



Adapting Evidence Based Interventions to Increase Uptake of the Human Papillomavirus (HPV) Vaccine: The Role of Local Knowledge

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Non-Hispanic
71%

Hispanic
(of any race)
28%

American Indian/Alaskan Native

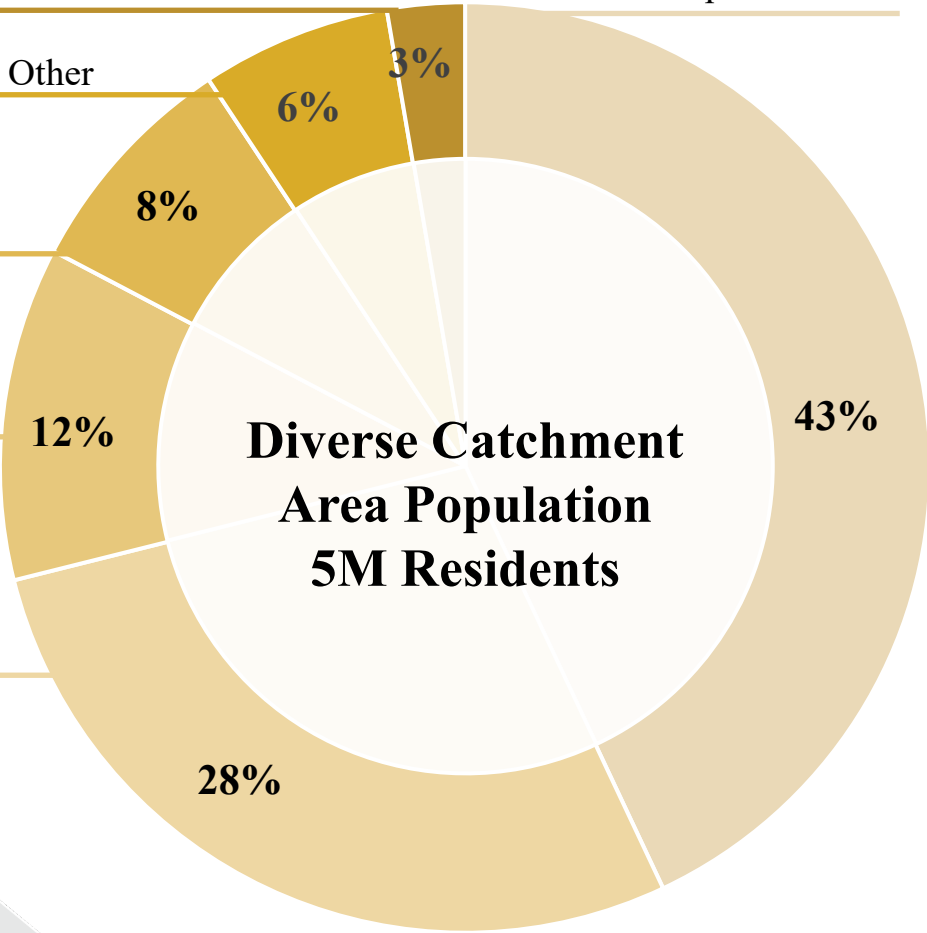
Non-Hispanic White

Other

Non-Hispanic Black
or African American

Non-Hispanic Asian American,
Native Hawaiian, and Other
Pacific Islander

Hispanic or Latinx
(of any race)



**Diverse Catchment
Area Population
5M Residents**

Catchment Area: 19 counties

URBAN
58%

NON-METRO
42%

By Rural-Urban
Commuting
Area Codes



Pre-Implementation: Environmental Scan, Needs Assessment, Key Informant Interviews/Focus Groups, Surveys, EMR Review



Human Papillomavirus (HPV) Vaccination in Inland Northern California
 FINDINGS FROM AN ENVIRONMENTAL SCAN
 2017-2019

UCDAVIS HEALTH | COMPREHENSIVE CANCER CENTER



Patient and clinician factors associated with uptake of the human papillomavirus (HPV) vaccine among adolescent patients of a primary care network

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1. Introduction

The human papillomavirus (HPV) causes as well as the majority of oropharyngeal cancers [1]. The Prevention (CDC) estimate that

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RESEARCH PAPER

"There's Always Next Year": Primary Care Team and Parent Perspectives on the Human Papillomavirus Vaccine

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ABSTRACT

Acceptance of the human papillomavirus (HPV) vaccination among parents and clinicians is high, but uptake remains low. Little is known about organizational and primary care team factors that influence the uptake of the HPV vaccine. Interviews with clinicians, clinic support staff, and parents of adolescent patients were conducted to better understand the interrelationships among the people and the organizational processes that influence HPV vaccine uptake at the point of care. Between July 2016 and February 2017, semi-structured interviews of 40 participants (18 clinicians, 12 clinic support staff, and 10 parents of adolescent patients) in a primary care network were conducted. Organizational structures and processes, such as electronic provider reminders, availability of "vaccination only" appointments, and knowledgeable primary care team members contributed to HPV vaccine uptake. Consistently high support of HPV vaccination was found among key informants; however, rather than refuse HPV vaccination, parents are opting to delay vaccination to a future visit. When parents express the desire to delay, clinicians and care team members described often recommending addressing HPV vaccination at a future visit, giving parents the impression that receiving the vaccine was not time-sensitive for their child. Discrepancies in HPV vaccination recommendations among providers and clinic support staff may contribute to delayed HPV vaccination. Strong, high-quality HPV vaccine recommendations are needed from all primary team members. Clinic interventions to accelerate HPV vaccine uptake may benefit from a team-based approach where every member of the primary care team is delivering the same consistent messaging about the importance of timely HPV vaccination.

Introduction

The human papillomavirus (HPV) is the most common sexually transmitted infection in the United States. Approximately 79 million Americans are currently infected and roughly 14 million Americans will acquire a new infection each year.¹ Spread through skin-to-skin contact and most commonly contracted through sexual contact, HPV impacts everyone, regardless of gender and sexual orientation. The Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination with the two-dose series at ages 11–12 years and recently updated their recommendation for catch-up three-dose vaccination (for those who were not previously vaccinated) through age 26 for both males and females for the prevention of several HPV-associated diseases.² The prior HPV vaccine catch-up ages for males was 13 through 21³ but is now aligned with the female recommendation to 26 years of age. The committee also recommended vaccination for individuals aged 27 through 45 years who have not been adequately vaccinated based on shared clinical decision-making between the patient and their provider.⁴ HPV vaccination is the optimal primary prevention strategy against HPV-related diseases. The HPV vaccine can

prevent about 92% of cancers caused by HPV and almost all cases of genital warts.⁵

Despite these recommendations and the public health implications of full vaccination coverage, adolescent HPV vaccination rates remain low. In 2018, 51.1% of US adolescents aged 13–17 were up to date with the recommended HPV vaccination series.⁶ Although this is an overall increase in uptake from previous years, it is still substantially lower than the coverage for the other two recommended vaccines at these ages: the tetanus, diphtheria, and acellular pertussis vaccine (Tdap) at 89%; and for the meningococcal conjugate vaccine (MenACWY) at 86.6%.⁶

While there has been a wave of studies and systematic reviews that have examined the barriers and facilitators to HPV vaccination uptake,^{7–10} many of the findings from these studies have been inconsistent. These studies report high levels of vaccine acceptability among parents and clinicians; yet, nationally, HPV vaccine uptake remains far below the Healthy People 2020 goal of 80%.¹¹ The majority of studies have focused on one or two levels of influence (e.g., parents and/or clinicians); however, parents and clinicians have reported that their views on the HPV vaccine are influenced by each other as well as by factors related to the health

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Stakeholder Engagement



Parent

- Social, religious and/or cultural issues
- Vaccine perceived as optional
- Not receiving a provider's recommendation

“My son isn't having sex yet, so it's not necessary”



Provider/Healthcare System

- Find it challenging to discuss HPV vaccine
- Cannot change parent's mind
- Lack of appropriate educational materials

“I can probably change parents mind about 20% of the time...and that's only with proper education...”



Community

- Media coverage & online controversy
- Word of mouth horror stories
- Religious affiliation not in support

“...parents get many negative stories from Facebook and online communities... Dr. Google is an issue...”

Human Papillomavirus (HPV) Vaccination in Inland Northern California

FINDINGS FROM AN ENVIRONMENTAL SCAN
2017-2019

UC DAVIS HEALTH | COMPREHENSIVE CANCER CENTER

Multilevel factors associated with HPV vaccine uptake



Patient and clinician factors associated with uptake of the human papillomavirus (HPV) vaccine among adolescent patients of a primary care network

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1. Introduction

The human papillomavirus (HPV) is a common sexually transmitted infection (STI) and a leading cause of cervical cancer and other gynecological cancers (CDC).

Abbreviations: HPV: Human Papillomavirus; STI: Sexually Transmitted Infection; * Corresponding author. E-mail address: jdang@ucdavis.edu

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- Most patients (63.0%) had at least one dose of the HPV vaccine, and 37.7% were up to date.
- Patients who received the Tdap vaccine (OR = 2.8) compared to those who did not receive the vaccine and patients with five or more medical visits (OR = 1.9) had the greatest odds of being up to date with the HPV vaccine series.
- Compared to White patients, African American/Black (OR = 0.8) and Alaskan Native/American Indian (OR = 0.5) patients were less likely to be up to date.
- Boys were also less likely to be up to date with the HPV vaccine series compared to girls (OR = 0.7).
- Patients with family/general practice primary care clinicians were less likely to have their patients up to date than those with pediatricians (OR = 0.8)

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ABSTRACT
Acceptance of the human papillomavirus (HPV) vaccination among parents and clinicians is high, but uptake remains low. Little is known about organizational and primary care team factors that influence the uptake of the HPV vaccine. Interviews with clinicians, clinic support staff, and parents of adolescent patients were conducted to better understand the interrelationships among the people and the organizational processes that influence HPV vaccine uptake at the point of care. Between July 2016 and February 2017, semi-structured interviews of 40 participants (18 clinicians, 12 clinic support staff, and 10 parents of adolescent patients) in a primary care network were conducted. Organizational structures and processes, such as electronic provider reminders, availability of "vaccination only" appointments, and knowledgeable primary care team members, contributed to HPV vaccine uptake. Consistently high support of HPV vaccine HPV vaccination, parents are the desire to delay, clinicians and vaccination at a future visit, giving sensitive for their child. Discordance support staff may contribute to data delays; are needed from all primary uptake may benefit from a team-based delivering the same consistent mess

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Human papillomavirus; vaccination; adolescent; health; healthcare team; qualitative research

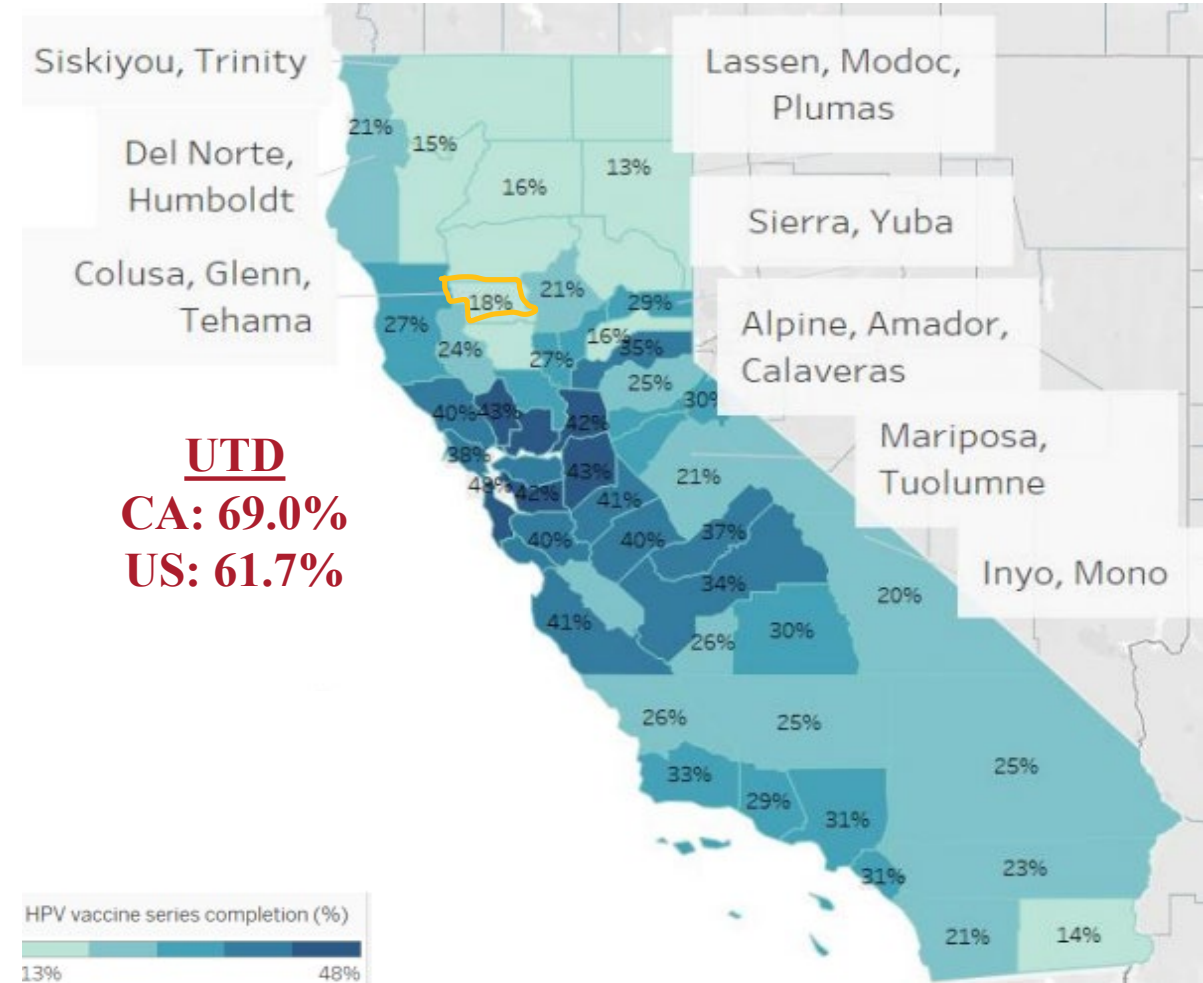
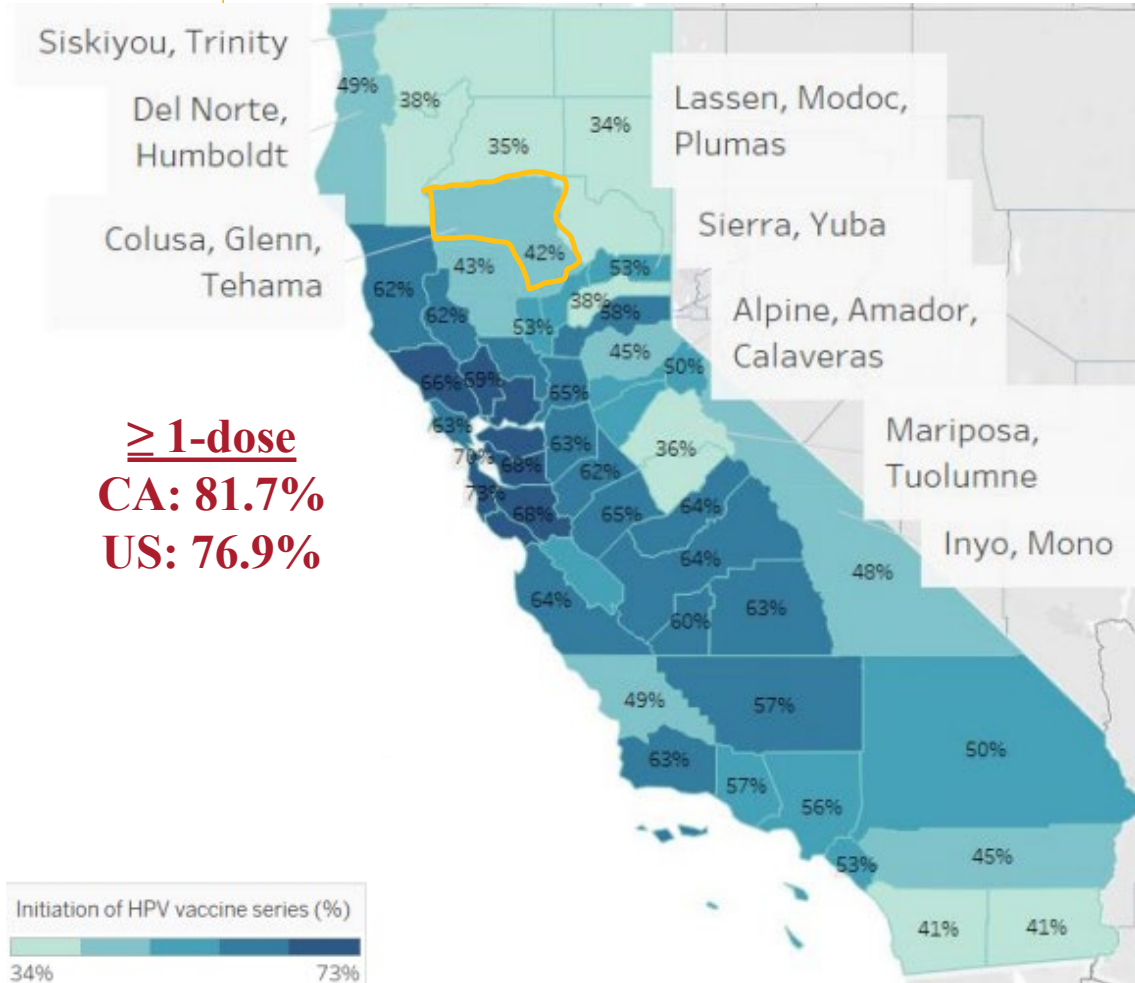
Introduction

The human papillomavirus (HPV) is a sexually transmitted infection in the United States. 79 million Americans are currently 14 million Americans will acquire each year.¹ Spread through skin-to-skin contact, HPV is the most common sexually transmitted infection, regardless of gender and sexual activity. The Advisory Committee on Immunization recommends routine HPV vaccination series at ages 11–12 years and recent recommendation for catch-up three-dose series were not previously vaccinated through and females for the prevention of diseases.² The prior HPV vaccine series was 13 through 21³ but is now a recommendation to 26 years of age recommended vaccination for individuals 45 years who have not been adequately shared clinical decision-making between providers.⁴ HPV vaccination is the optimal strategy against HPV-related disease.

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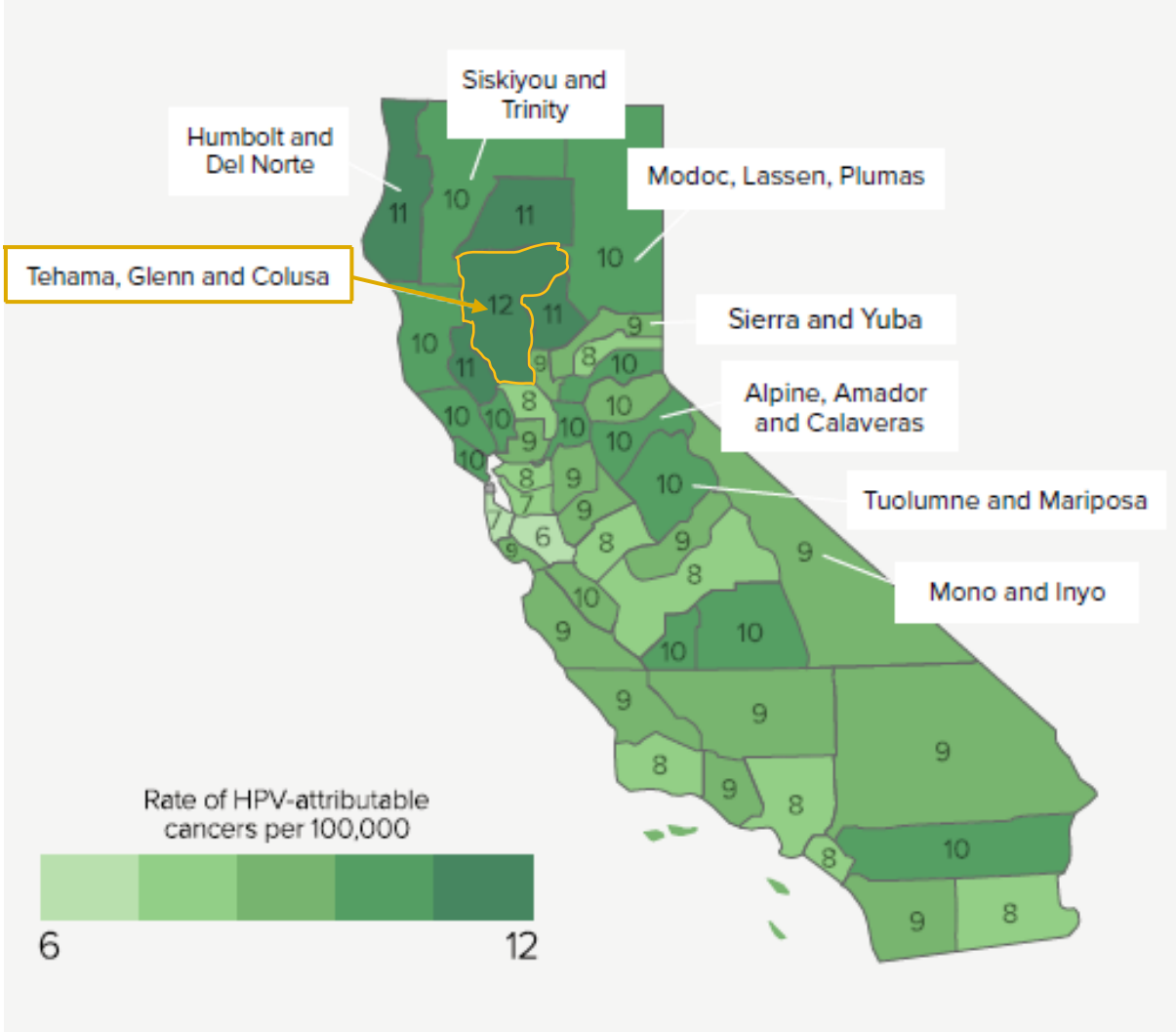
- Consistently high support of HPV vaccination was found among key informants; however, rather than refuse HPV vaccination, parents are opting to delay vaccination to a future visit.
- When parents express the desire to delay, clinicians and care team members described often recommending addressing HPV vaccination at a future visit, giving parents the impression that receiving the vaccine was not time-sensitive for their child.
- Discordance in HPV vaccination recommendations among providers and clinic support staff may contribute to delayed HPV vaccination.

HPV Vaccine Series Rates Among 13-Year-olds by CA County, CA, 2019, CAIR



<https://www.cahpvrtable.org>

Age Adjusted rate of HPV-attributed cancers (per 100,000) by CA County, 2019



<https://www.cahpvrroundtable.org>

- Majority reside in Glenn County, CA and Colusa County, CA (RUCA 7 with large areas having an 8 and 10 designation).
- Most covered through California's **Medicaid Program, Medi-Cal** and/or **Indian Health Services**.
- As of April 2018, the Willows Clinic had **2,578 active patients** with approximately **267** being between the ages of 11-17.

© Stephen R. D. Thompson 2016



In 2018, of the 267 adolescent patients, **27% have completed the HPV vaccination series (30% of Native adolescents and 25% of Non-Native adolescent)**

Interventions to Increase Vaccination

WHAT WORKS Vaccination
Evidence-Based Interventions for Your Community

The Community Preventive Services Task Force (CPSTF) has released the following findings on what works in public health to improve vaccination rates. These findings are compiled in The Guide to Community Preventive Services (The Community Guide) and listed in the table below. Use the findings to identify intervention strategies you could use for your community.

Legend for CPSTF Findings: ● Recommended ◊ Insufficient Evidence ▲ Recommended Against (See detailed description on the next page.)

INTERVENTION	CPSTF FINDING
ENHANCING ACCESS TO VACCINATION SERVICES	
Home visits to increase vaccination rates	●
Reducing client out-of-pocket costs	●
Vaccination programs in schools and organized child care centers	●
Vaccination programs in WIC settings	●
INCREASING COMMUNITY DEMAND FOR VACCINATIONS	
Client-held paper immunization records	◊
Client or family incentive rewards	●
Client reminder and recall systems	●
Clinic-based education when used alone	◊
Community-based interventions implemented in combination	●
Community-wide education when used alone	◊
Monetary sanction policies	◊
Vaccination requirements for child care, school, and college attendance	●
PROVIDER-OR SYSTEM-BASED INTERVENTIONS	
Health care system-based interventions implemented in combination	●
Immunization information systems	●
Provider assessment and feedback	●
Provider education when used alone	◊
Provider reminders	●
Standing orders	●

Recommended

- Home visits
- Reducing out of pocket costs
- Programs in schools
- Client or family incentive/reward
- Client reminder and recall systems
- Community based interventions implemented in combination
- Health system-based intervention implemented in combination
- Immunization information systems
- Provider assessment and feedback
- Provider reminders
- Standing orders

Insufficient evidence

- Client-held paper immunization records
- Clinic based intervention when used alone
- Community wide education when used alone
- Provide education when used alone

Recommended

- Home visits
- Reducing out of pocket costs
- Programs in schools
- Client or family incentive/reward
- **Client reminder and recall systems**
- **Community based interventions implemented in combination**
- **Health system-based intervention implemented in combination**
- Immunization information systems
- **Provider assessment and feedback**
- **Provider reminders**
- **Standing orders**

Insufficient evidence

- Client-held paper immunization records
- Clinic based intervention when used alone
- Community wide education when used alone
- Provide education when used alone

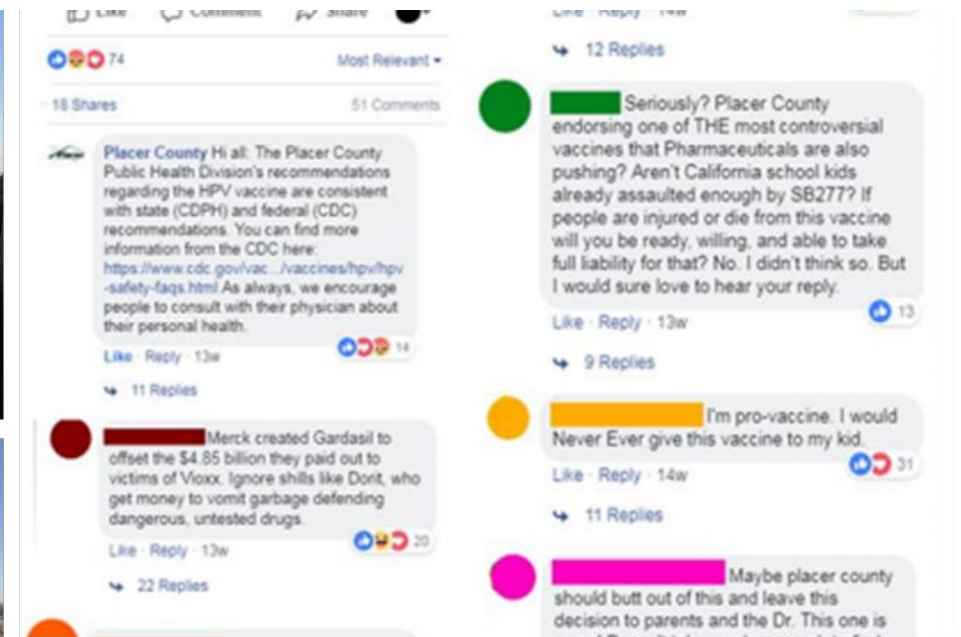
Anti-vaccine sentiments

“We have a chiropractor in town that has spoken out against the HPV vaccine and has told parents not to get it for their child”

-Caretaker

“Have you seen the anti-vaccine signs on the freeway...it’s what patients see before they exit to the clinic...”

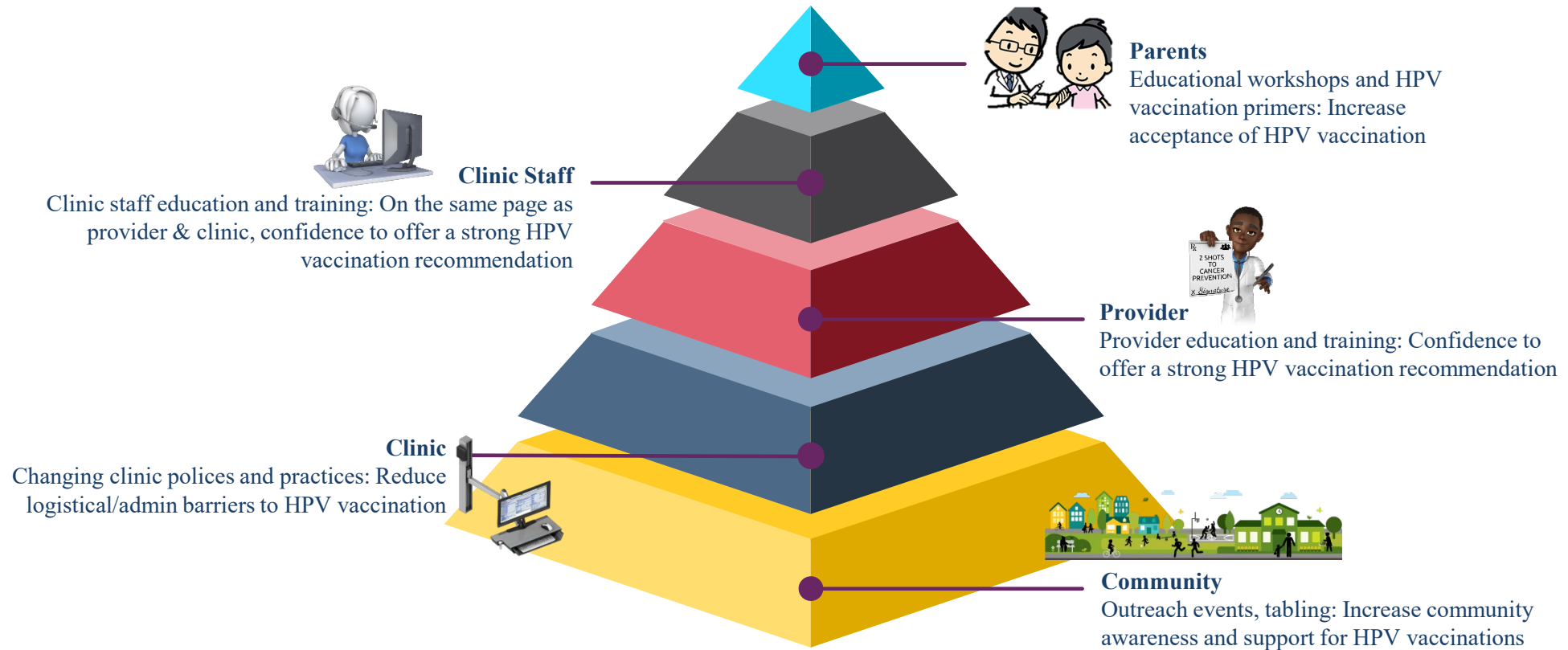
-Clinician



Cultural Adaptation: Local Environment



Multi-Level Approach



Parent Level



Workshops

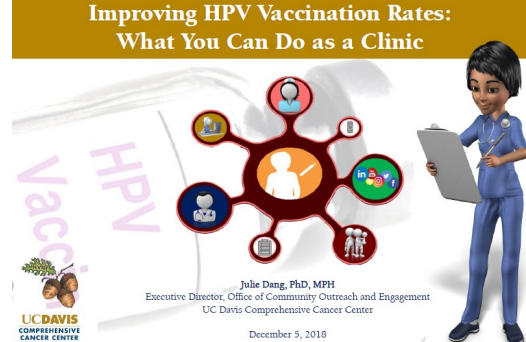
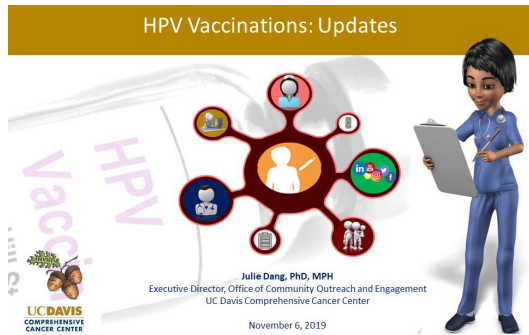


Birthday reminder postcards

“Honestly, my daughter did get the shot, but I did not know what it was for, now (after attending workshop) I know...and I will tell my community how important it is....”

- Mother

Primary Care Team Level



Clinic-wide training for all employees

“...a patient came with a broken arm, and I remember you saying broken leg, you can still vaccinate...”

- Clinician

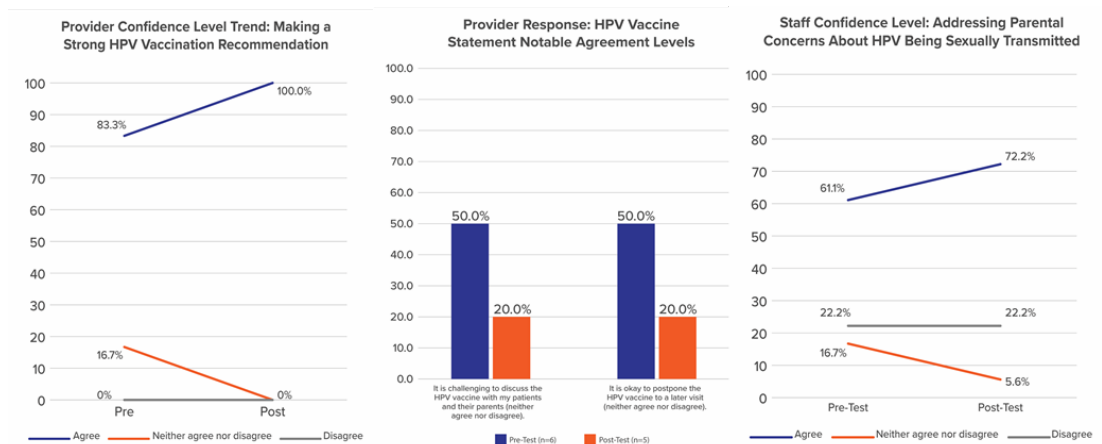


Figure 1: Provider confidence level trend for making a strong HPV vaccination recommendation.

Figure 2: Provider increased confidence in ability to promote the HPV vaccine (decrease in barriers).

Figure 3: Staff confidence level trend for addressing parental concerns about HPV being sexually transmitted.

Clinic Level



Chester Austin, MD
NVH Medical Director



Julie Dang, PhD, MPH
Collaborative Program Manager



Sharon McClure
Quality Assurance Manager

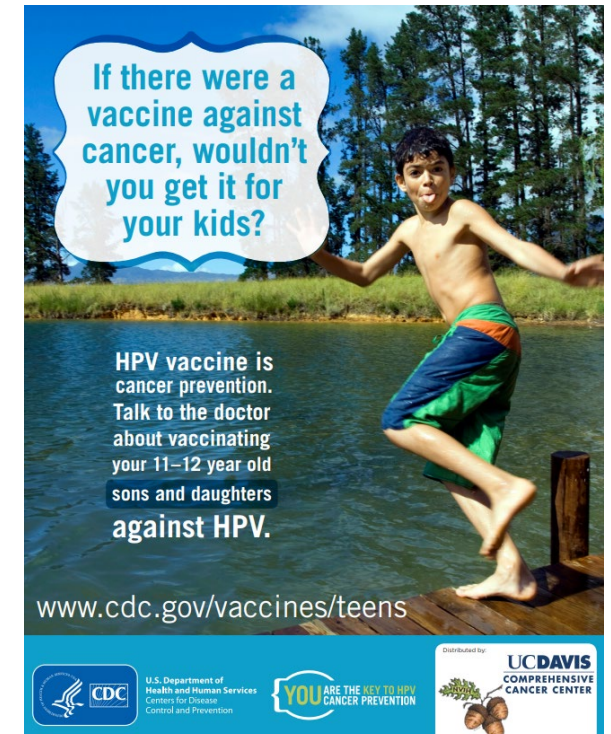
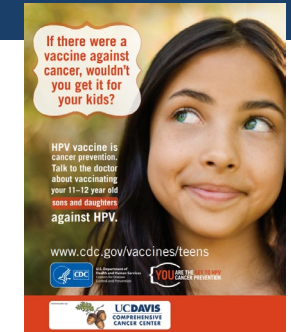


Moon S. Chen Jr., PhD, MPH
Collaborative Program Director



Monthly collaborative calls, provider champion, standing orders & clinic visual reminder cues

“Providing the baseline rates and subsequent rates on a regular basis helped us see where we were and where we needed to be”
- Clinician





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ORIGINAL ARTICLE

THE JOURNAL OF RURAL HEALTH

Implementation and evaluation of a multilevel intervention to increase uptake of the human papillomavirus vaccine among rural adolescents

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Abstract
Purpose: Geographic disparities exist in uptake of the human papillomavirus vaccine (HPV). In 2020, the National Immunization Survey Teen reported that adolescents living in nonmetropolitan statistical areas (MSAs) had lower HPV vaccination coverage (≥ 1 dose) compared to adolescents living in MSA principal cities. This paper describes the implementation and evaluation of a multilevel pilot intervention study to increase uptake of the HPV vaccine among adolescent patients ages 11–17 of a rural health clinic.
Methods: This parent, primary care team, and clinic multilevel pilot intervention was guided by evidence-based approaches to increase HPV vaccinations, formative research, and input from the community. HPV vaccination initiation and completion rates were analyzed at baseline and 23 months follow-up.
Findings: The proportion of adolescent patients ages 11–17 who had initiated the HPV vaccine series was significantly greater at follow-up compared to baseline, (82.7% compared to 52.4%), $\chi^2 (1, n = 498) = 49.2, P < .0001$. The proportion of adolescent patients ages 11–17 who had completed the HPV vaccine series was also significantly greater at follow-up compared to baseline, (58.0% compared to 27.0%), $\chi^2 (1, n = 498) = 50.8, P < .0001$.
Conclusions: The multilevel intervention significantly increased HPV initiation and completion rates among adolescent patients ages 11–17 at this rural health clinic. This study demonstrates the feasibility of utilizing a multilevel intervention to address low HPV vaccination rates among rural adolescents and the potential of employing this strategy for a large-scale randomizing-controlled trial.

KEYWORDS: human papillomavirus vaccination, multilevel intervention, rural adolescents, rural health clinic



Outcomes

- Increased HPV vax completion by 31.0% and HPV vax initiation by 30.3% (Northern Valley Indian Health)
- Increased HPV completion rates from 35.3% to 42.5% among Asian American and Pacific Islander (API) patients of a Federally Qualified Health Center look-alike (Health and Life Organization)
- Increased HPV vax initiation from 66% to 79% (Tahoe Forest Health System)

Community Adaptation Considerations





Thank-you

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