold).
Several providers wish the vaccine was required for school entry.

### Media Scan

Between August 1, 2014 and August 31, 2015, There were 319 'hits' on 20 channels that contained the terms **HPV**, **Gardasil**, or **STD Vaccine**. As shown in Figure 4, spikes occurred in December, February, and April. Closer examination of video transcripts will focus on whether or not these spikes align with events related to HPV9 approval and recommendations. Figure 5 shows the distribution of hits per channel.

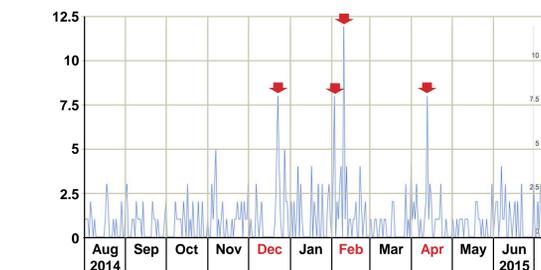


Figure 4. Timeline with number of hits containing any of the search terms.

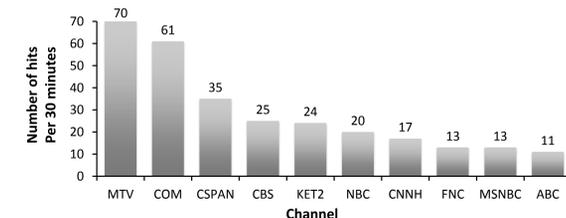


Figure 5. Distribution of hits per channel, with search terms: **HPV**, **Gardasil**, or **STD Vaccine**

## Conclusions

The environmental scan process allowed MCC to thoroughly assess the HPV vaccination environment in Kentucky.

- From the **Key Informant Interviews**: Adequate infrastructure is in place for collaboration focused on the HPV vaccine. The Kentucky HPV Initiatives Team has organization, support, a direction, and vested stakeholders to address HPV vaccination issues. The inception of the Kentucky Immunization Coalition shows promise for becoming another statewide conduit for these efforts.
- From the **Health Provider Survey**: The VFC program is the biggest facilitator for providing the vaccine in Kentucky. Reasons for parents and patients refusing the vaccine included: concerns about the vaccine's safety, lack of knowledge about HPV-related diseases, belief that a child is too young to be vaccinated, fear of riskier sexual behavior/early initiation of sexual activity, and an unwillingness to add a vaccine that isn't required to their child's immunization schedule.
- From both the **Health Provider Survey and Interviews**: The internet can have a negative impact on HPV vaccination acceptability among parents and, consequently, uptake and completion among adolescents. Parental opinions formed from misinformation or incomplete information on blogs, and false testimonials on social media, are a challenge for providers when recommending the vaccine.
- From the **Media Scan**: There were 319 mentions of HPV and/or the vaccine between August 1, 2014 and August 31, 2015. Transcripts will be examined to determine the type of information presented and how the 'hits' aligned with FDA approval, ACIP recommendations, and the KDPH-sponsored media campaign.



## Best Practices & Lessons Learned

- As expected, **provider recommendation** is a key factor in HPV vaccine acceptance and uptake in Kentucky.
- Parents who are more educated have a tendency to be more reluctant to vaccinate their children.
- Parents of adolescents perceive the HPV vaccine differently by child's sex.
  - For **females**, providers attribute low rates to parents' beliefs about sexual activity.
  - For **males**, providers attribute low rates to parents' beliefs that boys are not at risk for HPV-related diseases.
- Providers are overwhelmingly willing to participate, offer input, and collaborate on this work. There are several targeted efforts and the Kentucky Immunization Coalition will continue to coordinate the partners and projects.

## Research Needs

- In Kentucky, pharmacists have statutory authority to administer HPV vaccine. They typically do not participate in the VFC program and require a third party payer. CAPPNet, their Practice Based Research Network, is interested in collaborating on immunization-related research projects.
- Kentucky needs a means of collecting and extracting meaningful HPV vaccination data from a reliable source. The Kentucky Immunization Registry is completely redesigned and will go live November 2015. It is a good time to push for HPV vaccines to be added as a required entry in the registry.

## Moving Forward

- At the end of the 1-year funding period, all gathered information will be synthesized into a useful format and shared with NCI as well as national, state, and local partners, including those who participated in the project.

- Dr. Vanderpool will continue to participate in the Cancer Prevention and Control Research Network (CPCRN) national HPV vaccination workgroup and the American Cancer Society's National HPV Vaccination Roundtable. Other promising research opportunities will be identified and additional funding will be sought for projects aimed at increasing HPV vaccination coverage in Kentucky.

## Acknowledgements

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