Improving HPV Immunization Rates

Final Performance Progress and Evaluation Report | July 30, 2021

National AHEC Organization
HPV Immunization Project
NAO would like to thank the CDC project officer, Achal Bhatt, and other CDC staff, Krista Mitchell and Jonathan Hill, for their support, encouragement, and helpful suggestions.

In addition, NAO would like to acknowledge the leadership of Gretchen Forsell, Rob Trachtenberg, Dwain Harris, and the NAO Board members who ensured this project was successful. In addition, the external evaluators, Cindy Lewis and Terry Zollinger, documented the impact of the project and provided valuable data to make administrative decisions.

Many project staff contributed to the success of this project, including Trisha Thompson, Alyssa Johnson, and Hannah Kelly. Regional project coordinators and project specialists provided valuable support, guidance, and advice to the AHECs conducting the training sessions and carrying out other project tasks. These included 10 regional coordinators: Julie Bazan, Terra Birsen, Jim Czarnecki, Corryn Gabbert, Paula Overfelt, Kelly Owens, Victor Rodriguez Cruz, Marissa Starks-Banh, Joy Taylor, Patti Taylor, Carlen Williams, and four project specialists: Corryn Gabbert, Kelly Owens, Joy Taylor, Carlen Williams, and Robin Dawson.

Funding for this webinar was made possible by the Centers for Disease Control and Prevention, cooperative agreement number, NH23IP000960 awarded to the National AHEC Organization. The views expressed in the written materials and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services, nor does the mention of trade names, commercial practices or organizations imply endorsement by the US Government.
EXECUTIVE SUMMARY

- **Background:**
  In 2014, CDC contracted with the National AHEC Organization (NAO) and several other national organizations to provide training and support to healthcare providers across the US to increase HPV immunization rates. The CDC cooperative agreement with NAO was designed to provide training sessions and conduct other activities to increase healthcare providers’ awareness, knowledge, and skills to increase HPV vaccinations among their patients. Most of the Project tasks were carried out by the network of more than 300 existing Area Health Education Programs and Centers (AHECs) across the US, with support and direction from NAO. This project fits well with the mission of the AHEC program, funded by the Health Services and Resources Administration (HSRA), to improve access to high quality health care to all US residents, but particularly those in rural and underserved areas. To carry out this Project’s work plan a Project director and Project manager were identified as well as an independent evaluation team that was contracted to collect, analyze, and report progress toward achieving the work plan objectives. NAO also hired four Project specialists with experience and skills to provide support for the unique needs of the AHEC programs involved in the Project.

- **Training Programs:**
  NAO contracted with AHECs to deliver HPV training programs in their state and in surrounding states when opportunities arose. The number of states where HPV training programs were offered averaged 35.2 during the first five years of the cooperative agreement. During the extension period, programs were offered in 11 states. The majority of the training programs used the “You Are The Key” program. A total of 1,331 HPV training programs were attended by 52,622 health professionals and health professions students during the funding period. Most commonly, participants were clinical support staff (33.8%), followed by other health professional influencers (28.2%), students (19.2%), and practitioners (18.9%).

  Almost all participants (94.1% to 96.8%) indicated that the AHEC training sessions met the stated learner objectives. In addition, most of the practitioners (87.3%) indicated that they planned to implement at least one practice change to increase HPV vaccinations. Three-month follow-up surveys of practitioners found that 67.6% reported that using the training information helped them increase the HPV vaccination rates among their patients. A separate study, using data from electronic medical records of participating practitioners, found that the HPV vaccination rate increased nine percent on average after the training compared to the rate before.

  NAO offered national training webinars in addition to the AHEC training sessions. The webinar topics varied and were suggested by practitioners, CDC, and other partners to focus on specific issues relating to increasing HPV vaccination rates. Most of the webinars offered CME and/or CE credits to the participants. Altogether, 11,260 health professionals participated in the 31 webinars, for an average of 363.2 participants per webinar. Almost all (95.3%) of the providers indicated that the webinars provided valuable information that they planned to use the webinar information in their practice; 90.0% responded that they planned to make at least one change in their practices as a result of the webinar information. A total of 2,804 individuals completed the “You Are The Key” (n=1,297) and the “Vaccine Safety” (n=1,507) online self-study guides offered as part of this Project with similar levels of effectiveness and impact.

- **Reaching Rural and Frontier Providers:**
  AHECs have a long history of recruiting health care professionals to practice in rural or frontier settings as well as providing continuing training programs to rural or frontier health care providers. Consequently, many of the participants in the AHEC HPV training programs and NAO webinars were providers practicing in rural or frontier settings. Of the 26,597 local AHEC training program participants with known practice settings, 40.2% were working in rural areas and 2.7% were in frontier areas. Of the 9,650 NAO national webinar participants with known practice settings, 69.4% were in rural settings and 12.7% were in frontier settings.

  A qualitative study of rural and frontier (rural) health care providers was conducted to help NAO better understand how to increase the participation of rural providers in continuing education programs. The results identified where rural providers obtained vaccination information and available training programs, their preferred training methods, suggestions for improving their access to training, and topics of interest.
Dissemination of Material:
NAO and AHECs disseminated HPV-related material to health care providers to help them stay abreast of CDC recommendations and guidelines for HPV vaccinations. The reach of the HPV material increased significantly each year during the Project, culminating in an estimated total reach of 13,996,093. The HPV-related material was disseminated using a variety of methods, most commonly through online social media platforms, web-based electronic sources, and email messages. AHECs also disseminated NAO, CDC, and other partners’ resources using email and web-based electronic sources such as MailChimp and Constant Contact newsletters.

Influencing National and State Efforts Through Strong Partnerships:
The contributions of partners were key to NAO’s and AHECs’ efforts to provide HPV training and disseminate HPV information to practitioners. National partners promoted the AHEC and NAO training programs to their members which led to significant participation of those providers who needed HPV information and skills to increase the HPV vaccination rate among their patients. NAO and AHEC staff presented on HPV topics at national, state, and local conferences to raise awareness among providers and organizations of the importance of increasing HPV vaccination rates.

Sustainability of the Project:
NAO plans to host resources from the project on their webpage for the next year. Archived webinars, continuing education programs and project resources will also be available. Numerous AHEC centers are also continuing work with immunization partners, promoting HPV social media messages and including HPV immunization as continuing education program topics.
**Background and Purpose:**
The Centers for Disease Control and Prevention estimated that approximately 35,900 cancers per year can be attributed to human papilloma virus (HPV) infections, accounting for approximately 2 to 3 billion dollars in direct medical costs. HPV associated cancers are mostly preventable through HPV vaccinations; however, the HPV vaccination uptake needs to be increased to fully optimize the impact of the vaccine. Although effective HPV vaccines have been available since 2006, by 2013 only 70.4% of 13-17-year-old females and 48.3% of 13-17 males had received all three required doses to become fully immunized. The next year (2014), CDC contracted with the National AHEC Organization (NAO) and several other national organizations to provide training and support to providers to increase their patients’ vaccination rates.

The HPV vaccination coverage for 13-17-year-old youth in non-MSAs was found to lag behind those in MSAs highlighting a need for special emphasis to be placed on educating and supporting health professionals who provide care to patients residing in rural or frontier areas. In 2013, 69.8% of 13-17-year-old girls and 50.3% of 13-17-year-old boys in MSA principal cities were fully vaccinated, compared to 64.6% girls and 41.4% of boys residing in non-MSAs. A report on the findings from 2017 National Immunization Survey found that the MSA principal city/non-MSA gap in HPV coverage had expanded to be approximately 10% lower in non-MSA areas.

The CDC cooperative agreement with NAO was designed to provide training and conduct other activities for health care professionals to increase HPV vaccination rates across the U.S. with a particular focus on rural areas. The NAO HPV Immunization Project planned and carried out activities to:
- Deliver standardized and customized “You Are The Key” training programs as well as supplemental educational programs targeting health care providers and health professions students.
- Expand Project reach by developing and refining HPV-related educational materials and disseminating those materials to a broader audience of health care providers and health professions students.
- Influence national efforts related to increasing HPV vaccination rates by forming strong partnerships with relevant professional organizations and by collaborating with state and national entities to push HPV-related initiatives.

**Entity Description and Resources:**
Created in 1971 by Congress, the Area Health Education Program aims to develop and enhance health professions education and training networks within communities, academic institutions and community-based organizations. AHEC programs receive a portion of their funding from the Health Resources and Services Administration (HRSA) and are structured through funding awarded to colleges of medicine or nursing, referred to as program offices. Program offices then contract with and provide funding to regional Area Health Education Centers to address local community healthcare workforce shortages, healthcare access needs and support health professionals providing care to rural and underserved communities. The strength of the AHEC network is its ability to creatively adapt national initiatives to address local and regional healthcare needs. *The AHEC mission is to enhance access to quality health care, particularly primary and preventive care, by improving the supply and distribution of healthcare professionals via strategic partnerships with academic programs, communities and professional organizations.* To fulfill a portion of their mission, the AHECs provide continuing education opportunities to healthcare professionals practicing in all types of settings, including rural and frontier areas, that are often missed by other main-stream organizations. It is this component of the AHEC activities that meshes well with the CDC’s effort to provide training and support to providers to increase their patients’ HPV vaccination rates.

**National AHEC Organizational Structure and Services/Activities**
The National AHEC Organization (NAO) was formed to support the national network of AHEC programs and centers across the US to help them achieve the AHEC mission through advocacy, education, and research. NAO represents the network of more than 300 AHEC program offices and centers operating in over 85% of US counties. The goals of NAO include providing a forum that brings together member AHECs to establish policies, national standards, collect and report performance data in a uniform manner, and seek joint funding for national scale projects. NAO facilitates the development and distribution of professional development and technical assistance materials to the AHECs and
enhances opportunities for collaboration with other organizations that have an interest in healthcare access and health workforce issues. In addition, NAO supports AHECs by providing programmatic training to program and center staff.

**Organizational Capacity and Structure**

NAO demonstrated its ability to successfully administer national scale projects based on its past experience as well as its current operational capacity. After identifying the NAO HPV Immunization Project director and Project manager, NAO also contracted with an independent evaluation team to collect, analyze, and report progress toward achieving the work plan objectives. For this project, NAO initially hired 10 regional HPV Project coordinators as a way to support AHEC HPV training programs for providers in the HRSA regions. After a year with this model, a more effective way to support the AHECs for this Project was instituted involving replacing the 10 regional coordinators with four Project specialists who had experience and skills in four areas (continuing education, partnerships, marketing and public relations, and integration of this project into current AHEC/HRSA activities) to provide the specific types of support needed to support the unique needs of the AHECs involved in this Project. The work plan included the components needed to deliver effective HPV-related training sessions and webinars and develop and disseminate their own as well as CDC's and other partner HPV materials. Finally, the work plan included AHECs and NAO working closely with CDC and other national CDC funded partners to promote HPV vaccinations and policies. Data to assess the work plan performance was collected, analyzed, and shared by the evaluators with the leadership team on an ongoing basis. The Project director, manager, and specialists used the monitoring and evaluation data to make administrative decisions and adjust the focus of the activities to assure achievement of the project objectives.

- **Delivering Standardized and Customized Training Programs to Health Care Providers and Health Professions Students:**

**AHEC Training Programs Offered and Attended**

AHECs have a long history of providing continuing education programs to health care providers as a main component of AHEC’s mission. For this project, NAO contracted with individual AHECs in most states to deliver HPV training programs in their region or state and many times, the surrounding states when opportunities arose. While the list of states where AHECs offered HPV training programs changed from year to year, most of these states offered programs consistently through the first five years. The number of states where HPV training programs were offered averaged 35.2 during the first five years of the cooperative agreement. During the Project’s extension period, programs were offered in 11 states. The reduction was partly due to the complications brought on by the COVID-19 pandemic, as well as reduced funding.

The AHEC programs conducted a total of 1,331 HPV training programs during the funding period as shown in [Table 1](#). The majority of those programs were “You Are The Key” -- CDC’s standard HPV educational program for health professionals. Other programs were customized HPV training programs that included the same “You Are The Key” learning objectives (listed as the self-assessment statements on [Table 3](#)). During the project period, 52,622 health professionals and health professions students, participated in the AHEC HPV immunization training programs.

While the focus of the AHEC HPV training programs was to provide continuing education to health care practitioners, the program participants also included a wide range of health professionals and health professions students as shown in [Table 2](#). During the registration process or at the actual training sessions, the AHEC staff documented the professions of those who attended. For the purposes of this report, the participating professionals were categorized into four groups. The “Practitioners” group included physicians, nurse practitioners, and physician assistants. These individuals were typically the ones who had the responsibility for determining whether an HPV vaccination was needed for the patient and gave an order for administering the shot, with the parents’ permission, if they didn’t give it to the patient themselves. “Clinical Support” staff were others in the clinical setting who interacted with the patients in some manner during their visits and may have administered the vaccine. These included both RN and LPN nurses, medical assistants, other office staff, and medical residents. Discussions with the CDC Project officer and other national
funded partners, as well as feedback from the practitioners, determined that it was important that all of the individuals in the clinical office understand the need for HPV immunization and be able to support parents in their decision to have their children receive the HPV vaccine. The “Other Influencers” group included health professionals who may have the opportunity to encourage parents to consider having their children receive the HPV vaccine. Included in this group were pharmacists, behavioral health professionals, dentists and other oral health professionals, health educators, community health workers and promotoras, first responders, public health professionals, and other health professionals. Finally, as is the custom of AHECs, training programs are also open to health professions students, including medicine, nursing, pharmacy, physician assistant, oral health professions, and other health professions students, since they also need to promote HPV vaccinations as begin their professional careers. As shown at the bottom of Table 2, most commonly, participants in the AHEC HPV training programs were clinical support staff (33.8%), followed by other influencers (28.2%), students (19.2%), and practitioners (18.9%).

Impact of the Training Programs by AHECs on HPV Health Literacy and Practices
Participants in the AHEC HPV training programs were asked to complete training evaluation forms at the end of the sessions, regardless if the training was in-person or online. The training programs were either “You Are The Key” programs or custom programs with the same learner objectives specified in the “You Are The Key” training programs. The items on the evaluation questionnaire were statements worded to match each of the learner objectives. Participants were asked to “Strongly Agree,” “Agree,” “Neither Agree nor Disagree,” “Disagree,” or “Strongly Disagree” to each statement. The responses to the evaluation forms indicated that the training sessions were very successful in meeting the learning objectives.

As shown in Table 3, among those participants for whom the statement was relevant, almost all marked “Strongly Agree” or “Agree” to the statements that the training enabled them to: better describe the burden of HPV disease (96.2%), define the importance of HPV vaccination for cancer prevention (96.8%), explain the rationale for vaccinating youth ages 11 and 12 (96.4%), be more aware of the CDC recommendation for administering the vaccination to both boys and girls (96.7%), provide useful and compelling information about the HPV vaccine to parents to aid in making the decision to vaccinate (95.2%), and be able to locate resources relevant to current immunization practice (94.1%). In addition, most of the practitioners (87.3%) indicated that, as a result of participating in the training program, they planned to implement at least one change to improve their practice or patient care to increase HPV vaccinations and 89.0% reported that the content and learning materials addressed a need or a gap in their knowledge or skills to increase HPV vaccinations among their patients. Almost all of the students participating in the training programs (94.0%) indicated that the content and instructional materials presented met their educational needs regarding HPV vaccinations.

Practicing professionals who responded “Strong Agree,” “Agree,” or “Neither Agree nor Disagree” to the item, “As a result of this training, I plan to implement at least one change to improve my practice or patient care to increase HPV vaccinations” were asked a follow-up question to determine specifically what modifications they were planning to make. Five response options were provided along with a “Does Not Apply” option. The number of providers who marked the “Does not apply” option were removed from the denominator when the percentages were calculated. Participants could mark more than one of the response options. The results shown in Table 4 indicate the most commonly reported practice modification (51.6%) was to implement strong recommendations as discussed in the training. Over one-third (34.6%) indicated that they intended to implement the “same day/same way” practices as discussed in the training sessions. About one out of six (17.1%) marked that they intended to implement or revise their reminder/recall process and 12.5% marked that they planned to modify their practices in other ways as discussed. About ten percent (10.6%) reported that they did not intend to make any changes in their practices.

During Project Years 2 to 5, practitioners who participated in the training program were asked to complete a follow-up online questionnaire approximately three months after the training program to determine the longer-term impact of the training programs. A total of 880 practitioners and 159 student training participants responded to the follow-up survey. The questionnaire included four questions for practitioners and a different set of four questions for students.

Impact of the Training Programs by AHECs on HPV Health Literacy and Practices
Participants in the AHEC HPV training programs were asked to complete training evaluation forms at the end of the sessions, regardless if the training was in-person or online. The training programs were either “You Are The Key” programs or custom programs with the same learner objectives specified in the “You Are The Key” training programs. The items on the evaluation questionnaire were statements worded to match each of the learner objectives. Participants were asked to “Strongly Agree,” “Agree,” “Neither Agree nor Disagree,” “Disagree,” or “Strongly Disagree” to each statement. The responses to the evaluation forms indicated that the training sessions were very successful in meeting the learning objectives.

As shown in Table 3, among those participants for whom the statement was relevant, almost all marked “Strongly Agree” or “Agree” to the statements that the training enabled them to: better describe the burden of HPV disease (96.2%), define the importance of HPV vaccination for cancer prevention (96.8%), explain the rationale for vaccinating youth ages 11 and 12 (96.4%), be more aware of the CDC recommendation for administering the vaccination to both boys and girls (96.7%), provide useful and compelling information about the HPV vaccine to parents to aid in making the decision to vaccinate (95.2%), and be able to locate resources relevant to current immunization practice (94.1%). In addition, most of the practitioners (87.3%) indicated that, as a result of participating in the training program, they planned to implement at least one change to improve their practice or patient care to increase HPV vaccinations and 89.0% reported that the content and learning materials addressed a need or a gap in their knowledge or skills to increase HPV vaccinations among their patients. Almost all of the students participating in the training programs (94.0%) indicated that the content and instructional materials presented met their educational needs regarding HPV vaccinations.

Practicing professionals who responded “Strong Agree,” “Agree,” or “Neither Agree nor Disagree” to the item, “As a result of this training, I plan to implement at least one change to improve my practice or patient care to increase HPV vaccinations” were asked a follow-up question to determine specifically what modifications they were planning to make. Five response options were provided along with a “Does Not Apply” option. The number of providers who marked the “Does not apply” option were removed from the denominator when the percentages were calculated. Participants could mark more than one of the response options. The results shown in Table 4 indicate the most commonly reported practice modification (51.6%) was to implement strong recommendations as discussed in the training. Over one-third (34.6%) indicated that they intended to implement the “same day/same way” practices as discussed in the training sessions. About one out of six (17.1%) marked that they intended to implement or revise their reminder/recall process and 12.5% marked that they planned to modify their practices in other ways as discussed. About ten percent (10.6%) reported that they did not intend to make any changes in their practices.

During Project Years 2 to 5, practitioners who participated in the training program were asked to complete a follow-up online questionnaire approximately three months after the training program to determine the longer-term impact of the training programs. A total of 880 practitioners and 159 student training participants responded to the follow-up survey. The questionnaire included four questions for practitioners and a different set of four questions for students.
There were two positive response options for each question: “Yes, very well/Yes, definitely” and “Somewhat well/yes, somewhat.” Other options were, “Not well/No” and a “Does not apply” option. Their responses are shown in Table 5. Among those for whom the questions were relevant, most of both practitioners (95.4%) and students (93.5%) reported that they recalled “Very well” or “Somewhat well” the information provided in the training. Also, almost all of the practitioners and students replied that the information from the trainings would help increase the HPV vaccination rates of their current or future patients (90.3%, 91.2%) as well as help them be able to provide compelling information to parents to aid in making the decisions to vaccinate their children (97.1%, 95.6%). Two-thirds of the practitioners (67.6%) responded using the information from the training increased the HPV vaccinations among their adolescent patients. Nearly eight in ten (79.3%) of the students responded that information provided in the training would result in their new practice having high HPV vaccination rates among their future adolescent patients.

In Project Years 3 and 4, data were gathered to document changes in the HPV vaccination rates of practitioners who attended the AHEC training sessions. A subset of AHECs volunteered to participate in these projects (Texas Rio Grande, Southeast Louisiana, Greater Valley AHEC in Arizona, Suwannee River AHEC in Florida, Crossroads AHEC in Utah) and agreed to use a standardized approach to reach out to practitioners in their networks who attended training sessions to obtain vaccination information in the six-month period after the training to compare to vaccination information in the six-month period before the training. The recruited providers were asked to report the total number of 13 to 17-year-old male and female patients seen in the six months prior to the training session as well as the six months after the training session. They were also asked to provide the number of those 13 to 17-year-olds who completed the HPV series during these two time periods. They reported counts only; individual patient-level data were not requested or provided. All of the providers participating in the project were able to use their EMR systems to provide the counts requested, the results are shown in Table 6. In Year 3, seven group practices contributed data on 2,174 13 to 17-year-olds. The completion rate for the HPV vaccination series among 13 to 17-year-olds increased from 36.3% before the training to 58.7% after the training. In Year 4, 19 practitioners provided immunization data on 4,678 adolescent patients. The completed HPV vaccination increased from 41.3% to 44.7%. When the data from both years were combined, the results showed a nine percent increase in completed HPV vaccination rates after the training compared to before the training.

In summary, the AHEC HPV training program evaluations showed that the participants reported increased awareness, knowledge, and skills related to HPV vaccinations. Respondents to the follow-up survey replied that the training sessions positively changed their practices to increase HPV vaccination rates. Data collected from a sample of practitioners documented that participating in the training sessions increased the vaccination rates among their patients.

Training Programs Offered by NAO and the Impact of the NAO National Webinars
To supplement the local and regional HPV training programs conducted by the AHECs, NAO initiated national training webinars presented by recognized experts such as the early webinar by Dr. Robin Curtis from CDC’s National Center for Immunization and Respiratory Diseases who gave the “You Are The Key” presentation in Year 1 of the NAO Project. The national webinars supported the efforts of the AHECs by providing a series of presentations by experts on topics relevant to HPV immunization for healthcare providers. CDC and other grantees assisted in promoting the webinars with advertising through their mailists in addition to AHECs promoting the webinars to providers utilizing partners in their states, social media and a variety of local partnerships. Live webinar participation is shown in Table 7; however, archived webinars were also available for viewing on the NAO National Training Center’s website. A total of 31 HPV related national webinars were offered during the funding period. Twenty-two of the webinars offered continuing education credit. Ten of the webinars offered both CME and CE credit to participants and another 12 webinars offered CE credit only to health professionals. Approximately one-third of the participants requested the credits. Certificates of participation/completion were also available to health professionals who did not require continuing education credits or their desired specific credit type was not available. Altogether, 11,260 health professionals participated in the 31 NAO webinars, for an average of 363.2 participants per webinar.
Since part of the webinar registration process included obtaining the health profession of those planning to attend the webinar, the health professions were known for almost all participants in the NAO webinars. As shown in Table 8, during the funding period, 1,012 providers participated, accounting for 9.0% of all of the webinar participants and 5,186 clinical support staff participated in the webinars, accounting for 46.1% of all webinar participants. The other health professionals’ group included 4,642 individuals and made up 41.2% of all participants in the national webinars. The last group of webinar participants were 418 health professions students, amounting to 3.7% of all participants. These individuals would soon be starting their health professions careers and needed the knowledge and skills to help parents of their future patients decide to have their children immunized against HPV.

Each of the NAO national webinar speakers provided learner objectives for their presentations. The evaluation team generated tailored pre- and post-webinar poll questions to assess the participants’ understanding of the specific topics to be covered before the presentations as well as how well the presentations met the learner objectives. For programs providing CE/CME credits, learner objectives were approved in consultation with the CE/CME provider. CE/CME accredited programs also included specific evaluation questions required for CE/CME approvals. Analysis of the participants’ responses to the pre-webinar poll questions showed that participants were typically unaware or only modestly aware of the topic. However, their responses to the post-webinar poll questions showed that 80-95% of the respondents were more aware, more knowledgeable, and more skilled related to the webinar’s topic as a result of the speaker’s presentation.

For the national NAO webinars, standard post-webinar items were included as statements to which the participants were asked to choose one of five response options: Strongly agree, Agree, Neither agree or disagree, Disagree, or Strongly disagree. The first statement was: “Overall, this webinar provided valuable information that I plan to use as a practicing health professional.” Across the 26 webinars when this question was asked, Table 9 shows that the percent who selected the “Strongly agree” or “Agree” response option ranged from 86.1% to 100%, with an average of 95.3%. The providers in clinical practices were also asked, “As a result of this training, I plan to implement at least one change to improve my practice or patient care to increase HPV vaccinations.” This standard post-webinar poll item was included for ten NAO national webinars to which the same five response options were provided. As shown in Table 10, across the ten webinars, the percent who selected the “Strongly agree” or “Agree” response option ranged from 84.1% to 97.4%, with an average of 90.0%.

Clearly, the NAO National Webinars, in collaboration with the AHECs and other partners, greatly increased the number of providers across the U.S. who became much more aware, knowledgeable, and skilled in HPV vaccine related topics. These trainings were expected to lead to increases in the HPV immunization rates among the providers’ youth patients. Many of those rural and frontier providers might not have been able to participate in HPV training sessions held in the urban areas offered by the professional organizations that routinely offer continuing education programs in this and other topical areas. Thus, the NAO national webinar provided a convenient and effective way to deliver awareness and knowledge as well as improved skills to the providers. Comments from the participants indicated how pleased they were with having access to the webinar presentations and many healthcare providers participated in multiple webinars. In some clinical offices, the staff gathered around the office computers to watch either the live or archived webinars, together. The mailing list of participated interested in the NAO webinars grew to over 13,000 representing all 50 states and many military health professionals stationed outside of the US. After the projects end 84% of the participants continue to be interested in the NAO mail list for educational offerings.

**NAO Self-Study Guides**

The NAO HPV Immunization Program created and posted two self-study guides on the NAO National Training Center website for health professionals and students who wanted to learn about HPV immunizations and vaccine safety on their own time and at their own pace. These were enduring programs that were available for CME/CE credit for 12 months, then offered without credits for several months after that on the website. The presence of both self-study guides was regularly promoted by NAO, AHECs, partner organizations, and the CE provider to encourage those who might not be able to attend a training session or national webinar to choose this option for learning about HPV and vaccine safety.
The “You Are The Key” self-study guide used the CDC slide set and had the same learner objectives to increase providers’ awareness, knowledge, and skills to support higher HPV vaccination rates among patients in their practices. Using the slide set developed for the NAO national webinar on “Vaccine Safety,” the second self-study was created with the learner objectives: understand the vaccine safety system in the US, identify and utilize available HPV vaccine safety data, and describe the current safety monitoring and evaluation for the nine-valent HPV vaccine. For both guides, the Postgraduate Institute for Medicine required participants to also respond to their standard questions to determine that the individuals successfully completed the guides.

A total of 2,804 individuals completed at least one of the self-study guides as shown in Table 11. During Project Years 2 and 3, the “You Are The Key” self-study was offered and completed by 1,297 individuals. During Project Years 3, 4, 5, and the extension year, the “Vaccine Safety” self-study program was offered and completed by 1,507 individuals. For the “Vaccine Safety” guide, individuals were asked to provide their practice setting as part of the registration process. All 1,507 individuals provided their practice setting, indicating 38.7% were practicing in rural settings and 1.2% were practicing in frontier settings.

Registrants for both guides were asked to report their health profession, or if a student, their health professions training program. Overall, 18.2% of those who completed the HPV self-study guides were doctors, nurse practitioners, and physician assistants as shown in Table 12. Two-thirds (68.5%) of those who completed the guides were “Clinical Support” staff in the clinical setting, while “Other Health Professionals” made up 10.6% of those who completed the self-study guides. A small percentage (2.7%) of those who completed the self-study guides were students from health professions programs.

During the 12-month period when the self-study guides were receiving CME credit, physicians were required to complete program self-assessment forms as part of the process to receive the CME credit. The forms included items required for CME credit as well as additional items to assess achievement of the program’s training objectives. Most of the items on the form required the participant to indicate their level of agreement with key statements. Follow-up questions centered on the providers’ plans to modify their practice based on the information provided in the self-study guides. As shown in Table 13, almost all (95.6% to 97.9%) of the medical professionals who weren’t already aware and knowledgeable regarding specific topics, strongly agreed or agreed that, as a result of completing the “You Are The Key” self-study guide, they were more aware, knowledgeable and skilled. Practitioners were asked if, as a result of completing the self-study, if they planned to implement at least one change to improve their practices or patient care to increase HPV vaccinations. Over three-quarters (79.3%) of the practitioners indicated that they did plan to make practice changes. Of this group, the most commonly cited planned change (41.5%) was to implement “same day/same way” practices as discussed in the training. One-third (36.8%) reported that they planned to implement strong recommendations as discussed in the training. A few reported that they planned to implement or revise their reminder/recall process as discussed in the training (6.0%), or modify their practices in other ways as discussed in the training (2.2%). Others (12.9%) responded that they didn’t intend to make any changes. Almost all of the health professionals (87.6%) strongly agreed or agreed that the content and learning materials in the “You Are The Key” self-study guide addressed a need or a gap in their knowledge or skills to increase HPV vaccinations among their patients.

As shown in Table 14a, nearly all (87.1% to 90.5%) of the health professionals who completed the Vaccine Safety self-study guide and completed the self-assessment form as part of the process to receive CME credit, strongly agreed or agreed that the self-study guide met the learner objectives. The self-assessment form also queried the practitioners regarding the impact of completing the “Vaccine Safety” self-study guide on their clinical practices shown in Table 14b. Most commonly, the practicing physicians responded that their current practices have been reinforced by the information presented (64.8%). Over one-fourth (29.2%) reported that they planned to implement changes in their practices based on the information presented. A few (6.0%) responded that they needed more information before they would change their practices.
Special Projects
The NAO HPV Immunization Project set aside a small pool of funds to support special projects for the AHECs to use in Years 3, 4, and 5. The purpose of the special projects was to support and encourage AHECs to develop and test innovative approaches to train health care professionals and assist them in increasing HPV vaccination rates in their practices. By this time in the project, AHECs had developed a variety of partnerships with health care provider groups as well as local and state immunization and cancer organizations who presented ideas for reaching and training health professionals. Several AHECs submitted proposals to conduct special projects based on their unique health professional environments as well as ideas they had for demonstration projects that other AHECs may adopt to increase HPV vaccination rates in their regions. Three AHECs in Year 3, two in Year 4, and one in Year 5 were awarded funds to conduct special projects. Those who received funding were required to develop final reports on their projects that included a description and evaluation of their projects as well as lessons learned and recommendations to enable other AHECs to use their experiences to replicate the projects.

Gulfcoast South AHEC, Florida: For this project, the “Someone You Love: the HPV Epidemic” documentary was screened five times at publicized events for health professionals and health professional students, followed by a question and answer period. Evaluations of the sessions documented significant increases in awareness of the HPV burden, the link between HPV and cancers, knowledge of the CDC recommendations for vaccinating adolescents, and confidence in encouraging parents to have their children vaccinated. [Gulfcoast South Project](#)

Southeast Louisiana AHEC, Louisiana: Using family medicine residents and oral health professions students, this AHEC trained the students to make presentations at “Lunch and Learn” sessions for healthcare providers affiliated at all of Louisiana’s FQHCs and other groups practicing in rural areas of Louisiana. These health professions students became experts in HPV related issues themselves and received positive feedback from those who participated in their presentations. [Southeast Louisiana Project](#)

Southern Kentucky AHEC, Kentucky: This AHEC developed and delivered an intensive education and practice change initiative with a pediatric group practice in Mt. Vernon, Kentucky -- a poor, rural town in the southeastern part of the state. The initiative included presentations to the staff, setting up an EMR HPV vaccine reporting system, weekly team huddles to discuss patient hesitancy issues, displaying HPV posters throughout the clinic, and sending out HPV immunization awareness postcards to vaccine eligible patients. A reduction in unvaccinated adolescents was observed over time and valuable insights were gained. [Southern Kentucky Project](#)

Suwannee River AHEC, Florida: This AHEC planned and hosted an educational summit for providers in a rural region of North Central Florida. Feedback from attendees included their plans to change clinical/procedures because of the training, such as asking parents to have their children vaccinated at every visit, utilizing the “same day, same way” approach, and promoting the vaccine as a way to prevent cancer. [Suwannee River Project](#)

High Sierra AHEC, Nevada: A series of summits for providers in rural and underserved areas involved three presentations from experts and two cancer survivor stories. The targeted audience was rural clinical workers and health professionals including physicians, nurses, oral health professionals, pharmacists, and health professions students. Participants reported success with the learner objectives as well as provided helpful feedback to the AHEC for future summits. [High Sierra Project](#)
Southwest Pennsylvania AHEC, Pennsylvania: The special project for this AHEC included special focus on training several groups of oral health professionals on HPV issues using the “You Are The Key” program supplemented with a presentation by a dental pathologist. These sessions were conducted in partnership with professional organizations and targeted FQHC providers as well as those in private practices. Participants overwhelmingly indicated an increase in their knowledge and awareness around HPV and the majority indicated an intent to change their practice to improve HPV vaccination rates. Southwest Pennsylvania Project

Training Success Stories

**New Mexico: Presenting at Grand Rounds is a successful way to reach many providers:**
A collaborative effort between the AHEC, Rehoboth McKinley Christian Health Care Services, and the New Mexico Immunization Organization resulted in a successful gathering for physicians and medical staff for a Grand Rounds presentation on HPV immunization in Gallup, N.M. Following the presentation, 76% of providers reported that as a result of the information received, they would make at least one change to improve patient care related to HPV vaccination. In addition, some medical providers expressed appreciation for “common sense approval in the era of the anti-vaccine movement.”

**Ohio: Success in providing HPV to many providers through conferences**
The Consortium for Health Education in Appalachian Ohio educated many providers on the importance of the HPV vaccine at the Celebrate Women’s Conference. This full day CME conference included topics on mind, body, spirit, health and wellness at Ohio University in Lancaster, Ohio. Dr. Jody Gerome presented “HPV immunization: You Are The Key to Cancer Prevention.” Also, the same program was presented at the Osteopathic Symposium, held in Columbus, Ohio. This was a large four-day conference attended by more than 400 practitioners that provided practical clinical medical information sessions.

Contribution of Partners in Training Programs

The structure of the AHEC program encourages partnerships with academic, community, agency, private, and non-profit partners. Involving these partners in the AHEC HPV training programs were critical to their success. Many of the partner relationships used by the AHECs were organizations and agencies with which the AHECs had partnered for other activities before the NAO HPV Immunization Project began. Other partnerships were developed specifically for this Project. Early in this Project, participating AHECs conducted an environmental scan to determine potential new partners. NAO staff worked closely to ensure that AHECs had a variety of partnership options for programming. Monthly grantee calls with fellow grantees and CDC staff provided partnership opportunities that were passed on to AHECs. A wide range of partner types contributed to the AHECs efforts to carry out the training programs. As shown in Table 15, most commonly, these partners were colleges and universities (18.3%), professional membership organizations (12.6%), cancer coalitions (12.5%), hospitals (10.5%), and public health departments (10.1%).

The partners contributed in many ways to the AHEC HPV training programs as listed in Table 16. Most commonly, the partners helped promote the training programs among their members and employees (38.7%), provided in-kind support, such as providing office space, meeting space, or facility support (30.8%), and helped in identifying and/or arranging for speakers (21.0%). However, 9.4% of the partners provided direct financial support to carry out the training sessions to cover expenses such as speaker honoraria, refreshments, and fees to provide continuing education credit.
Partner Success Stories

Maine: Making Connections to Prevent Cancer
The Maine AHEC Network took a lead role in bringing together local and state organizations to partner on the shared goal of preventing cancer, and in so doing, has ensured greater reach while avoiding duplication of efforts. “We know we are stronger and more effective together” said Zoe Hull, MPH, Maine AHEC Network’s Program Manager and the state coordinator for the National AHEC Organization HPV Project. Organizations involved in this effort included the New England Division of the American Cancer Society (ACS), the Maine Chapter of the American Academy of Pediatrics (AAP), Maine Quality Counts, the Patrick Dempsey Center for Cancer Hope and Healing, Maine Primary Care Association, MaineHealth, and state AHECs. The Maine AHEC Network also explored how to provide post-training technical assistance to health professionals regarding the implementation of the recommendations made in the training. “We hope that our continued training with current and future health professionals will make the HPV vaccine become the norm and one day we can say that Maine has 100 percent HPV vaccine coverage for our girls and boys,” Hull said.

Minnesota: Ongoing Partnerships Take Time, Effort and Trust
The state of Minnesota itself is not home to an AHEC; therefore, Scenic Rivers AHEC (SRAHEC), located in Wisconsin, oversaw the NAO HPV provider education efforts in Minnesota. Creating a relationship early on, regular follow-up and consistent and persistent efforts in building partnerships resulted in successful HPV training programs in Minnesota. Although the American Cancer Society (ACS) representatives in Minnesota did not initially see an opportunity to partner with the SRAHEC to conduct HPV training sessions, through SRAHEC’s consistent interest and involvement in other HPV-related work throughout the state, the trust between ACS and SRAHEC grew and a healthy partnership developed. In building partnerships, it’s important to remember that a “No,” doesn’t necessarily mean “Not ever.”

Delaware: Building Relationships Key to HPV Project Success
Without a federally-funded AHEC program in Delaware, neighboring Southeast Pennsylvania AHEC relied on established partnerships with organizations in Delaware that support Pennsylvania entities, building new relationships and forming partnerships to launch HPV education in that state as part of the National AHEC Organization’s HPV Immunization Project. Mara Lipschutz, director at the Southeast Pennsylvania AHEC, and Joy Taylor, project specialist, connected with immunization advocates in the state including the Delaware Medical Society, Delaware Academy of Medicine, Delaware Public Health Association, Delaware American Academy of Pediatrics, and the Immunization Coalition of Delaware to lay the foundation for partnerships that supported strong dissemination of education and materials to disseminate training and educational materials to increase HPV vaccination rates in Delaware.

Legacy of the AHEC Project to Sustain Continued Training of Professionals
Throughout the funded period, access to NAO developed HPV resources have been provided to all AHECs nationally through their NAO membership, including the archived webinars and slide sets for their own continuing education programs, training program evaluation strategies and tips, and social media approaches to promote training sessions. Information about current activities of the NAO HPV Immunization Project and resources available were shared weekly in a NAO membership newsletter that included web links to the HPV materials and resources. In addition, the Project resources were used by many AHECs across the US in the new AHEC Scholar program, a two-year program for health professions students designed to improve their practice readiness skills specifically for those living in rural and underserved communities. During the post-project period the archived versions of all of the national webinars are available on the NAO YouTube Channel https://bit.ly/2UT8qzM, which continues to be accessed regularly by providers, health professionals, health professions students, AHEC staff and others. Handouts referenced in the webinars were posted on the NAO Training Center website for a period of time after each webinar when available.

Two projects completed at the end of the Project are also being promoted to AHECs for their use. The first is an updated self-study program entitled “Your Confident HPV Recommendation” by Sharon Humiston MD, FACS that covers the basics of HPV disease, rationale for vaccinating at ages 11 or 12, and information on vaccine safety. This program provides CE credits for nursing and a general certificate for other professionals. A second program highlights seven
past webinars with commentary from Dr. Humiston. This program does not have CE credits, but certificates will be available to participants if desired. Both of these programs will be available on the NAO YouTube Channel and the NAO Training Center website for a minimum of 12 months.

In addition, NAO is providing social media content to all AHECs for their use in regular scheduled postings across a variety of platforms. The content consists of a series of more than 25 posts, hashtags, and graphics for Cervical Cancer Awareness Month, HPV Awareness Day, and National Immunization Awareness Month.

### Reaching Rural and Frontier Providers

**Number of Rural Providers Participating in AHEC Training Programs**

Since the mission of AHECs is to help ensure that all residents of the US have access to high quality medical care, much of the AHEC effort is focused on building up the medical care resources in rural and underserved areas, which typically have more health care shortages. Thus, AHECs have a long history of encouraging health care professionals to practice in rural settings as well as providing continuing education programs to rural health care providers. Consequently, many of the participants in the AHEC HPV training programs supported by the CDC cooperative agreement with NAO were providers practicing in rural or frontier settings.

Practice setting information for the participants in the AHEC training programs began being collected in Year 3 of the NAO HPV Immunization Project. Participants were asked to select one or more of the response options to describe the setting for their practices: “Frontier,” “Rural,” “Urban underserved,” or “Urban, not underserved.” Definitions of frontier, rural, and urban were not provided due to the lack of universally accepted definitions that respondents might understand; thus, in consultation with the project officer, it was decided to let the healthcare providers self-report their practice settings were in rural or frontier areas. Respondents were allowed to mark more than one option, since some providers practice in more than one setting, and some providers practice in settings with a mix of more than one type of patient population. A “Don’t know/Does not apply” response option was available for training program participants who weren’t sure of the setting for their practice or were not involved in a clinical practice.

A total of 26,597 AHEC training programs participants during and after Year 3 of the funding period were part of a clinical practice with known practice settings. Among this group, 40.2% of the participants in the AHEC HPV training programs indicated that they practiced in rural areas and 2.7% indicated they had frontier practice settings, as shown in Table 17.

**Number of Rural Providers Participating in NAO National Training Webinars**

Participating in webinars either in real time or as an archived version may be a particularly convenient way for busy practitioners to receive continuing education. This would be particularly the case for rural providers who may not be able to easily travel to in-person training sessions due to cost, travel, and time limitations. The webinars offered by the NAO National Training Center on HPV-related topics proved to be very popular with rural health care providers.

During the project period, practice setting was collected on 29 of the 31 national webinars offered by NAO and the results are included in Table 18. As was the case for the AHEC training programs, participants were asked to select one or more of the response options to describe the settings for their practices: “Frontier,” “Rural,” “Urban underserved,” or “Urban, not underserved.” A “Don’t know/Does not apply” option was available for those participants who were unsure of the classification of their practice or were not involved in a clinical practice. Of the 9,764 participants in these 29 webinars who reported their practice settings, 69.4% reported practicing in rural settings and 12.7% reported practicing in frontier settings. The percentage of rural based practitioners participating in the national webinars across the Project period was fairly consistently in the two-thirds to three-quarters range, while the percentage of those practicing in frontier settings were most often in the 10 to 15% range over the project period.
Rural Provider Interview and Survey Results
A qualitative survey of 204 rural health care providers was conducted to help NAO better understand how to increase the participation of rural providers in continuing education programs and to identify HPV immunization-related topics of specific interest to them. Most commonly, the rural providers obtained information about HPV vaccinations from the CDC website resources, health departments, and their professional organizations. Most often participants indicated that announcements for training opportunities came to them through email messages and web-based announcements. The most preferred ways to receive training were webinars and conference presentations or workshops. Many suggestions on how to improve access and make training work better for them were provided by the respondents. Participants noted that both parents and themselves need to be better educated to increase HPV vaccination rates.

Link to Rural Provider Study Report

Success Stories Reaching Rural Providers
Alaska: Training Across 663,268 Square Miles
The Alaska AHEC is no stranger to providing CE opportunities to the Healthcare Providers of Alaska while overcoming the challenges of a large land base, small populations and many providers practicing in remote locations. The Alaska AHEC needed to approach this training opportunity in a way that could reach as many providers as possible. They solved this problem by creating a webinar that providers could participate in from their own computers across the State. The webinar was recorded and processed for on-demand viewing with CE credits available and posted on the Alaska AHEC’s CE website and the Alaska Department of Health and Social Services HPV Vaccine Website.

Virginia: HPV Immunization Education Utilizes Distance Learning
Often, health professional training programs are held in centralized locations where commute times for rural providers are both lengthy and problematic. The Piedmont Access to Health Services (PATHS), Inc. AHEC has solved this problem using technology and distance learning options. Anjanette Farmer, Executive Director at PATHS AHEC, was committed to making training programs as convenient as possible by coordinating satellite locations to several remote areas within the state to transmit and broadcast her CE events. This model of blended distance learning involving multiple satellite locations as well as the host location gave attendees at the satellite locations both the value of participating in the live event in real time, along with the social dimension of joining a group of interested professionals to both view the broadcast as well as having the opportunity to engage and network with one another. This creative method of distance learning reduced the barrier of isolation often reported by webinar participants. The feedback received was very positive and included appreciation for the satellite broadcasting opportunity for rural practitioners to participate in the training.

Disseminate HPV-Related Educational Material to a Broader Audience of Health Care Providers and Students
Starting in Project Year 1 and continuing to the end of the Project, the NAO and AHECs disseminated a large amount of various HPV-related information to healthcare providers. Since it is important that health providers stay abreast of evolving CDC recommendations and guidelines for HPV vaccinations, this topic became a major theme of the materials disseminated. Other information disseminated related to announcements of training programs by NAO, AHECs, and partners on relevant HPV topics, such as: the burden of HPV, the latest research on cancers associated with HPV infections, how to deal with HPV vaccine misinformation, safety, and parental hesitation, along with changes practitioners could make in their practices to increase their HPV vaccination rates. The sources of the material included CDC, other CDC funded partner organizations, as well as material developed in-house by the NAO National Training Center and in partnership with the George Washington University Cancer Center. The HPV immunization material was distributed directly by NAO as well as through the AHECs affiliated with this Project.
Reach of HPV Materials
A concept commonly used in marketing work is “reach,” which for our project was defined as the estimated number of opportunities that health professionals had access to the HPV information and material that were disseminated. Through the course of the NAO HPV Immunization Project, the reach of the HPV material increased significantly each year from Year 1 to Year 5 of the Project, culminating in a total reach of the material was 13,996,093 as shown in Table 19. The table also shows that HPV-related material was disseminated using a variety of methods, most commonly through online social media platforms, web-based electronic sources and email messages.

NAO Leadership encouraged AHECs involved in the Project to share HPV-related messages and materials with their providers and partners in ways that they found to be most effective. AHECs found particular success with disseminating material electronically via social media and other electronic means, and these became forms that AHECs continued to utilize. When posting information to share on social media, AHECs were trained by NAO staff on how to properly count the potential reach of their messages (i.e., how many individuals can view a particular post or message). For each social media platform (Facebook, Twitter, Instagram, etc.) on which AHECs posted information, staff would count the total number of “friends” or “followers” as a base. Staff would then count the number of likes or shares on each post and identify the individual who liked or shared that specific post. Once identified, the AHEC would add that individual’s number of friends or followers to the AHECs’ base number for a summation for each individual post. Then a total would be cumulated for the social media reach for each AHEC for the given reporting month. To make this process easier, NAO staff developed a Dissemination Tracking Workbook with calculations to assist AHECs in calculating the correct potential reach of their social media efforts.

AHECs were also required to disseminate various materials at each HPV training event. These materials were updated throughout the Project period and included NAO, CDC, and other partner resources that were pertinent to the presentation and to the Project at the time. AHECs would count the total number of attendees and multiply that by the number of materials provided at the training, and then added that number to their reach.

AHECs also disseminated NAO, CDC, and other partner resources via email and web-based electronic sources such as MailChimp or Constant Contact newsletters. To calculate the total reach for email and web-based electronic sources, AHECs tracked the number of individual email addresses and multiplied the number of unique messages (email/newsletters) that were sent. These numbers were tallied for the month and added to the monthly report. AHECs often shared these resources with their partners and asked them to disseminate the materials on AHEC’s behalf. AHECs would then ask for the number of individuals on the partner’s email list and include that number as “reach” into the monthly report.

NAO leadership saw the utilization of social media to share HPV-related information grow exponentially throughout the project. To be more aware of the unique ways that AHECs were sharing their HPV-related information, NAO leadership created an email account that AHECs included in their electronic dissemination efforts. This email account allowed NAO leadership to view the resources being shared or included from each state, as well as highlight the exceptional ways AHECs were sharing HPV information within their state.
Success Stories Disseminating HPV Materials

**Georgia: Email Distribution List Helps With HPV Continuing Education**

Three Rivers AHEC has been conducting continuing education (CE) programs for at least 20 years. In the early 2000s, they began to utilize a database for their CE programs that required email addresses and began to collect that information from participants. At that time, Three Rivers AHEC did not realize the significance having an email database would play with promoting Georgia’s HPV training programs electronically. Three River AHEC database has grown to more than 3,000 email addresses that receive their live, webinar, and on-demand CE program notices as well as another pertinent HPV information.

**Mississippi: Challenges and Opportunities**

The Northeast Mississippi (NE MS) AHEC leads efforts to increase the dismal HPV Immunization rates amongst 11 and 12-year-olds in the state. To address the absence of a statewide health education network, NE MS AHEC has used electronic media and annual conferences as opportunities for training and promotion of the HPV vaccination. NE MS AHEC makes use of the healthcare professional association’s electronic newsletters and email blasts to share HPV vaccination awareness information with working healthcare professionals in the state.

- **Influencing National Efforts Related to Increasing HPV Vaccination Rates by Forming Strong Partnerships with Relevant Professional Organizations, Disseminating HPV Materials and by Collaborating with State and National Entities to Push HPV-Related Initiatives**

**Partnerships Developed and Maintained to Support National Activities to Increase HPV Immunization Rates**

The partnerships established by CDC and the CDC grantees over the project period developed quickly and by the end of the first year it became obvious that each partner had a key role in the overall aims of the project. The frequent group calls provided insight into each grantee’s work and lent itself to frequently opportunities for collaboration and or promotion. Due to the structure of the NAO HPV Project, the partnerships moved from being nationally focused to a state and regional focus, many of which continue today. The integration of AHECs normal work as part of partnerships and coalitions provided new audiences and linkages for the immunizations groups that had not existed in the past.

These partnerships became key to the success of the project. The partnerships brought together the NAO national webinar series and helped NAO grow the contact list to over 14,000 health providers and health care facility, practice and system contacts. One of the best aspects of the partnerships was how the grantees moved to a cohesive group focused on the project goals by working together when it was beneficial for the overall effort.

**HPV Resources Shared by Partners that were Used by NAO and AHECs**

Throughout this Project the CDC grantees freely shared resources and assisted in each other’s efforts. Each partner would include other grantees’ information in newsletters, mailings, programs and activities when and where appropriate. Grantees would also utilize social media to promote resources sharing between grantees and their partners. Some of the most popular resources disseminated included the HPV Roundtable NAO Clinical and Health System Resource guides, training program slide sets, associated handouts, and YouTube videos. The American Academy of Pediatrics (AAP) grand rounds and quality improvement project webinars and materials were also very helpful and shared. NAO and local AHECs also utilized the AAP’s IZ Community listserv to share information and resource links. Resources shared included the “Call your Pediatrician” and “Red Book” online, educational videos and much more. NAO worked closely with the Academic Pediatric Association (APA), the AAP and Kognito to promote the HPV Vaccine: Same Way, Same Day simulation app. This resource was of particular interest to AHECs who worked closely with health profession programs educating students and with pediatric and family medicine residency programs. NAO also shared with AHECs, the partners, and webinar participants various CDC publications, updates and resources. Being able to provide a variety of resources in one source was appreciated by the end users. AHECs
and NAO would hear back after each distribution how nice it was to get everything in one email, or how including an easy attachment made it possible in a busy office to utilize the resource quickly.

**Presentations to National and Regional Audiences to Increase HPV Vaccination Rates**

NAO participated in a variety of professional conferences and meetings promoting HPV Immunization, NAO’s work and as part of all grantee presentations. NAO also participated in a variety of meetings at CDC with other grantees for a variety of internal participants to share activities and successes.


NAO holds a biennial educational conference for AHEC program and center directors, staff, and partners. The HPV project activities and successes were sharer during presentations at the 2014, 2016, 2018, and 2021 conferences. In 2015, 2017, and 2019 NAO held leadership sessions for AHEC program and center leadership, selected partners and HRSA representatives. Sessions on the project included the impact of activities and training on providers, as well as how other AHECs not participating fully in the NAO HPV Project could assist with the project and utilize project resources.

**Success Stories Influencing National and Regional Efforts to Increase HPV Vaccination Rates**

**Delaware: Capitol Hill Education**

At a recent biannual National AHEC Organization Conference in Washington DC, Mara Lipschutz, along with Maryland AHEC West staff made appointments and visited legislators’ offices on Capitol Hill to educate legislative staff about the value and importance of AHEC programming and services including the HPV Immunization Project.

**Kentucky: Governor’s HPV Initiative**

Southern Kentucky AHEC’s presence at the Kentucky State Immunization Conference had a ripple effect that illustrates the power of collaboration. As a result, Southern Kentucky AHEC was asked to be a member of the Governor’s HPV Initiative, to assist in the planning of a statewide HPV conference, and join the newly resurrected state immunization coalition.

**Summary of the NAO HPV Immunization Project**

To meet the challenge of increasing the lagging HPV immunization rate in the US, this Project utilized the strengths of the national network of AHECs to provide training and support to health care professionals across the US, many of whom provide health care to residents in rural and underserved communities. NAO and the AHECs built on their local partnerships with a variety of 666 agencies, organizations, and professional groups to provide HPV training and support.
Throughout this project, NAO utilized a simplified rapid cycle quality improvement process (RCQI) to identify issues quickly and address them. This process is familiar to AHECs as part of the requirements of the AHEC funding from HRSA. NAO took advantage of opportunities to improve and plan a change when something wasn’t working as well as intended. Information and advice were gathered regarding possible reasons for the issue as well as possible solutions. Next, modifications were planned and implemented, which were then reviewed to examine the impact of the change. RCQI cycles were completed on a variety of activities including Project administration, marketing and advertising for educational programs to various health professions, distribution of handouts vs directing participants to websites, collection of health profession contacts information for inclusion in mailing lists, project specific requirements (use of logo, required messaging on marketing materials) and many others aspects of this Project. Thus, the NAO HPV Immunization Project leadership recommends this approach to the directors of other projects to help them identify and address issues that arise in a timely and effective manner.

An early challenge became evident during Year 1 in that the Project structure that included Regional Directors to support the AHECs worked well in some geographic regions but did not function well in other regions. The Regional Directors were well-intentioned but often did not have the experience or skills to help AHECs with specific issues they were having to implement the tasks needed for the Project. After gathering the information and considering alternatives, changing from a regional design to a design to involve project specialists with extensive training or experience in specific skill areas was found to be much more effective to help AHECs with their needs to complete Project tasks. The NAO Project leadership recommends that directors of other projects carefully monitor their project’s administrative structure on an on-going basis and make needed changes in the structure and personnel to ensure their project’s success.

One data collection challenge came with collecting profession information from continuing education program participants. Some key provider groups such as physicians, physician assistants, nurse practitioners and pharmacists were generally clearly identified. The challenge came with professions who take on other job titles at various health care entities. Many health professionals would register with their ‘job title’ which might not include their health profession. For example, Case Manager, may be a nurse, social worker or a non-health professional, Health Educator,
may be a certified health educator, registered nurse, licensed practical nurse, dietitian, or a person with a certificate in public health. This made it very difficult to accurately showcase the various health professionals who participated in the training sessions and webinars. NAO quickly realized this issue and began including a question requesting their actual health profession in addition to asking about their person’s job title. Examples were used to increase participants’ understanding of the question. If the data needed permits, it is recommended that questions include specific category response options as checkboxes rather than “open-ended” questions. If “open ended” questions are to be used to gather data, it is critical that the instructions help the respondent understand exactly what information is needed.

Another data collection challenge was having the ability to collect training program assessment data needed for the NAO project when AHECs partnered with other organizations who were reluctant to include program evaluation items to their questionnaires, or even allow a questionnaire to be administered to the participants at all. The NAO leadership made it clear that in order for the training session to be included in their required tally, the AHEC must be assertive to collect and report the evaluation data. The staff were given specific instructions and advice on how to collaborate with their partners on this issue. First, to indicate that the data are required by the funding agency -- NAO in this case since the AHECs were under contract with NAO to conduct the training sessions; and second, that the results of the evaluation items would be shared with the partner organization for their information and program improvement. Partners then were generally willing to allow the evaluation questions for the sessions. This strategy worked well and is recommended for other organizations should they have a similar challenge.

NAO was also aware that the requirement for continuing professional education varies from state to state as well as from profession to profession. While many health professionals will choose to participate in continuing education programs because CE credit is available to them; others would attend even when they have met their CE requirement, or when CE credits are not required for their health profession. The process required to obtain CE credit for the training involves considerable effort and expense. NAO would recommend for future projects involving health professional’s education that not all training programs need CE credits and they should assess the benefit of offering CE credit relative to the effort and cost involved in obtaining it. Many of our programs were attended by participants who did not need CE credits, but for other programs, having CE credit was both a benefit to the individuals as well as the facilities where they worked.

Another lesson learned was related to dissemination of information. In the ever-changing landscape of information, educational materials can be found in many places. For most people there are too many places to find information. The consolidation of information on the NAO Training Center website or being sent together to providers, has been beneficial to participants in the project. By acting as a central resource, it was easier for individual AHECs, partner organizations, and participants to locate HPV items and resources they needed.

Directing health professionals to multiple websites we found was also difficult in some cases, particularly if the provider’s office had limited electronic capacity and experience. The layers of information can be overwhelmingly confusing and search terms complex. Starting in the early years of the Project, AHECs provided Internet listings of new information available to health professional partners of interest to specific professionals. These weekly or monthly lists of resources would then be sent to health professionals via fax, mail or distribution at clinics/hospitals. AHECs had experience with this distribution method since it was effective and appreciated by the providers. NAO recommended to AHECs that they continue to use distribution methods similar to this format for this project to make sure the targeted professionals would be able to quickly access the information needed. This focused distribution used some “old school” methods as well as newer social media, electronic newsletter formats, email and texting. Through experience, NAO found that these basic methods of distribution were still effective. For many locations the “old school” fax to the office with a listing or distribution through a mailroom was greatly appreciated.