# Implementing Evidence-based Interventions to Increase HPV Vaccination Rates in SD

## Background

In 2015, statewide human papillomavirus (HPV) vaccination coverage rates were well below the national average. Series completion rates for females ages 13-17 were at 32%, compared to 42% nationally, and rates among males ages 13-17 fell even lower at 22%, compared to 28% nationally.[1]

In an effort to reduce the burden of HPV associated cancers, the SD Comprehensive Cancer Control Program, Immunization Program, and All Women Count! Program within the SD Department of Health (SDDOH) released a request for applications targeting health systems interested in partnering to implement evidence-based interventions to increase HPV vaccination rates in the state.

Sanford Health was awarded funding to implement client reminders and provider assessment and feedback. As complementary efforts, a provider education plan was established in partnership with a vaccine manufacturer. Additionally, screening of the Someone You Love: the HPV Epidemic documentary occurred with a panel discussion at several universities and in a public screening. Sanford also focused on establishing a same way, same day and no missed opportunities culture that aimed to ensure every eligible adolescent received a strong recommendation for the HPV vaccine regardless of their visit reason. The year one project period ran from July 1, 2015 – June 30, 2016, and included seven primary care clinics in SD. Due to the success of year one efforts, the SDDOH released a continuation RFA and awarded Sanford Health funds to expand efforts to focus on series completion in the original seven clinics and expand efforts to include an additional 32 clinic sites in SD. Year two efforts ran from July 1, 2016 – September 30, 2017.

## Patient Population

The patient population for year one of the project included male and female patients who had been seen at one of the seven primary care clinics since May of 2014 and were between the ages of 11 and 26. Year two maintained the last visit date of May of 2014 and expanded to include male and female patients ages 11-26 seen at any of the 39 clinic location sites. The eligible patient population for the seven primary care clinics included approximately 8,700 clients at the beginning of year one; as new patients aged in and were seen, the eligible population expanded to approximately 12,000 by the conclusion of project year one. The cumulative eligible patient population for all sites increased from 35,700 at the start of year two to approximately 46,100 patients at the conclusion of the project.

## Interventions

During year one, client reminders were implemented for those due for first or subsequent HPV vaccine doses. For minors ages 11-17, reminders were sent to the adolescents' parent/guardian. Patients 18-26 received the reminder directly. A multiple modality reminder approach was utilized. The first reminders included both an automated TeleVox reminder call that was recorded by a Sanford Health provider in addition to a mailed reminder. Two months later, a query was run to determine those still due for HPV vaccine. A second TeleVox call reminder was deployed for these patients. Four months later, a follow-up mailed reminder was sent to patients still outstanding for HPV vaccination. New patients were also added into the subsequent query reports and included in reminder provision. In total, 41,576 client reminders were disseminated during project year one.

During year two, a combination of mailed and TeleVox reminders were utilized. Additionally, with a focus on series completion, nursing staff were utilized to make reminder phone calls to patients and/or guardians. In year two, a total of 62,995 reminders were disseminated, equaling over 104,000 reminders disseminated during the two-year project period. Reminder efficacy was tracked for a portion of the nursing phone calls in year two. For patients ages 11-17 (n=546), 45% presented for their next dose of HPV vaccine after a reminder call from nursing staff. Among patients ages 18-26 (n=1,403), only 6% presented for their next dose. Both groups had a similar amount who had moved away, a disconnect number, or refused at 19% and 20% respectively.

Provider assessment and feedback was utilized in both project year one and two. This intervention focused on the provision of vaccination reports to providers on a monthly basis that included both provider specific and clinic rates. The rates were shared in an un-blinded manner and provided a non-punitive environment to discuss challenges, barriers, and opportunities for improvement. The reports included rates for the following indicators: zero doses HPV, HPV series completion, Tdap, meningococcal first dose, meningococcal booster, and the 2020 goal.

A second provider assessment and feedback report focused on missed opportunities. This report assessed patients seen at the participating clinics who had one or more due/overdue adolescent immunizations that were not administered at the clinic visit. Clinic staff was expected to audit 10% of the charts with a missed opportunity to identify why the due/overdue vaccines were not administered.

## Results

Outcome measures tracked to demonstrate effectiveness included HPV vaccine doses administered, patients who had not started the HPV vaccine series (zero doses), and those who had completed the HPV series. Doses of HPV vaccine were tracked at baseline and during both project year one and two. The seven primary care clinics saw a percent change increase of 92%, with 2,986 doses administered during the project period and 1,554 during the baseline period one year prior. For project year two, the 39 clinic sites administered 10,234 doses, which was a 48.7% increase from the baseline number of 6,883 doses administered.

The rate of zero-dose vaccination decreased by 22%, 64% to 42%, among the seven clinics participating in both project years. The 39 sites participating in year two saw a 9% reduction, 54% to 45%, in zero-dose vaccinations. Series completion rates increased 13%, 25% to 38%, from project initiation to closeout throughout the two-year project.

As noted in the population section, this project was implemented in a clinic setting thus interventions were implemented with an active patient population. Gains are likely minimized by the fact that the eligible patient population continuously increased during the two-year project period.

**Limitations**

During the project period, in December 2016, the Advisory Committee on Immunization Practices recommendations for HPV vaccination changed from a three-dose series to a two-dose series for most adolescents who initiated vaccination prior to their 15$^{th}$ birthday, with the three dose requirement remaining for older patients.[2] The health system reflected this recommendation change in their data for series completion in February of 2017. Additionally, the health system underwent an attribution methodology change that affected how patients were attributed to providers and clinics. Given this change during the project period, the project team determined it would be best to rerun all project data using the new attribution methodology. All data reflected in this report includes the new attribution methodology.

**References**

1. Morbidity and Mortality Weekly Report (MMWR). (2016). National, Regional, State, and Selected Local Area Vaccination Coverage among Adolescents Aged 13–17 Years — United States, 2015. Retrieved from https://www.cdc.gov/mmwr/volumes/65/wr/mm6533a4.htm

2. Centers for Disease Prevention and Control. (2016). Vaccine Recommendations and Guidelines of the ACIP. Retrieved from https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html