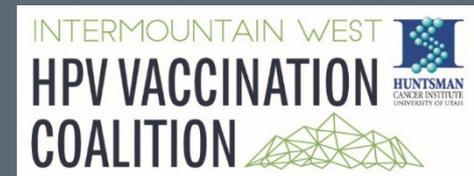


Improving HPV Vaccination in the Intermountain West

Wyoming Medical Society Annual Meeting

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June 2, 2017



Disclosures

No financial disclosures or conflicts of interest to disclose

Overview of Topics



- Overview of HPV & HPV-related cancers
- Status of HPV vaccination in the Intermountain West
- Local HPV vaccination studies
- Current projects
- CDC recommended strategies to improve HPV vaccination
- Next steps

HPV Vaccination

can **prevent** an estimated

28,500 new **cancers** per year.

That's more than the average attendance at one of the largest pop concert tours of last year.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention



HPV in the news...

Utah's youth still have trouble accessing, completing HPV vaccine

Emily Havens, ehavens@thespectrum.com Published 12:01 p.m. MT Jan. 23, 2017 | Updated 9:49 a.m. MT Jan. 24, 2017

CDC updates HPV vaccine recommendation; Utah remains among least-vaccinated states

POSTED 7:13 PM, JANUARY 11, 2017, BY DANICA LAWRENCE, UPDATED AT 07:55AM, JANUARY 12, 2017

Utah parents' fears of promiscuity blamed for not protecting kids against cancer

by Cristina Flores | Monday, January 16th 2017

ADVERTISEMENT



Film reveals the dangers of HPV

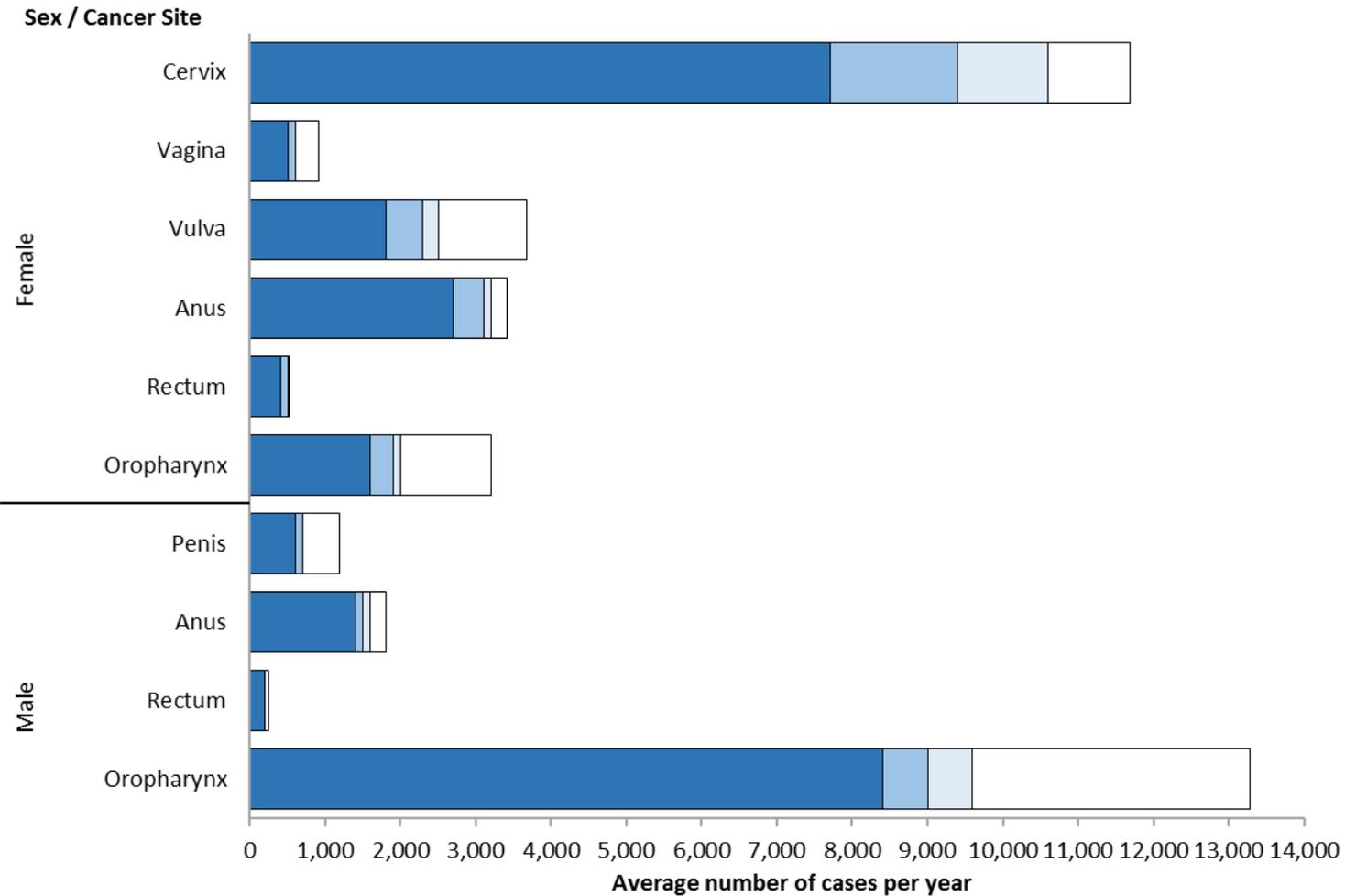
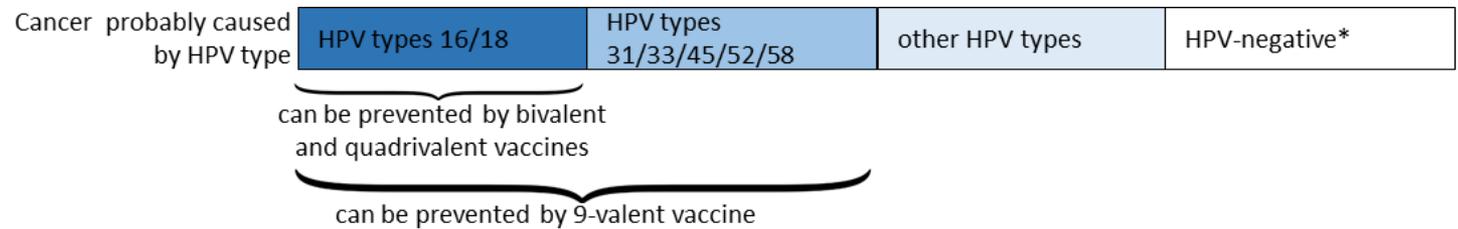
The Wyoming County Examiner - Mar 22, 2017

According to Cheryl McGovern, chair of the Wyoming County ... 9-26 that provides immunization to nine strains of the virus that cause cancer.

HPV Infection

- Most females and males will be infected with at least one type of mucosal HPV at some point in their lives
 - Estimated 79 million Americans currently infected
 - 14 million new infections/year in the US
 - HPV infection is most common in people in their teens and early 20s
- Most people will never know that they have been infected

HPV-Associated Cancers per Year, United States, 2009–2013



Based on Viens et al. MMWR 2016. <https://www.cdc.gov/cancer/hpv/statistics>

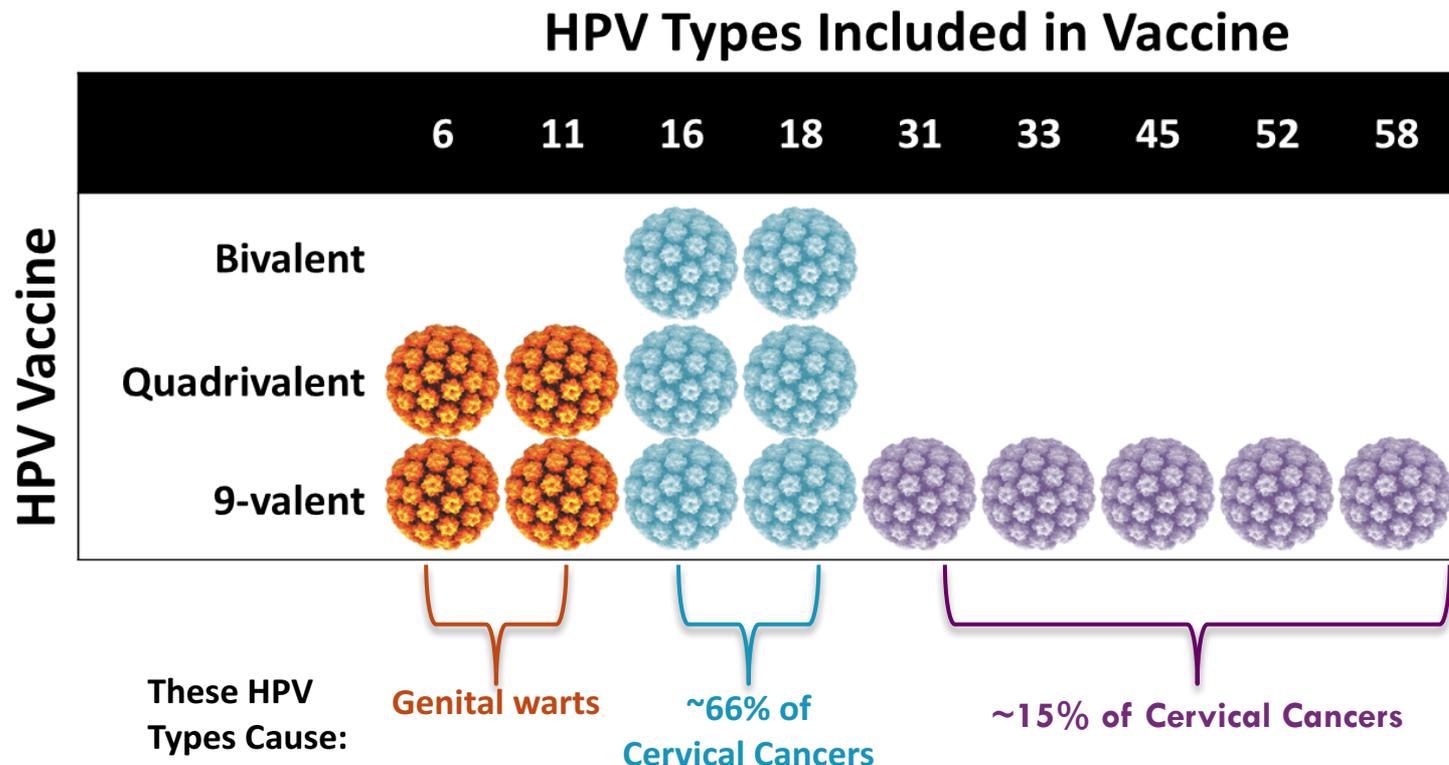
HPV Vaccination Recommendations

Age	Dose
9-14 years males/females	2 doses at 6-12 months apart
15-26 years females 15-21 years males*	3 doses over 6 months
*males ages 21-26 can be vaccinated if higher risk or recommended by primary care provider	
<i>11 and 12 years old is the recommended age for vaccination of males and females</i>	



Why at 11 or 12 years old?

- Better immune response
- Before first exposure to HPV



Status of HPV Vaccination in the U.S. & Intermountain West



HPV VACCINATION IS THE BEST WAY TO PREVENT MANY TYPES OF CANCER

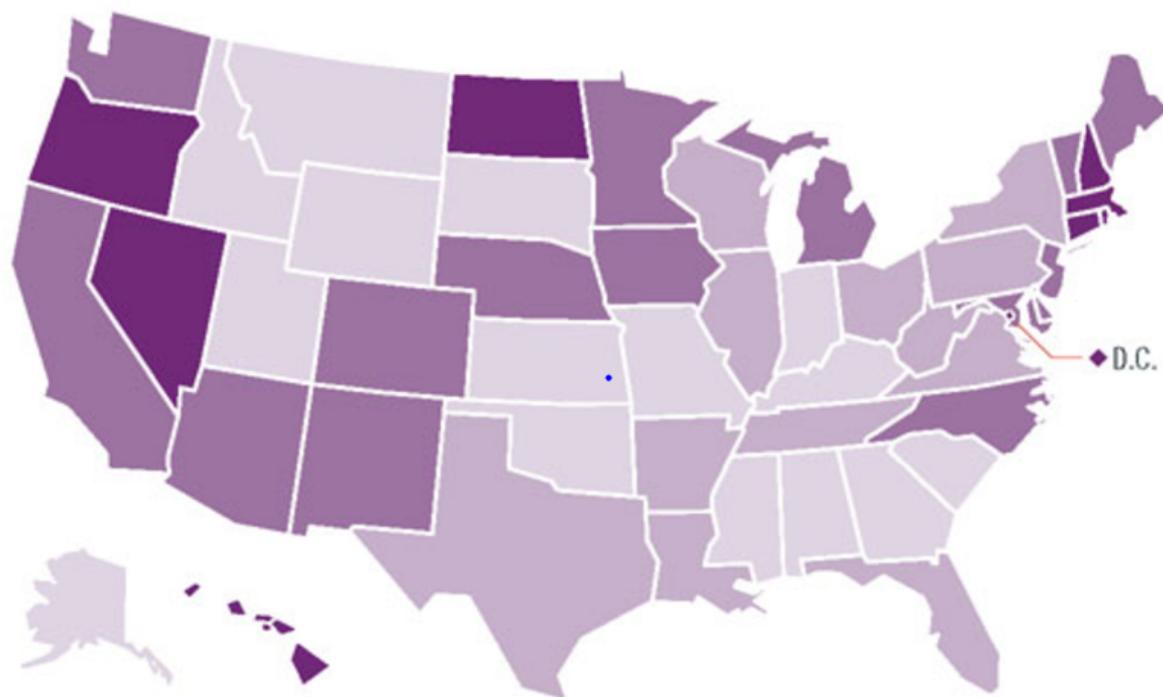
NATIONWIDE
6 OUT OF 10
GIRLS HAVE STARTED
THE HPV VACCINE SERIES

National coverage is 63%

Coverage by state:



Percentage of adolescent girls who have received one or more doses of HPV vaccine*

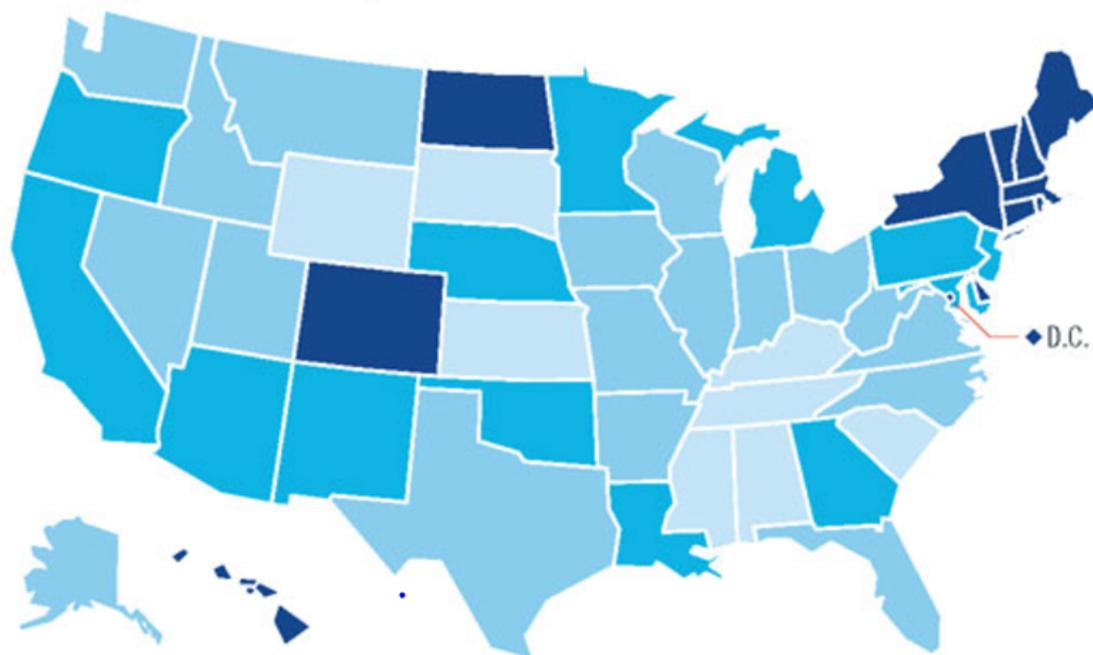


NATIONWIDE 5 OUT OF 10 BOYS HAVE STARTED THE HPV VACCINE SERIES

National coverage is 50%
Coverage by state:



Percentage of adolescent boys who have received one or more doses of HPV vaccine*



IMPROVING HPV VACCINATION RATES WILL HELP SAVE LIVES.
A high national Tdap vaccination rate of 86% shows that it is possible to achieve high HPV vaccination coverage.

*Estimated coverage with ≥ 1 dose of human papillomavirus (HPV) vaccine among adolescents aged 13-17 years, National Immunization Survey-Teen (NIS-Teen), United States, 2015

Source: MMWR August 26, 2016

www.cdc.gov/hpv

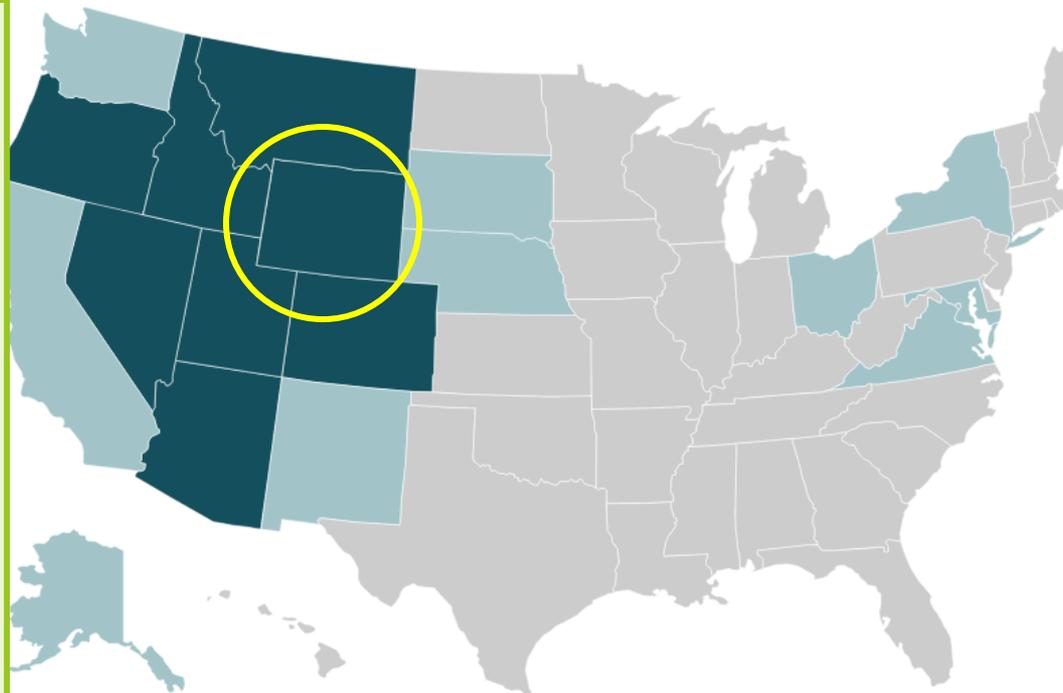
NCIRDig604 | August 26, 2016



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

HPV Vaccination Rates in the Intermountain West

Intermountain West HPV Vaccination Coalition Member States



Non-member States Member States Member States (1-2 members)

National ranking:

- Girls 1st dose:
- 50. Wyoming
 - 49. Utah
 - 42. Montana
 - 40. Idaho
 - 23. Colorado
 - 11. Arizona
 - 8. Oregon
 - 4. Nevada

- Boys 1st dose:
- 47. Wyoming
 - 41. Utah
 - 35. Idaho
 - 33. Nevada
 - 29. Montana
 - 21. Arizona
 - 12. Oregon
 - 6. Colorado

Wyoming:

- Ranking for 1st dose:
- 50th for girls
 - 47th for boys

Girls rates:

- 2013 → 54.3%
- 2015 → 47.7%

Boys rates:

- 2013 → 16.6%
- 2015 → 37.1%

Intermountain West HPV Vaccination Coalition

□ Mission:

- *“The Intermountain West HPV Vaccination Coalition brings together immunization program representatives with cancer control, pediatric, and primary care specialists as well as parents and community members who share the common goal of improving human papillomavirus (HPV) vaccination rates in our region.”*

Intermountain West HPV Vaccination Coalition

- **Goal:**
 - To enhance and accelerate HPV vaccination among boys and girls ages 11-12
- **Objective:**
 - To generate a coordinated plan and propose innovative strategies to address barriers to HPV vaccination
- **Vision:**
 - To develop and enrich connections with existing immunization programs, cancer control coalitions, pediatric and primary care organizations, and relevant stakeholder communities

Who we are:

- 2015: Approximately 130 members (2 states)
- 2017: More than 320 members (18 states)



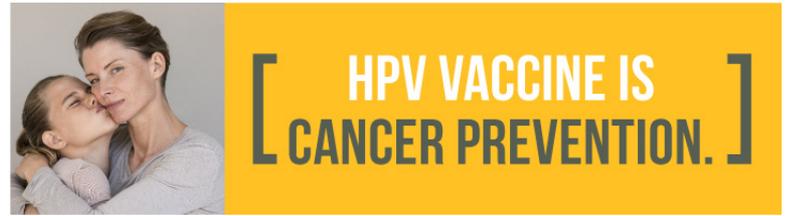
SAINT PAUL'S BAPTIST CHURCH
"A Church for People on the Grow!"



Bringing Immunity
to Every Community



What we do:



- Support HPV vaccination by striving to reach the Healthy People 2020 goal of 80% vaccination coverage among boys and girls in the Intermountain West.

- **Activities:**
 - Email updates and news
 - Monthly calls
 - 2-3 in-person meetings annually
 - HPV Advocate Program
 - AAP Hub and Spoke HPV Vaccination Quality Improvement Program

What we do:

- **Coalition speakers**
 - HPV advocates/survivors
 - HPV Head and Neck Cancer Survivor & ENT oncologist
 - Researchers/research presentations
 - American Academy of Pediatrics
 - American Cancer Society
 - Denver Metro Alliance
 - Utah Department of Health



Local HPV Vaccination Studies

- ❖ Utah Statewide Immunization Information System
- ❖ HPV Vaccination Provider Survey - Utah
- ❖ HPV Oropharyngeal Cancer Knowledge Among Dental Students
- ❖ NIS-Teen Intermountain West Analyses
- ❖ Improving HPV Vaccination Through a Diverse Multi-state Coalition
- ❖ Improving HPV Vaccination Among Eligible Male College Students

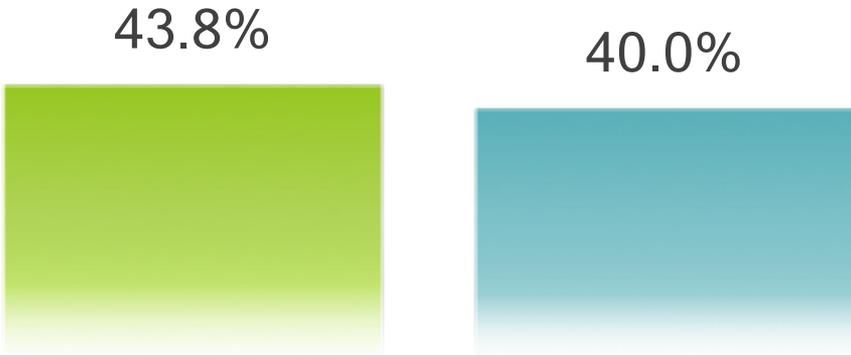
Utah Statewide Immunization Information System (USIIS)

- Approximately 55,000 girls ages 11-18
- Records of all persons born in Utah since 1998
- Healthcare providers track immunization records for patient care by consolidating immunizations from enrolled providers into one centralized record
- >80% of healthcare providers in Utah report to USIIS

USIIS: Results for All Females

MISSED OPPORTUNITY FOR HPV VACCINATION (ANY OR DOSE 2 & 3)

- No HPV & other vaccine
- Other vaccine & not HPV dose 2 or 3



Missed Opportunity

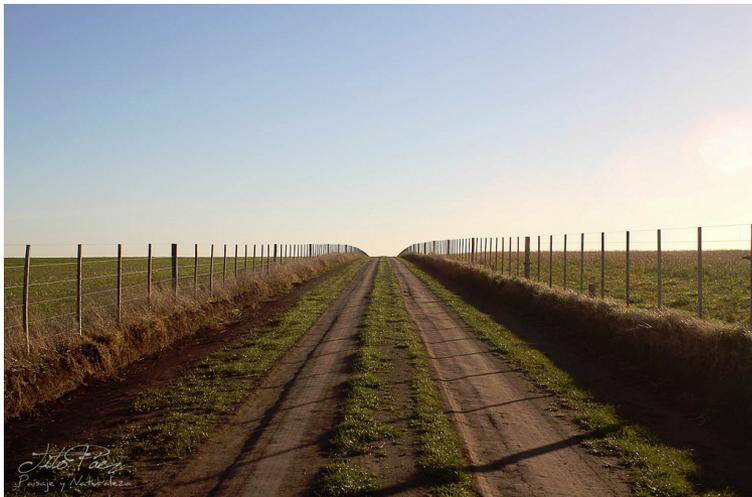
USIIS: Results by AGE

- Approximately 65% of preteens (ages 11-12; N=2,593) and 32% of female teens (ages 13-18; N=4,937) had a missed opportunity for the HPV vaccine between years 2008-2012 in Utah ($p < .001$).



USIIS: Results by Other Demographics

- Race and ethnicity related to rates of missed opportunities for the HPV vaccine among all girls ages 11-18 (**Whites=36%**, N=2,454; **Hispanics=21%**, N=254) ($p<.001$).



- ▶ Rural and urban locations were also associated with rates of missed opportunities for the HPV vaccine (**Urban=31%**, N=4,448; **Large rural town=42%**, N=202) ($p<.001$).

USIIS: Limitations

- Limitations:
 - Few variables available
 - Vaccinations may not have been entered correctly or by providers not participating (under-reporting and over-reporting)
- Strengths:
 - State-wide vaccination records
 - 80% clinician participation
 - 5 year timeframe

Utah HPV Vaccination Provider Survey



Objectives

- This study aimed to assess associations between provider demographic and practice characteristics with knowledge of HPV vaccination and HPV vaccine guidelines.
- Our objective was to contextualize providers' perceptions of barriers to HPV vaccination and strategies for improving vaccination in a state with low HPV vaccine receipt.

Statewide Provider Survey

- **254 participants:**
 - Pediatricians
 - Family medicine physicians
 - Nurses
- Online survey of demographics, practice characteristics, HPV vaccine knowledge (≤ 10 correct vs. 11-12 correct answers), and knowledge of HPV vaccine guidelines (correct vs. incorrect)
- 4 open-ended questions pertaining to barriers and strategies for improving HPV vaccination



Provider Survey: Questions

Question	Correct response	Knowledge Outcome
Vaccine leads to long lasting immunity	True	HPV vaccination
Vaccine does not cause adverse side effects	True	HPV vaccination
Vaccine protects against genital warts in addition to cervical cancer	True	HPV vaccination
Condom use in patients does not decrease after vaccination	True	HPV vaccination
Offering vaccination provides an opportunity to discuss sexuality issues with patients	True	HPV vaccination
The likelihood of patients having sex does not increase after vaccination	True	HPV vaccination
HPV vaccination is highly effective at preventing cervical cancer precursors	True	HPV vaccination
Almost all cervical cancers are caused by HPV infection	True	HPV vaccination
Women who have been diagnosed with HPV should not be given HPV vaccine	False	HPV vaccination
The incidence of HPV in women is highest among women in their 30s	False	HPV vaccination
Genital warts are caused by the same HPV types that cause cervical cancer	False	HPV vaccination
A pregnancy test should be performed prior to giving HPV vaccine	False	HPV vaccination
When is HPV vaccination recommended?	Before the beginning of sexual activity	HPV vaccine guideline
The recommended age for HPV vaccination in adolescent girls is?	Subjects aged 11-12 years	HPV vaccine guideline
The recommended age for HPV vaccination in adolescent boys is?	Subjects aged 11-12 years	HPV vaccine guideline

Statewide Provider Survey Results

- **Significant key findings related to providers' HPV-related knowledge:**
 - ▣ Location of providers' office
 - ▣ Provider specialty
 - ▣ Practice type
 - ▣ Number of patients seen per day



Results - Knowledge:

- Family practice providers (52%, $p=0.001$), institutional/university clinics (54%, $p=0.001$);
- Busier clinics seeing 20-29 patients per day (50.00%, $p=0.038$) had the highest proportion of respondents with **high HPV vaccination knowledge**.
- Older providers aged 40-49 years (85.07%, $p=0.042$) & those who were a Vaccines for Children provider (78.70%, $p=0.026$) had the highest proportion of respondents with **high knowledge of HPV vaccine recommendations**.

Results – Open Ended Themes:

- Providers perceived lack of parental education to be the main barrier to HPV vaccination.
- Providers endorsed stronger, consistent, and more direct provider recommendations for HPV vaccination delivered to parents through printed materials available in clinical settings and public health campaigns.
- Hesitancy to recommend the HPV vaccine to patients persisted amongst some providers.

Provider Survey: Barriers

SEF Level	Quotes
Perceptions of Vaccine Barriers	
Parents/Patients	<i>“They underestimate the risks of not being vaccinated. And overestimate the risks of vaccination.”</i>
Providers	<i>“... [HPV vaccination] is a commercial success for HPV vaccines manufacturers; however, cervical cancer is not a pandemic disease and could be better controlled under personal choices than other diseases that [patients] must be vaccinated against.”</i> <i>“I live in a community where most teenagers are not sexually active until they get...It is hard to recommend a series of 3 somewhat painful shots to teenagers who are not planning to be sexually active until they get married.”</i>
Organizational	<i>“I’m a big proponent of vaccines, but the cost-benefit analysis of HPV just doesn’t support its widespread use. \$400 is way too expensive...The HPV vaccines don’t obviate the need for pap smears, so what are we gaining here? Nothing.”</i> <i>“Infrequent preventive visits. Difficulty completing the series.”</i>

Provider Survey: Strategies for Improvement

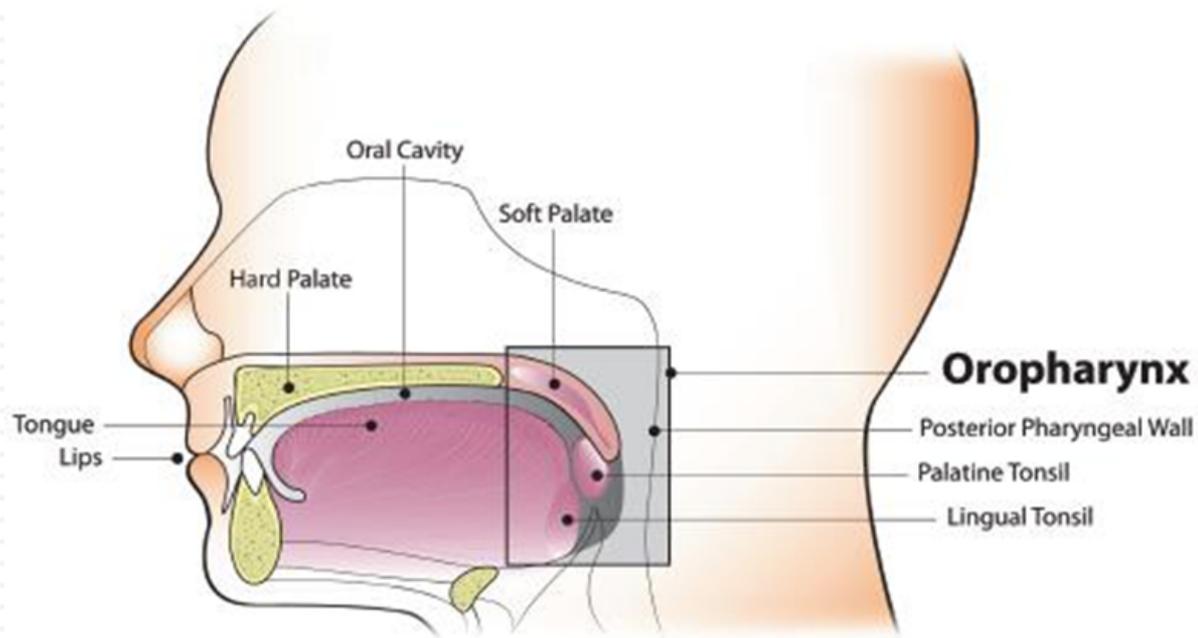
SEF Level	Quotes
Perceptions of Vaccine Improvement Strategies	
Parents/Patients	<p><i>“Better information about genital warts, anal cancer and other diseases caused by HPV that affect boys, and can be minimized by use of the vaccine.”</i></p>
Providers	<p><i>“Focusing on cancer prevention "later in life" is more effective--especially when the discussion can be combined with the discussion about meningococcal meningitis and tetanus/pertussis. [HPV vaccination] is just a routine part of the preteen triad of immunizations.”</i></p> <p><i>“To make it more routine like it is expected to get it in medical culture rather than this optional/additional vaccine.”</i></p>
Organizational	<p><i>“Adding it to the list of required vaccines for junior high and high school.”</i></p>

Provider Survey: Summary of Findings



- Providers require support to eliminate barriers to recommending HPV vaccination in clinical settings.
- Providers endorsed needing parental educational materials and instructions on framing HPV vaccination as a priority cancer prevention mechanism for all adolescents.

HPV-OPH Knowledge Among Dental Students (Pilot Test of Survey)



HPV-OPC Knowledge Among Dentistry Students (N=46): Demographics

Demographic Characteristics	DH N (%)	D1 N (%)	Total N (%)
	18 (39)	28 (61)	46 (100)
Sex			
Male	0 (0)	17 (61)	17 (37)
Female	18 (100)	11 (39)	29 (63)
Age^a			
18-29	14 (78)	27 (96)	41 (89)
30+	3 (17)	1 (4)	4 (9)
Hispanic, Latino/a, or Spanish^a			
Yes	3 (17)	4 (14)	7 (15)
No	13 (72)	24 (86)	37 (80)
Race^a			
White	12 (67)	27 (96)	39 (85)
Asian	2 (11)	1 (4)	3 (7)
Other/Don't know	2 (12)	0 (0)	2 (4)
Prior Degree(s) Earned^a			
Associate's degree	2 (11)	0 (0)	2 (4)
Bachelor's degree	10 (56)	28 (100)	38 (83)
Master's degree	0 (0)	2 (7)	2 (4)

Dentistry Students Knowledge (N=46):

Subscales	α/ρ	Analysis Type	Items
1. HPV and HPV-OPC knowledge Eg. Genital warts are caused by the same HPV types and cervical cancer (True/False)	0.71	Cronbach	22
2. HPV vaccine knowledge Eg. HPV vaccines can protect men and women against oropharyngeal cancer (True/False)	0.79	Cronbach	23
3. Scope of practice Eg. Discussing the link between HPV and oropharyngeal cancer falls within the scope and role of a dental professional (5-pt Likert)	0.71	Spearman correlation	2
4. Willingness to administer the HPV and the flu vaccines Eg. If trained, how willing would you be to administer the HPV vaccines in your dental office? (5-pt Likert)	0.85	Spearman correlation	2

Dentistry Students Knowledge (N=380): Results

Strongly disagree=1, strongly agree=5 <i>(higher means indicate greater overall perceived barrier)</i>	Mean	SD	Min- Max
Not comfortable discussing sexual history/topics (N=54)	3.6	1.24	1-5
Not enough information about HPV vaccine (N=54)	3.57	1.18	1-5
Not in my role as an oral health professional to recommend the HPV vaccine (N=54)	3.44	1.25	1-5
Social and cultural norms (N=51)	3.35	1.35	1-5
Liability reasons (N=51)	3.33	1.14	1-5
No established policies/guidelines pertaining to recommendations of HPV vaccine (N=52)	3.30	1.18	1-5
Patients' religious ideology (N=53)	3.30	1.32	1-5
Not enough time during appointments (N=53)	3.21	1.15	1-5
Concerned with the safety of the HPV vaccine (N=50)	2.58	1.23	1-5
Politics play a role (N=49)	2.55	1.19	1-5

NIS-Teen Survey & Intermountain West



NIS-Teen: Objective

- This study sought to examine sociodemographic factors surrounding HPV vaccine initiation and three-dose completion rates in the Intermountain West (AZ, CO, ID, MO, NV, NM, UT, and WY).
- The IW was selected for this study as part of a needs assessment of the region to inform the actions of a HPV vaccination coalition comprising several Intermountain states.

NIS-Teen IMW Analyses: Objective

- This study sought to examine sociodemographic factors surrounding HPV vaccine initiation and three-dose completion rates in the Intermountain West.
- Key inclusion criteria:
 - Parents were survey participants & agreed to provide access to vaccination records from providers
 - Females ages 13-17 years

NIS-Teen: Multivariable analysis of HPV vaccine initiation and completion, Girls

Variable	Initiated vaccine, <i>n</i> (%)		Completed vaccine, <i>n</i> (%)	
Total N= 1,291	677 (52.4)		434 (33.6)	
Variable	<i>PR</i> (95% CI)	<i>p</i> -value	<i>PR</i> (95% CI)	<i>p</i> -value
Maternal Age				
<35 years	Reference	-	Reference	-
35-44 years	.70 (.57, .87)	.001	.71 (.48, 1.04)	.076
45+ years	.73 (.59, .90)	.003	.65 (.44, .96)	.031
Adolescent Age				
13 years	Reference	-	Reference	-
14 years	1.25 (.98, 1.59)	.074	1.35 (.87, 2.11)	.183
15 years	1.33 (1.02, 1.74)	.034	1.90 (1.26, 2.86)	.002
16 years	1.66 (1.28, 2.15)	<.001	2.40 (1.60, 3.60)	<.001
17 years	1.88 (1.47, 2.39)	<.001	2.92 (1.97, 4.33)	<.001
Receipt of Recent Adolescent Vaccine				
Influenza (No)	Reference	-	Reference	-
Influenza (Yes)	1.51 (1.29, 1.76)	<.001	1.76 (1.40, 2.21)	<.001
TDAP (No)	Reference	-	Reference	-
TDAP (Yes)	1.32 (1.06, 1.65)	.015	1.58 (1.10, 2.28)	.014
Meningitis (No)	Reference	-	Reference	-
Meningitis (Yes)	1.93 (1.50, 2.48)	<.001	2.52 (1.64, 3.86)	<.001

Intermountain West HPV Vaccine NIS-Teen Survey Analyses

Key findings

- Higher prevalence of HPV vaccine uptake:
 - Younger parental ages
 - Older adolescent ages
 - Receiving other adolescent vaccinations

Improving HPV Vaccination Through a Diverse Multi-state Coalition



HPV Coalition Survey

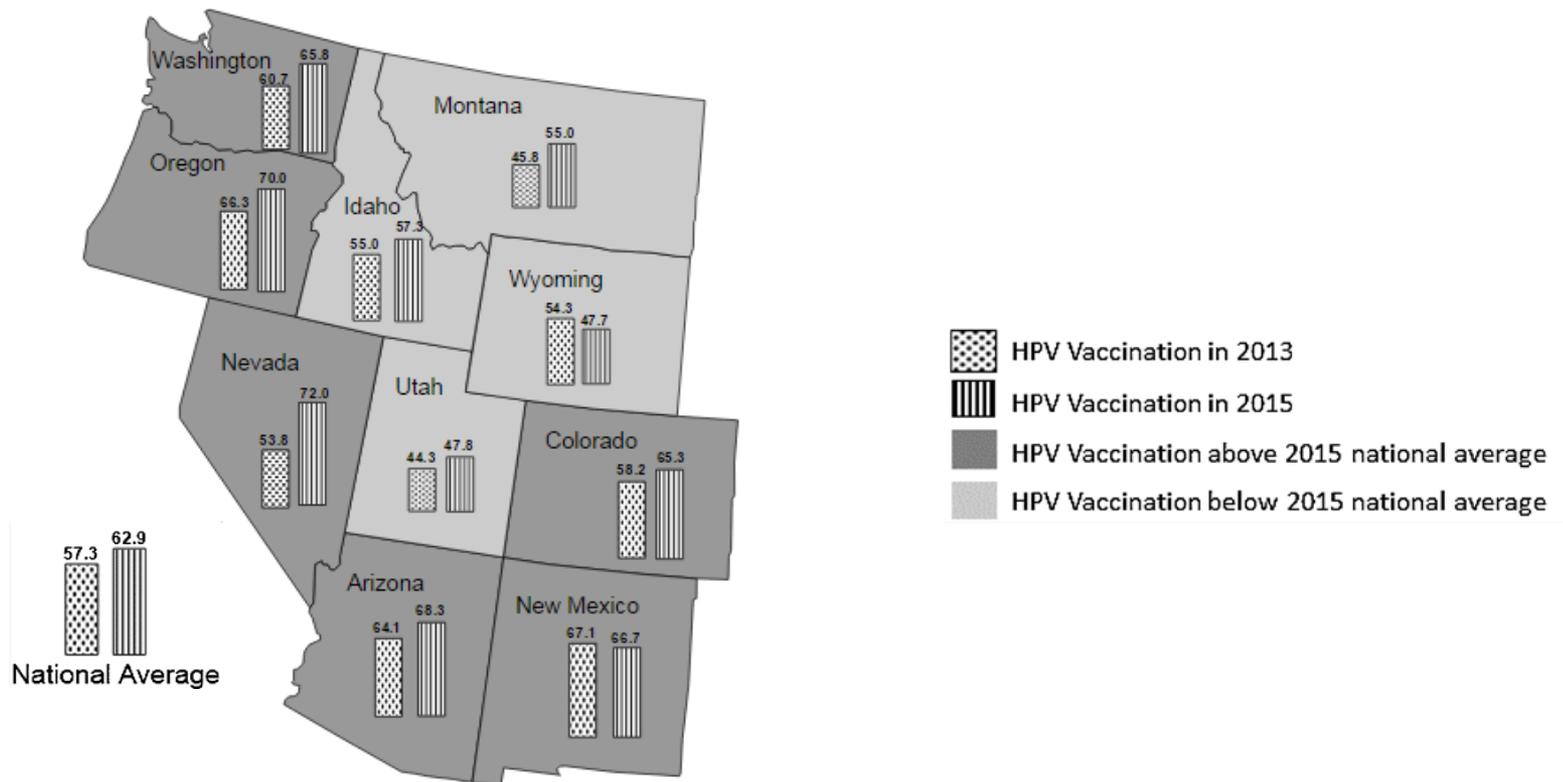


Objective:

- This study assessed coalition members' perceptions of barriers and facilitators to HPV vaccination in their communities and evaluated the efficacy, strengths, and future directions of the Intermountain West HPV Vaccination Coalition.

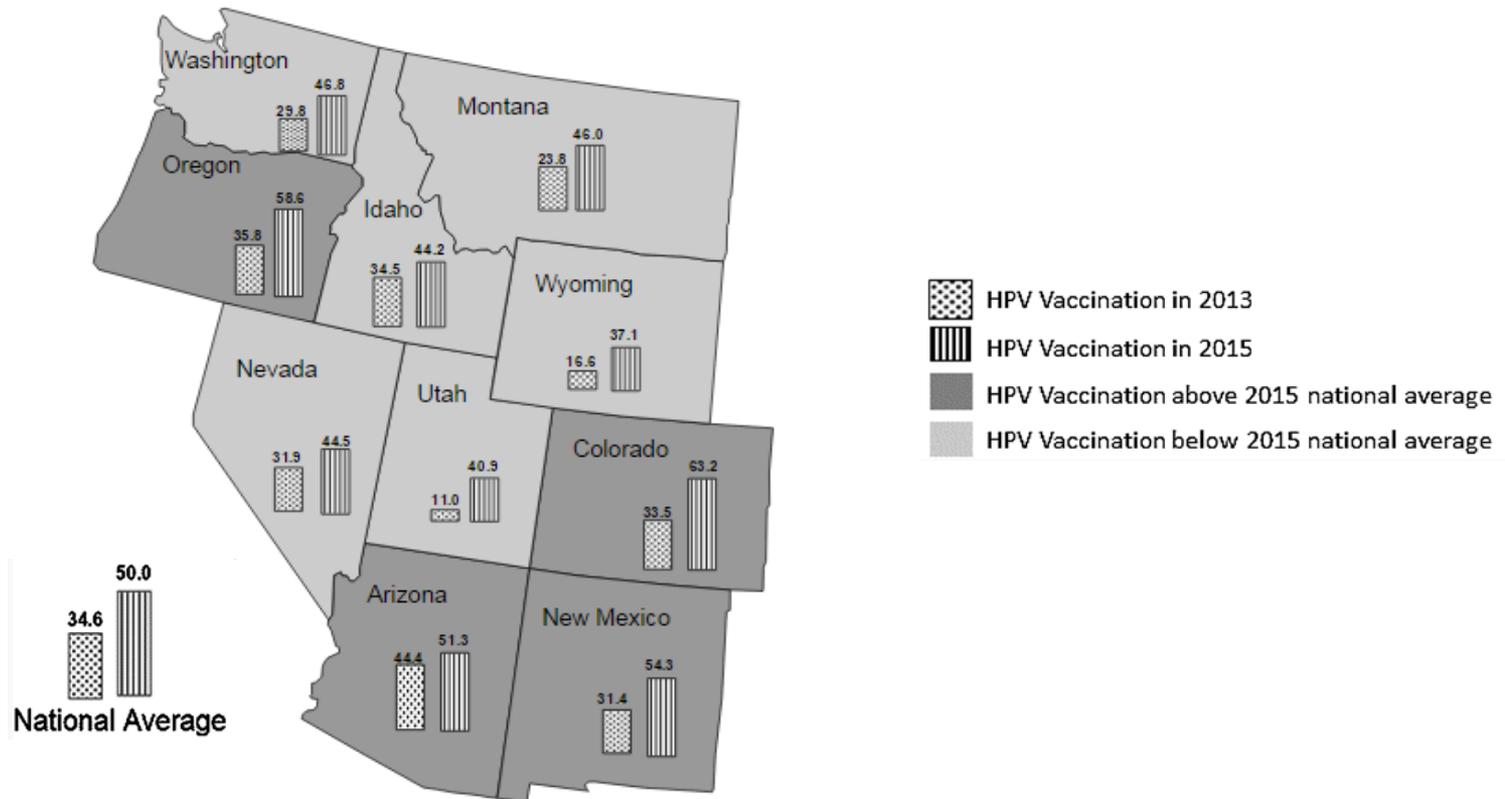
2013 & 2015 HPV Vaccination Rates

Girls



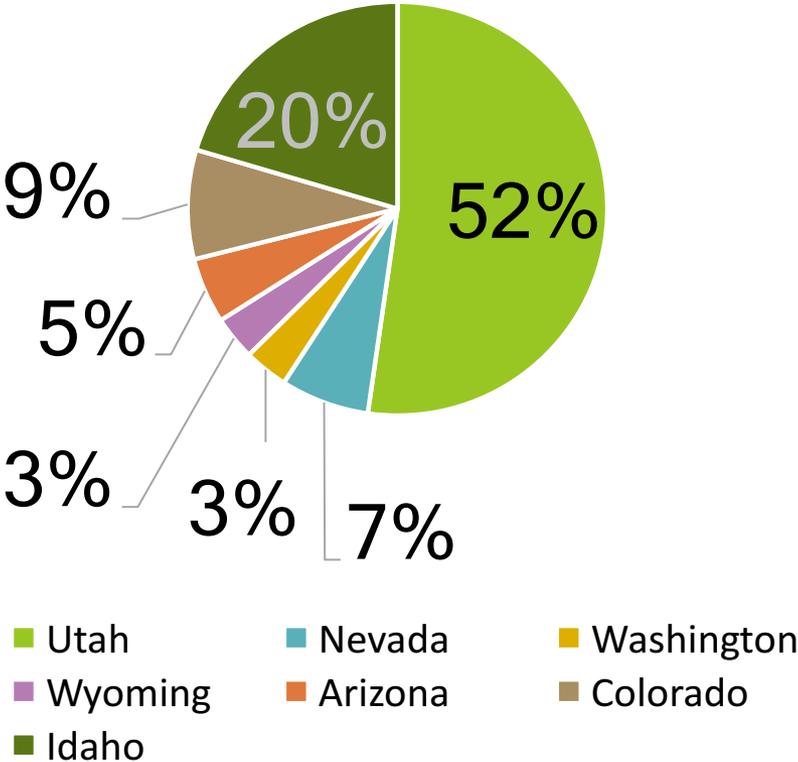
2013 & 2015 HPV Vaccination Rates

Boys

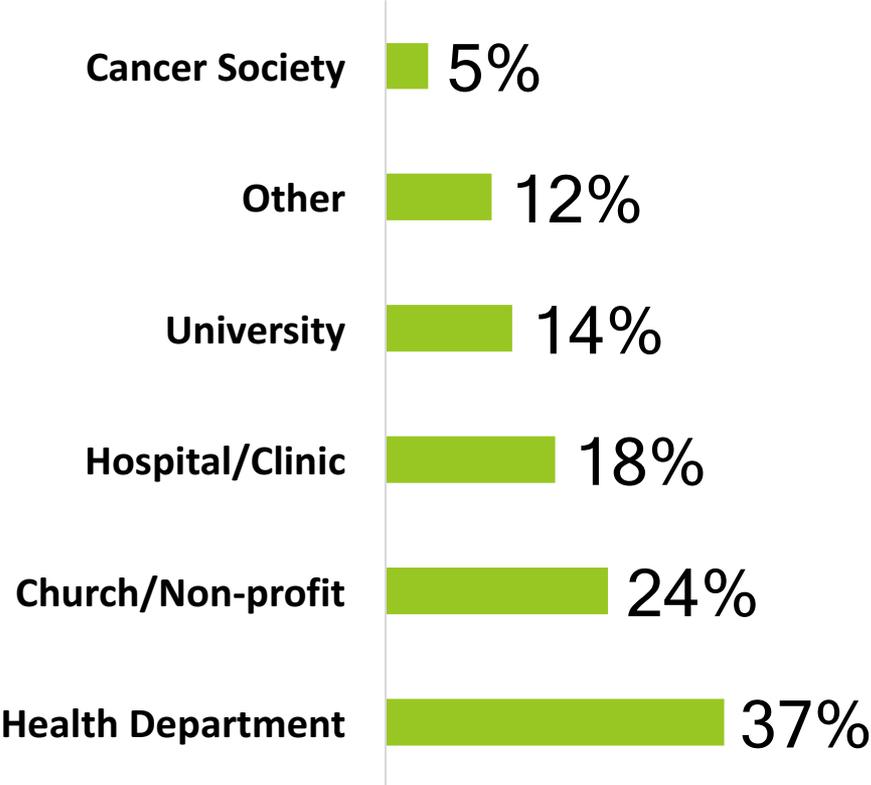


Coalition Survey: Demographics

Percentage of States Represented (N= 59)



Percentage by Organization Type (N=95)



Coalition Survey: Quotes

Usefulness of Coalition

- Advocacy
- Networking
- Idea/info sharing
- Voice community's needs

"I think it's just been a great networking opportunity...to actually meet with people in the community"

"You realize there's tools out there and you don't have to recreate the wheel"

"...the coalition has been really educational, we [hear] about...all of the latest data, it brings an extra level of credibility"

"It keeps HPV in the forefront of what I do"

"The coalition has been a platform for the diverse community leaders that I work with, to have a place to voice their needs".

Coalition Survey: Quotes

Future Goals

- Targeted outreach
- Sustainable funding
- Expanded environmental scans
- Religious support
- Policy reform

“One of the most important things for this coalition is to find someone in these religious communities who is a champion”.
“We would like the leaders of the church to be supportive, at least on an informal level of this cancer prevention vaccine”.
“We need to target parent groups and groups dealing with young men/boys. It is critical to get them vaccinated”.

“[An environmental scan], to make sure that we are actually hearing everybody’s voice”.
“[Coming] together to create more resources for the community”
“Start thinking about educating the stakeholders in the legislature to be able to make some changes in vaccination access”.

Coalition Survey: Conclusions

- Targeted coalition work builds community capacity and coordinates HPV vaccination efforts. A community driven coalition approach could help improve HPV vaccination in other rural and highly religious regions.

Improving HPV vaccination among eligible male college students



Student Health Male HPV Vaccination Study:

INTERVENTION IMPLEMENTATION

1. Initiated by nursing staff through a vital sign intake form, an **electronic medical record (EMR) alert** was placed on eligible male patients EMR. The alert appeared every time the patient's EMR was opened by a clinical staff member.
2. Providers who received the alert were **prompted to discuss and offer the HPV vaccine** to the patient. If the patient refused the vaccination, the alert was stopped. If the patient wanted time to consider the vaccination the alert remained.
3. If a patient elected to initiate the HPV vaccine the **alert remained present until all 3 doses** of HPV vaccine were completed.

Student Health: Results

- **Pre-intervention** vaccination rates= **5.2%**
 - N=386 eligible male patients
 - N=20 eligible male patients who initiated the HPV vaccine
- **Intervention implementation** vaccination rates (Dec. 2014-July 2015) = **25.1%**
 - N=346 eligible male patients who attended clinic
 - N=87 eligible male patients who initiated HPV vaccine
- Vaccination initiation rates increased by **20%**

HPV Vaccination Intervention at University of Utah Madsen Student Health Center wins award



**NEWS RELEASE
FOR IMMEDIATE RELEASE**

Contact: Mary Velan
L.C. Williams & Associates
800/837-7123 or 312/565-4631
mvelan@lcwa.com

AAAHC Announces Winners of the Bernard A. Kershner Innovations in Quality Improvement Award

Winners Selected for Studies on HPV Vaccination Rates, Reducing O.R. Turnover Times

(Skokie, Ill.) March 27, 2017 – AAAHC recognized the University of Utah Student Health Center and the Palo Alto Medical Foundation – Surgery Center Fremont as winners of its annual quality improvement award. This prestigious award recognizes AAAHC-accredited organizations for exemplary quality improvement studies in areas of primary care and surgical/procedural care.

The award – named for Bernard A. Kershner, a leader in ambulatory health care and



Current Projects

□ I Vaccinate Program

- Recruiting clinics located in Intermountain West States with <50% vaccination rates
- Adapted from initiative in Appalachia
- Focuses on clinic, parent, and provider level changes to improve 11-12 year old vaccination rates



Current Projects

- **Dental Providers Partnering for Cancer Prevention**
 - Working with dental offices connected to primary care or pediatric clinics to improve HPV vaccination rates
 - Information will be used to develop HPV, HPV vaccine, and HPV oropharyngeal cancer education messages
 - Partnering with University of Utah School of Dentistry and Huntsman Cancer Institute

Current Projects

- **HPV Advocate Program**
 - Different HPV cancer survivors speak on monthly AAP Hub & Spoke Calls - Montana, Nevada, Utah, and Wyoming
 - Advocates in Utah will work with AAP to assist local clinics in improving HPV vaccination rates



If there were a vaccine against cancer, wouldn't you get it for your kids?

HPV vaccine is cancer prevention. Talk to the doctor about vaccinating your 11–12 year old sons and daughters against HPV.

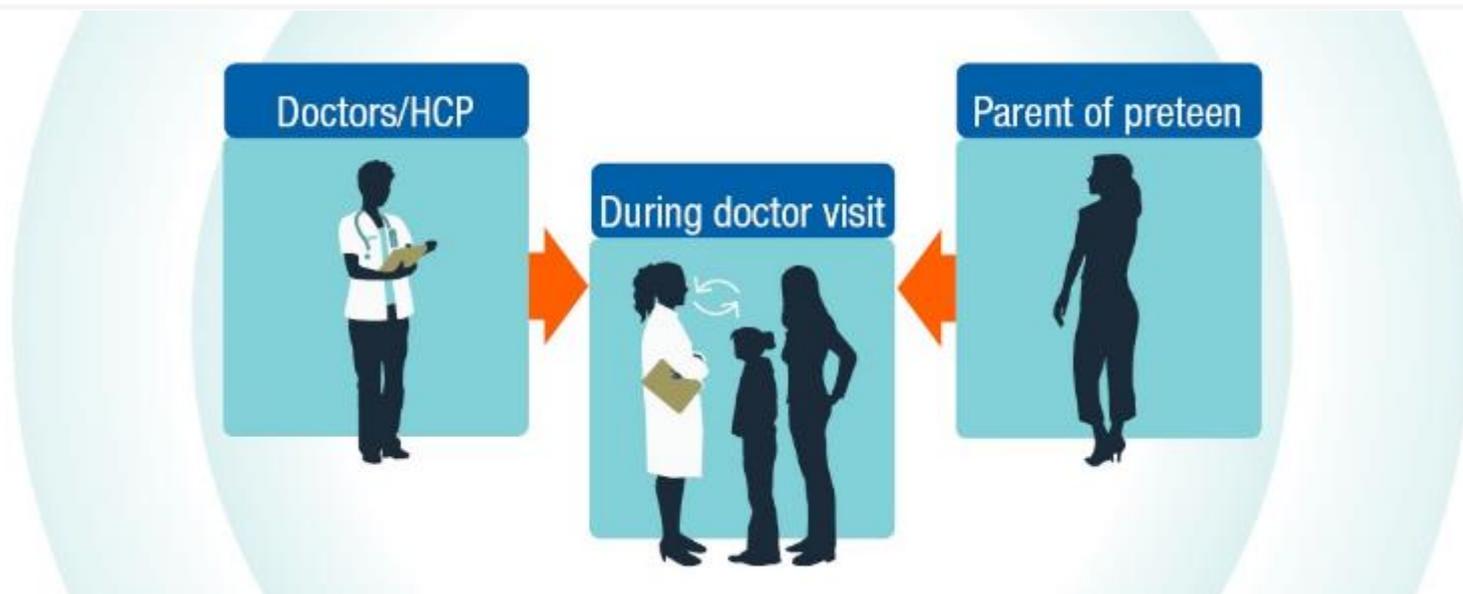
www.cdc.gov/vaccines/teens

Distributed by:

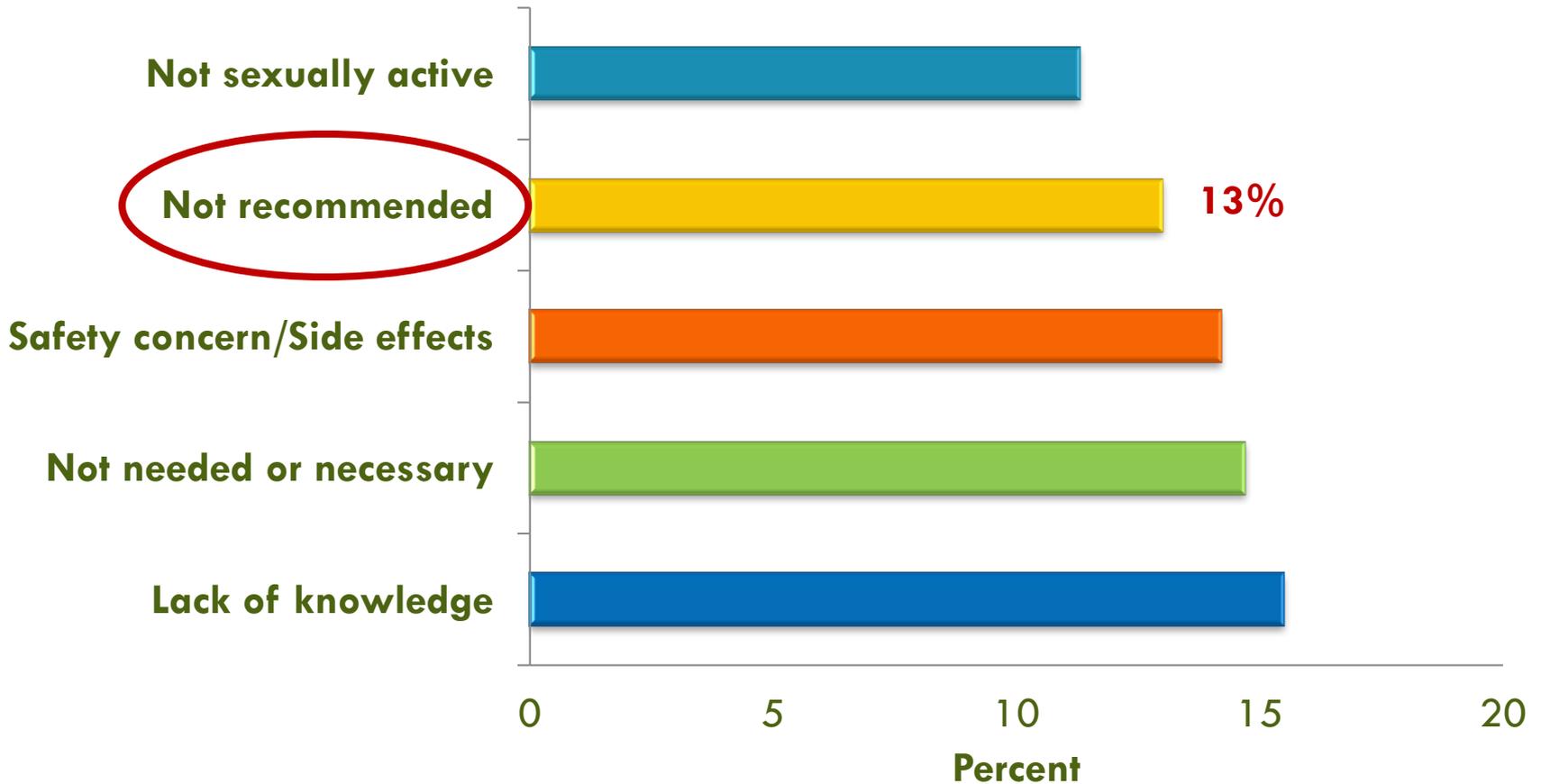
 U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



CDC-Recommended Strategies to Improve HPV Vaccination Recommendations



Top 5 reasons for not vaccinating daughter, among parents with no intention to vaccinate in the next 12 months, NIS-Teen 2013



Example: Strong HPV vaccine recommendation

Your child needs three shots today: meningococcal vaccine, HPV vaccine, and Tdap vaccine.

Your preteen needs three vaccines to protect against meningitis, HPV cancers, and pertussis.

Next Steps

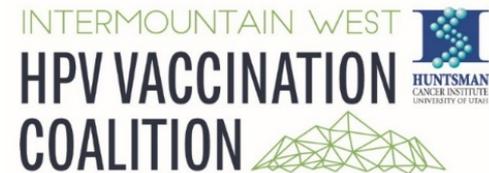
PROTECT
them from
CANCER

get them the
HPV
VACCINE

A young boy in a green shirt and blue jeans stands next to a young girl in a pink sweater and blue jeans who is sitting on the ground. They are positioned between the words 'PROTECT' and 'HPV'.

How the coalition can help you:

- HPV resources
- Up to date facts and data
- HPV news
- Success stories and champions in your region
- Social media engagement
- Coalition networking
 - We can link you to coalition members in your region
 - We can use the coalition as a place to ask questions



Thank you & Questions?

Contact us to join the coalition & for support:

Deanna Kepka at Deanna.Kepka@hci.Utah.edu

Laura Martel at Laura.Martel@hci.Utah.edu



INTERMOUNTAIN WEST
HPV VACCINATION
COALITION 
