Introduction

Despite its ability to prevent cervical cancer and genital warts, uptake and completion of the human papillomavirus (HPV) vaccine among adolescents has been relatively low across the U.S. In Kentucky, adolescent female HPV vaccine uptake (46%) and completion (31%) rates are lower than national estimates (53% and 35%, respectively). Fig. 1. There is limited data available for male HPV vaccination rates in Kentucky.

Methods

In 2012, the Lake Cumberland District Health Department conducted a study to evaluate the feasibility of a school-based HPV vaccination program to increase uptake and adherence among students in two local high schools (Wayne County High School and Monticello High School) during the 2012-2013 school year.

Informed by the CDC’s Guide to Community Preventive Services, the multi-component intervention included:
- provision of HPV vaccine information and parental consent forms delivered in back-to-school packets;
- school nurse-delivered student education;
- student incentives (e.g., t-shirts, pizza and sub parties, prize drawings);
- small media promotion designed to change social norms;
- removal of vaccination barriers (e.g., scheduling/reminder systems, transportation, parental presence); and
- provision of HPV vaccine, regardless of the ability to pay.

School nurses were responsible for tracking returned consent forms, parental consent or declination, individual student vaccination schedules (doses 1-3 over a 6-month period), student retention, and adverse vaccine reactions.

Overall project design, implementation, and evaluation was a collaborative effort between health department staff and public health researchers at the University of Kentucky.

The Study

A total of 935 students were provided parental consent forms at the beginning of the school year; 511 students returned the form—an overall return rate of 55% (Fig. 3). Of these students, 50 (10%) had already completed the vaccine series, leaving 461 students eligible for vaccination.

During the course of the study, 276 of the 447 students who were HPV vaccine naïve completed the series (Fig. 5). In addition, 12 students who had already initiated the series completed it, yielding a total of 288 students who achieved full HPV immunization through participation. Another 39 students who were HPV vaccine naïve initiated the series but did not fully complete it.

Results

Of the students eligible for vaccination, 447 (97%) were HPV vaccine naïve and 14 (3%) had initiated but not completed the full series (Fig. 4).

Figure 5. Student immunization status change from beginning to end of the study.

Gender. Notably, more boys than girls initiated the vaccine series (62% vs. 38%, respectively); however, completion rates were similar between genders (89% vs. 86%, respectively) (Fig. 6).

Conclusions

Overall. We are extremely pleased with the 88% completion rate among those students who initiated the HPV vaccine series as well as our high male vaccination rates. Due to our success, we have implemented a similar HPV vaccination program at two other high schools.

Lessons Learned. Simplifying the parental consent forms and making the HPV vaccine information a part of the standard medical questionnaire (vs. a separate form), along with incentives, may help with consent form return rates in the future. During the school year, some of the students moved between schools, resulting in problems with vaccine record-keeping.

Acknowledgements

This study was supported in part by a research grant from the Investigator-Initiated Studies Program of Merck Sharp & Dohme Corporation.

Figure 1. HPV vaccine uptake and completion rates for adolescent females in the U.S. and Kentucky.

Fig. 2. Lake Cumberland Area Development District.

Figure 3. Identification of eligible participants.

Figure 4. Design and progression of the study.

Figure 5. Student immunization status change from beginning to end of the study.

Figure 6. Gender differences.