St. Jude
Rural HPV Vaccination Introductory Meeting

January 23, 2023
1-2:30 pm Central Time

Special thanks to Heather’s dad Gene Brandt and her friend Gina Puck for providing some of the photos used in today’s presentation.
AGENDA

Welcome and Introductions

The State of HPV Cancer Prevention in Rural America

Questions and Answers with Presenters

Final Thoughts and Next Steps

Sign up today to be added to the rural HPV vaccination listserv and receive information following today’s introductory meeting. Direct URL will be in the chat.
Welcome & Introductions

Use the chat to share the following:
1. Your name
2. Your affiliation
3. In one word, how do you feel about the future of HPV cancer prevention in rural America?
To participate:

Go to www.menti.com and use the code 5580 1784

Go to https://www.menti.com/al3qv8je1bgk

Scan the QR code with your phone camera

mentimeter: we want to hear from you
What do you expect to learn from today's meeting?
Have you or your current organization ever focused efforts on improving health outcomes with rural communities?

95% Yes
5% No

Almost everyone who completed the pre-meeting survey has focused efforts on improving health outcomes with rural communities.
What do you view as the **main strengths** of rural communities in the United States? In other words, what exists on which to build efforts to improve health outcomes?

- Collaboration
- Resilience
- Tight-knit
- Trust

“Rural communities tend to have a stronger sense of community than urban and suburban communities. Harnessing the power of the community can have impact in improving health outcomes. Identifying who the leaders of a community are, what organizations/businesses/communities are active there, where do people get their health info/services already, where do folks gather, etc. The answers to these questions can help public health programs meet the community where they are, build relationships with people and orgs the community trusts, and go from there.”
What do you view as the main strengths of rural communities in the United States? In other words, what exists on which to build efforts to improve health outcomes?

<table>
<thead>
<tr>
<th><strong>Collaboration</strong></th>
<th>Specifically, to improve HPV vaccination coverage with rural communities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resilience</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Tight-knit</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Trust</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td></td>
</tr>
</tbody>
</table>

“Community leaders (especially within the tribal communities) who can support the message of the need for and importance of the vaccine.”
What do you view as the primary challenges that exist in rural areas of the United States that could be important to improve health?

- Access to care
- Lack of specialists
- Transportation

“I think some of the main health-related challenges that rural communities face are accessibility issues, a lack of healthcare providers, and larger percentages of un- and underinsured citizens.”
What do you view as the primary challenges that exist in rural areas of the United States that could be important to improve health?

- Access to care
- Lack of specialists
- Transportation
- Mistrust
- Healthcare providers
- Not a priority

Specifically, to improve HPV vaccination coverage with rural communities

“Competing priorities- COVID, RSV, the financial situation of health care providers in rural areas - There is no one around in the clinic to do the work! - concerned about increasing hesitancy related to COVID-19 vaccine - health care providers concerned about conflict/alienating parents in small community.”
What is the most pressing issue that is preventing improvements in rural health outcomes? In other words, what is stopping us from improving rural health?

<table>
<thead>
<tr>
<th>• Access to care</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Funding</td>
</tr>
<tr>
<td>• Lack of education</td>
</tr>
<tr>
<td>• Lack of resources</td>
</tr>
</tbody>
</table>

“Lack of consistent, sustained intervention. We are trying several different things which have varying levels of success but cannot seem to disseminate on a broader level. Improvements in rural health outcomes are dependent on the efforts of investigators focused specifically on those, and those efforts are dependent on funding. Thus far, the resources have not been available to dedicate the time and energy needed to focus on solving these issues because of the traditional grant/academia mill.”
Partners for Improving HPV Vaccination Coverage

- Rural health offices
- Community-based organizations
- Non-profit organizations
- Community colleges
- Faith-based organizations
- Health departments
- Health systems
- Junior League
- Insurers / payors
- Pharmacies
- Schools
- Parent-teacher organizations
- Rotary
- American Cancer Society

- Boards of education
- United Way
- State cancer coalitions
- YMCA
- 4H
- Future Farmers of America
- Rural businesses
- Healthcare providers
- Extension programs
- Libraries
- Agriculture
- Migrant worker programs
If you had a magic wand, what **one thing** (*only one*) would you want to see happen to increase HPV vaccination coverage with rural communities in the United States?

<table>
<thead>
<tr>
<th>Address HPV vaccination hesitancy</th>
<th>Increase funding for HPV vaccination efforts</th>
<th>Mandate HPV vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Intervention research to identify best approaches to overcome vaccine hesitancy.”</td>
<td>“More funding to increase the number of providers that are trained and serve as advocates for HPV vaccination.”</td>
<td>“Make it a mandated vaccination for school entry.”</td>
</tr>
<tr>
<td>“Identifying those who are &quot;sitting on the fence&quot; vs those who are against vaccines in general.”</td>
<td>“Appropriating funds to support health equity.”</td>
<td>“Mandates! Our region is not ready to pursue this but mandates seem to be the most effective in increasing vaccine rates (to my knowledge).”</td>
</tr>
<tr>
<td>“Remove all vaccine misinformation from social media.”</td>
<td>“Increased scope of practice for all providers (physician, nurses, pharmacists, dentists, etc.) to be reimbursed by all insurance (at no cost to patient).”</td>
<td>“National school mandates.”</td>
</tr>
</tbody>
</table>
Pre-meeting survey revealed a high level of interest in improving HPV vaccination with rural communities now and into the future.
The State of HPV Cancer Prevention in Rural America
Ignite-style Talks on Rural HPV Cancer Prevention

Marvellia E. Ford, PhD
Medical University of South Carolina and Hollings Cancer Center

Whitney Zahnd, PhD
University of Iowa and Holden Comprehensive Cancer Center

Cassandra (Sandy) Pingali, MPH, MS
Centers for Disease Control and Prevention

Caryn E. Peterson, MS, PhD
University of Illinois Chicago

Scherezade (Scher) K. Mama, DrPH
The University of Texas MD Anderson Cancer Center

Deanna Kepka, PhD, MPH
University of Utah and Huntsman Cancer Institute
Creative Ways to Improve Rural HPV Vaccination:

The MUSC Hollings Cancer Center HPV Vaccination Van Program

Marvella E. Ford, Ph.D.
Professor, Department of Public Health Sciences
Associate Director, Population Sciences and Cancer Disparities, Hollings Cancer Center, Medical University of South Carolina
SmartState Endowed Chair, South Carolina State University
MUSC Hollings Cancer Center HPV Vaccination Van Program
Marvella E. Ford, Ph.D.
Professor, Department of Public Health Sciences
Associate Director, Population Sciences and Cancer Disparities, Hollings Cancer Center, Medical University of South Carolina
SmartState Endowed Chair, South Carolina State University
MUSC Hollings HPV Vaccination Van ("HPV Vax Van") Program Team

**Leadership**

Raymond N. DuBois, M.D., Ph.D.  
Director, Hollings Cancer Center

Marvela E. Ford, Ph.D.  
COE Director and Associate Director of Population Sciences

James R. Roberts, M.D.  
Professor, Department of Pediatrics and Medical Director, Hollings Cancer Center  
HPV Vax Van Program

**Staff**

Melanie Slan, MLIS  
NCI National Outreach Network  
Community Health Educator

Joan McLauren  
HPV Educator

Mina Platt, LPN  
Vaccine Administrator

**Support**

Willette Burnham-Williams, Ph.D.  
MUSC Chief Equity Officer  
Advisor

Leslie Cantu  
Hollings Manager, Strategic Communications  
COE liaison
HPV Infections in the US and South Carolina

- HPV infection is linked to six different types of cancer
- Every year, HPV is estimated to cause $\sim 35,900$ of the $45,300$ new cases of HPV-associated cancer found in women and men
- In South Carolina, more than $580$ new cases of HPV-related cancers are diagnosed each year

HPV Infection as a Causative Agent of Multiple Types of Cancers

Source: National Cancer Institute, 2022
HPV Vaccination Rates in the United States and in South Carolina

Source: CDC, 2021
The MUSC Hollings Cancer Center HPV Vax Van Program: Rationale

• While SC is making progress in increasing our HPV vaccination rates, there is still room for improvement.

• HPV vaccination rates in SC vary dramatically by demographic subgroup.
  • Black and Latinx women have higher rates of HPV-associated cervical cancer than women of other races and non-Hispanic women.

• The lowest HPV vaccination rates are among:
  • Boys
  • People living in poverty
  • People in rural areas
  • Whites vs. Blacks and Latinx communities.

Source: NIS-Teen, 2020
The MUSC Hollings Cancer Center
HPV Vax Van Program: Mission

To improve access to HPV vaccinations to prevent six cancer types and to deliver cancer control services throughout the state, with a concentrated focus among medically underserved areas in the HCC catchment area by:

› Delivering cancer control services (CCS) to residents in rural areas and those with health care professional shortages.
› Providing evidence-based education about guidelines for early detection and cancer control behaviors.
MUSC HCC Mobile Vax Van Program

HPV Education and Vaccination (Ages 9-45)

Community partners:
- South Carolina Dept. of Health and Environmental Control
- School districts
- Health fairs
- Faith-based settings
- Facilitate Town Hall meetings
- Work with Catchment Area Committee to target areas of greatest need
MUSC HCC Mobile Vax Van Program – Healthy Me/Healthy SC Partnership

Mina Platt, HCC COE LPN, administers the HPV vaccine at a drive-through health fair in Blackville, SC.
The MUSC Hollings Cancer Center
HPV Vax Van Program – HPV Vaccination Town Hall Meetings with School Districts

HELP US BEAT CANCER!

VIRTUAL TOWN HALL
FEBRUARY 21 2022
6:00pm-7:00pm
Don’t miss this opportunity.

✓ Join us to learn more about the importance of the HPV vaccine and how it can prevent cancer later in life.
✓ You will be able to ask questions from medical experts about HPV infection and its impact.
✓ Panel of Medical Experts from Medical University of South Carolina Hollings Cancer Center, University of South Carolina & Local Providers.
✓ Personal testimonies from a special student and parent.

Event will be live on all middle school Facebook pages or on FITSNet/CCSD’s YouTube.

TUNE IN – JOIN IN

Join us to hear about:
HPV Vaccine and Cancer Prevention for Your Child
Info MUSC Vaccine Mobile Van
Cherokee County Vaccination Rates
Get the Facts on the HPV Vaccine for Adolescents
Personal Journey with HPV Infection

CHEROKEE CO. SCHOOL DISTRICT
141 Twin Lake Road
Gaffney, SC 29341
For More Information: 864-206-2249

MUSC Health
Medical University of South Carolina

Changing What’s Possible | MUSCHealth.org
HPV Vaccination Town Hall Meeting – Cherokee County School District

HPV Vaccination Town Hall Social Media Analytic Data

• Gaffney Middle FB - 238 views
• Ewing Middle FB - 96 views
• Blacksburg Middle FB - 151 views and 3 shares
• FIT2gether FB - 36 views
• FIT2gether YouTube - 23 views
• Totals - 544 views as of 2-23-2022
South Carolina Counties Served by the HPV Vaccination Van Program (N=16/46 to Date)
Sociodemographic Characteristics of the HPV Vaccination Van Program Participants, Overall and by Receipt of Routine Childhood Vaccinations (N=521)

<table>
<thead>
<tr>
<th></th>
<th>Participants receiving routine childhood vaccinations (n=299), n (%)</th>
<th>Participants receiving routine childhood vaccinations including the HPV vaccine (n=222), n (%)</th>
<th>Total (n=521) n (%), p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>170 (56.9)</td>
<td>126 (56.8)</td>
<td>296 (56.8) 0.982</td>
</tr>
<tr>
<td>Male</td>
<td>129 (43.1)</td>
<td>96 (43.2)</td>
<td>225 (43.2)</td>
</tr>
<tr>
<td><strong>Age group (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-18</td>
<td>258 (86.3)</td>
<td>212 (65.5)</td>
<td>470 (90.2) &lt;0.001</td>
</tr>
<tr>
<td>19-24</td>
<td>0 (0)</td>
<td>1 (0.5)</td>
<td>1 (0.2)</td>
</tr>
<tr>
<td>25-34</td>
<td>4 (1.3)</td>
<td>1 (0.5)</td>
<td>5 (1.0)</td>
</tr>
<tr>
<td>35-44</td>
<td>4 (1.3)</td>
<td>7 (3.2)</td>
<td>11 (2.1)</td>
</tr>
<tr>
<td>45-64</td>
<td>18 (6.0)</td>
<td>1 (0.5)</td>
<td>19 (3.6)</td>
</tr>
<tr>
<td>64-81</td>
<td>15 (5.0)</td>
<td>0 (0)</td>
<td>15 (2.9)</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>1 (0.3)</td>
<td>0 (0)</td>
<td>1 (0.2) 0.028</td>
</tr>
<tr>
<td>Asian</td>
<td>5 (1.7)</td>
<td>3 (1.4)</td>
<td>8 (1.6)</td>
</tr>
<tr>
<td>Black</td>
<td>128 (44.0)</td>
<td>62 (29.4)</td>
<td>190 (37.8)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>40 (13.7)</td>
<td>35 (16.8)</td>
<td>75 (14.9)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>11 (3.8)</td>
<td>7 (3.3)</td>
<td>18 (3.8)</td>
</tr>
<tr>
<td><strong>White</strong></td>
<td>104 (35.7)</td>
<td>98 (46.8)</td>
<td>202 (40.4)</td>
</tr>
<tr>
<td>Other race/ethnicity</td>
<td>1 (0.3)</td>
<td>1 (0.5)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Other (Arab)</td>
<td>0 (0)</td>
<td>2 (0.9)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td>Other (Middle Eastern)</td>
<td>0 (0)</td>
<td>1 (0.5)</td>
<td>1 (0.2)</td>
</tr>
<tr>
<td>Not listed</td>
<td>1 (0.3)</td>
<td>1 (0.5)</td>
<td>2 (0.4)</td>
</tr>
<tr>
<td><strong>Insurance status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>58 (19.4)</td>
<td>47 (21.2)</td>
<td>105 (20.2) 0.053</td>
</tr>
<tr>
<td>Medicaid &amp; Private</td>
<td>1 (0.3)</td>
<td>0 (0)</td>
<td>1 (0.2)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>145 (48.5)</td>
<td>114 (51.4)</td>
<td>259 (49.7)</td>
</tr>
<tr>
<td>Medicare</td>
<td>10 (3.3)</td>
<td>0 (0)</td>
<td>10 (1.9)</td>
</tr>
<tr>
<td>None</td>
<td>85 (28.4)</td>
<td>61 (27.5)</td>
<td>146 (28.0)</td>
</tr>
</tbody>
</table>

*Information on race/ethnicity is missing for 19 participants (6 who received routine childhood vaccinations, and 11 who received childhood vaccinations including the HPV vaccine).*
First-Year Program Summary

• Partnerships with state school districts have been invaluable.

• Most of the participants are insured by Medicaid.

• The HPV recipients are representative of South Carolina’s sociodemographic characteristics.

• The COVID-19 pandemic limited the number of vaccination events at the schools.

• Moving forward, the Program staff will build on and expand the relationships with the state school districts to increase the number of HPV vaccines delivered each year.
Hollings Cancer Center Visit from First Lady Dr. Jill Biden – October 25, 2021
HPV Cancers in Rural Communities

Whitney Zahnd, PhD
Assistant Professor, Department of Health Management and Policy
University of Iowa
HPV Cancers in Rural Communities

Whitney E. Zahnd, PhD
Assistant Professor
Department of Health Management and Policy
Advancing Cancer and Rural Equity (ACRE) Lab
St. Jude Rural HPV Vaccination Introductory Meeting
Who and where is rural?

Source: Zahnd et al, 2021. *IJERPH.*
HPV-Associated Cancer Trends

Source: Zahnd et al, 2018; CEBP
HPV-Associated Cancer Inequities

HPV-Associated Cancer Incidence Trends by Sex between 1995 and 2013
- Rural Men (90.9% increase)
- Urban Men (46.2% increase)
- Rural Women (3.5% decrease)
- Urban Women (16.8% decrease)

Source: Zahnd et al, 2019; Journal of Rural Health
HPV-Associated Cancers, 2015-2019

- Oropharyngeal squamous cell carcinoma
- Anal and rectal squamous cell carcinoma
- Vulvar squamous cell carcinoma
- Vaginal squamous cell carcinoma
- Penile squamous cell carcinoma
- Cervical carcinoma

Age-Adjusted Incidence Rate per 100,000

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Non-Metropolitan</th>
<th>Metropolitan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oropharyngeal squamous cell carcinoma</td>
<td>5.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Anal and rectal squamous cell carcinoma</td>
<td>2.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Vulvar squamous cell carcinoma</td>
<td>2.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Vaginal squamous cell carcinoma</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>Penile squamous cell carcinoma</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Cervical carcinoma</td>
<td>7.2</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Preliminary Analysis of U.S. Cancer Statistics Public Use Database Data
Trends in HPV-Associated Oropharyngeal Cancer Rates, 2000-2019

Oropharyngeal squamous cell carcinoma

Non-Metro % Change: +70.8%
Metro % Change: +39.4%
Non-Metro APC: +3.1%
Metro APC: +2.0%

Years
Age-Adjusted Incidence Rate per 100,000
0 1 2 3 4 5 6 7

Non-Metropolitan

Metropolitan

APC=annual percent change

Preliminary Analysis of U.S. Cancer Statistics Public Use Database Data

Preliminary Analysis of U.S. Cancer Statistics Public Use Database Data

APC=annual percent change
Key Takeaways

HPV-associated cancers are elevated in non-metropolitan areas

Improvements are slower for cervical cancer incidence in non-metropolitan areas

Accelerations in oropharyngeal cancer incidence are faster in non-metropolitan areas
Important Questions and Action Steps

- How can we improve inequities in rural HPV-associated cancer rates—particularly among men?
- How can we target our interventions and policies—at all levels—to address the nuances in these rate trajectories?
- What can we learn from the challenges and successes of COVID-19 vaccination?
Thank you!

whitney-zahnd@uiowa.edu

@whitneyzahnd
@_ACRELab
Rural HPV Vaccination Coverage

Cassandra (Sandy) Pingali, MPH, MS
Epidemiologist
National Center for Immunizations and Respiratory Diseases (NCIRD)
Centers for Disease Control and Prevention (CDC)
Rural HPV Vaccination Coverage, National Immunization Survey-Teen, 2021

Cassandra Pingali, MPH, MS
Epidemiologist
SEB, NCIRD, CDC
ncu9@cdc.gov

St. Jude Rural HPV Vaccination Introductory Meeting
January 23, 2022
What is the National Immunization Survey-Teen (NIS-Teen)?

**Purpose**
- Estimate vaccination coverage among teens in the United States

**Strengths**
- Coverage estimates are comparable across states and time
- Used to identify pockets of need and vaccine inequity
## How does NIS-Teen gather data?

<table>
<thead>
<tr>
<th>First Phase</th>
<th>Second Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDD telephone survey of parents with teens 13-17 years</td>
<td>Mailed survey of identified vaccination provider(s)</td>
</tr>
</tbody>
</table>
  * Socio-demographics  
  * Health insurance status  
  * Consent for provider survey |  
  * Types of vaccinations  
  * Number of doses  
  * Dates of administration  
  * Administrative data about the health care facility |
Which vaccines should adolescents receive?

11-12 years
- HPV vaccine
- MenACWY vaccine
- Tdap vaccine
- Influenza vaccine

13-18 years
- MenACWY booster at age 16 years
- MenB vaccine may be given at 16-18 years

Source: https://www.cdc.gov/vaccines/parents/by-age/index.html
**Two Dose Schedule**
- Initiate before 15\(^{th}\) birthday
- Interval of 6-12 months between doses

**Three Dose Schedule**
- Initiate on or after 15\(^{th}\) birthday
- Those who received 2\(^{nd}\) dose before 6-month interval

**HPV Vaccination Coverage Measures in NIS-Teen**
- **HPV initiation** - those with ≥1 doses
- **HPV UTD** - those with ≥3 doses, and those with 2 doses when the first HPV vaccine dose was initiated at age <15 years and there was ≥5 months minus 4 days between the first and second dose

Source: [https://www.vax2stopcancer.org/resources-clinicians; DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1](https://www.vax2stopcancer.org/resources-clinicians; DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1)
HPV vaccination coverage is still lower than coverage for other routine adolescent vaccines

Source: DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1
HPV vaccination coverage varies widely by state

Estimated vaccination coverage with ≥1 dose of HPV among adolescents aged 13–17 years, NIS-Teen, 2021

Source: DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1
In 2021, HPV vaccination coverage was lower in rural and suburban areas than urban areas

*Statistically significant difference compared with adolescents living in urban areas (p<0.05).

Source: DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1
>1 HPV vaccination coverage in rural areas has been consistently lower from 2013-2021

From 2013 to 2018, the magnitude of the disparity in >1 HPV vaccine dose coverage between mostly urban and mostly rural areas did not improve. From 2019-2021 there was a slight improvement between mostly urban and mostly rural areas.

Source: DOI: http://dx.doi.org/10.15585/mmwr.mm7135a1; DOI: 10.1080/21645515.2019.1671765
Parents in urban areas were more likely than in rural areas to receive an HPV vaccination recommendation from their adolescent’s provider.

- Urban: 82% Yes, 18% No
- Rural: 76% Yes, 24% No

Source: CDC unpublished, NIS-Teen 2020
Not receiving a provider recommendation is a top reason parents choose to not vaccinate for HPV

Source: CDC unpublished, NIS-Teen 2020
HPV vaccination coverage is higher among those who received a recommendation

Source: CDC unpublished, NIS-Teen 2021
How to close the gap?

In rural areas, teens are less likely to be vaccinated for HPV and less likely to have received a provider recommendation for HPV vaccination

• Make an effective HPV vaccination recommendation
• Increase vaccine confidence by addressing parents’ questions and concerns
• Develop communication strategies tailored to your community
Thank you!
ncu9@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
Barriers and Facilitators to HPV Vaccination in Rural Communities

Caryn E. Peterson, MS, PhD
Research Assistant Professor, Epidemiology
Co-director, UIC’s Cancer Education and Career Development Programs
Faculty Affiliate, UIC Center for Global Health
Barriers and Facilitators to HPV Vaccination in Rural Communities

Caryn E. Peterson, MS, PhD, Research Assistant Professor of Epidemiology
The problem...  

- Relatively low HPV vaccine initiation/completion among rural children & adolescents
- High rates of HPV-related cancers among rural adults
- “Awareness” of HPV promotes HPV vaccination
- Awareness declining and low among rural adults
Multilevel Barriers & Facilitators

- Community/Societal
- Organizational
- Interpersonal
- Individual
### Individual-level

<table>
<thead>
<tr>
<th>Key Barriers &gt;&gt;</th>
<th>Facilitators &gt;&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Older age of caregiver</td>
<td>- Older-age of vaccine recipient</td>
</tr>
<tr>
<td>- Caregivers’ negative perceptions of vaccine</td>
<td>- Acceptance/belief in other vaccines</td>
</tr>
<tr>
<td>- Low awareness of risk</td>
<td>- Caregivers’ awareness of risk</td>
</tr>
<tr>
<td></td>
<td>- Knowledge of vaccine recommendations</td>
</tr>
</tbody>
</table>
# Interpersonal-level Facilitators

| Facilitators >> | -Strong patient-provider relationships  
-Provider recommendation  
-Parental & peer influence |
| Facilitators >> | - School-based programs to raise awareness & offer vaccine  
|                | - Provider training  
<p>|                | - School-generated reminders |</p>
<table>
<thead>
<tr>
<th>Facilitators &gt;&gt;</th>
<th>Social marketing campaigns to raise awareness</th>
</tr>
</thead>
</table>

Community/Societal-level
Next steps...
Interventions & policies that focus on facilitators while addressing barriers

Identify “actionable” barriers & facilitators

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Facilitators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Older age of caregiver</td>
<td>Older-age of vaccine recipient</td>
</tr>
<tr>
<td>Caregivers’ negative perceptions of HPV vaccine</td>
<td>Acceptance of &amp; belief in other vaccines/childhood immunizations</td>
</tr>
<tr>
<td>Low awareness of HPV risk</td>
<td>Caregivers’ awareness of HPV infection &amp; HPV-related cancers</td>
</tr>
<tr>
<td></td>
<td>Knowledge of vaccine recommendations</td>
</tr>
<tr>
<td></td>
<td>Strong patient-provider relationships</td>
</tr>
<tr>
<td></td>
<td>Provider recommendation</td>
</tr>
<tr>
<td></td>
<td>Positive parental &amp; peer influences</td>
</tr>
<tr>
<td></td>
<td>School-based programs to raise awareness &amp; offer HPV vaccination</td>
</tr>
<tr>
<td></td>
<td>Provider training (current guidelines)</td>
</tr>
<tr>
<td></td>
<td>School-generated reminders</td>
</tr>
<tr>
<td></td>
<td>Social marketing campaigns to increases awareness of HPV risk &amp; benefits of HPV vaccine</td>
</tr>
</tbody>
</table>
References

Engaging in Partnerships with Rural Communities

Scherezade (Scher) K. Mama, DrPH
Assistant Professor, Department of Health Disparities Research
The University of Texas MD Anderson Cancer Center
Engaging in Partnerships with Rural Communities

Scherezade K. Mama, DrPH
Assistant Professor, Department of Health Disparities Research

skmama@mdanderson.org | @schermama

St. Jude Rural HPV Vaccination Introductory Meeting
January 23, 2023
Characteristics of rural communities

Broader than a single definition

Best understood through the character and sense of community of the people who live there

Face unique challenges related to health and health care access

- Accessibility to high-speed internet
- Driving distance
- Accessibility to community meeting spaces
- Accessibility to resources (e.g., health care, mental health services, dental, etc.)
- Educational attainment, poverty, and unemployment

Rural community partners are essential members of the team

There is no one-size-fits-all approach when working in rural communities

Community partnerships are key to success

- Understand the rural community and its unique context
- Identify community leaders, elders, and knowledge holders
- Facilitate communication between providers, academic partners, other organizations and the community

Trust
Practical suggestion #1

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Build trust through listening and being credible and honest | • Go on a listening tour – talk to as many people as you can, and when you’ve talked to one, ask them to connect you with another  
• Meet people face-to-face at a coffee shop, library, or other community location  
• Ask about community challenges and needs  
• Seek out the bright spots – shine light on what makes the community resilient  
• Be humble and consistent |
## Practical suggestion #2

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create time and space to develop an authentic relationship</td>
<td>Trust takes time – do not rush the process and plan ahead</td>
</tr>
<tr>
<td></td>
<td>Show up several times and in multiple ways – small acts can have a big impact</td>
</tr>
<tr>
<td></td>
<td>Say what you mean and mean what you say</td>
</tr>
<tr>
<td></td>
<td>Address misperceptions upfront</td>
</tr>
<tr>
<td></td>
<td>Be honest about what you can and cannot do or offer and the time commitment involved</td>
</tr>
</tbody>
</table>
## Practical suggestion #3

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Bring in the language(s) of the community to build trust and open lines of communication for engagement | Show your deeper understanding of the community by using their language or idioms (e.g., “the knowledge of dirt,”)  
Discuss specific concerns of this community, not broadly  
Do not compare communities or cities – no two communities are the same  
Use simple and positive language |
## Practical suggestion #4

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participate in community events – these are an opportunity to connect and engage</strong></td>
<td>Show up early and often – Show your face/the face of your organization repeatedly</td>
</tr>
<tr>
<td></td>
<td>Attend health fairs at churches, libraries or community centers – host a table or walk around and talk to other organizations</td>
</tr>
<tr>
<td></td>
<td>Speak at local organizations, schools, churches, etc.</td>
</tr>
<tr>
<td></td>
<td>Get involved with foundation-related events (e.g., Relay for Life)</td>
</tr>
<tr>
<td></td>
<td>Don’t show up empty handed – provide handouts, health assessments, small giveaways</td>
</tr>
</tbody>
</table>
Before engaging with the community, ask yourself the following

What are you asking of the community, and what are you providing to the community?

What challenges are preventing the community from doing what they want to address a given problem?

Who are the experts within the community, and can you partner with them?

What questions would the community have about you, your research team, or your organization?

How does your identity and personal experience influence your work in the community?

What is important to the people who live in this community? What would they want to make sure is there for their children, their grandchildren, and their grandchildren’s children?
Intervening to Improve HPV Vaccination with Rural Communities

Deanna Kepka, PhD, MPH
Associate Professor
College of Nursing and Huntsman Cancer Institute
University of Utah
Intervening to Improve HPV Vaccination with Rural Communities

Deanna Kepka, PhD, MPH
Huntsman Cancer Institute
University of Utah
THE TEAM

Deanna Kepka, PhD, MPH
HPV Vaccination Investigator
Huntsman Cancer Institute

Kaila Christini, MsPH, MS
Program Manager
Huntsman Cancer Institute

R. Neal Davis, MD
Pediatrics
Intermountain Healthcare

Vilija N. Avizonis, MD
Radiation Oncology
Intermountain Healthcare
Goal - Accelerate HPV vaccination rates in rural populations

Priority Regions: Utah County, Bear River, Southeast, Southwest, Tri-County

Tailored clinic-focused HPV vaccination intervention in primary care systems and clinics

July 2021-June 2023

2-4 hours of training, ongoing mentorship, and tailored follow-up

Real-time HPV vaccination tracking within IHC system

Clinics receive incentives for participants (gift cards, swag, incentives for children, etc.)
HPV vaccination coverage among teens in the U.S. by state, 2020. Vaccination percentages shown for males and females with 95% confidence intervals represent estimates of coverage for at least one dose HPV vaccination from the CDC's NIS-Teen vaccination survey conducted annually by random digit dialing among parents and caregivers of children age 13-17 years in 50 states, the District of Columbia, selected local areas, and U.S. territories.
HPV vaccination coverage among teens in the U.S. by state, 2020. Vaccination percentages shown for males and females with 95% confidence intervals represent estimates of coverage for up-to-date HPV vaccination from the CDC’s NIS-Teen vaccination survey conducted annually by random digit dialing among parents and caregivers of children ages 13-17 years in 50 states, the District of Columbia, selected local areas, and U.S. territories.
2021 NIS-Teen Data: Hot off the PRESS

<table>
<thead>
<tr>
<th>Year</th>
<th>≥1 HPV Vaccination</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>US</td>
<td>Utah</td>
<td>National Rank</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Male</td>
<td>62.6%</td>
<td>54.7%</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>68.6%</td>
<td>63.1%</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>65.5%</td>
<td>58.8%</td>
<td>41</td>
</tr>
<tr>
<td>2018</td>
<td>Male</td>
<td>66.3%</td>
<td>57.2%</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>69.9%</td>
<td>76.7%</td>
<td>12</td>
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<td></td>
<td>Both</td>
<td>68.1%</td>
<td>66.7%</td>
<td>30</td>
</tr>
<tr>
<td>2019</td>
<td>Male</td>
<td>69.8%</td>
<td>63.0%</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>73.2%</td>
<td>75.0%</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>71.5%</td>
<td>68.8%</td>
<td>33</td>
</tr>
<tr>
<td>2020</td>
<td>Male</td>
<td>73.1%</td>
<td>65.6%</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>77.1%</td>
<td>71.7%</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Both</td>
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<td>43</td>
</tr>
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<td>79.1%</td>
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<td>Female</td>
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<td>76.9%</td>
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<td>19</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>HPV Vaccination Up-To-Date</th>
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</tr>
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<tbody>
<tr>
<td></td>
<td>US</td>
<td>Utah</td>
<td>Rank</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Male</td>
<td>44.3%</td>
<td>32.9%</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>53.1%</td>
<td>42.1%</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>48.6%</td>
<td>37.4%</td>
<td>46</td>
</tr>
<tr>
<td>2018</td>
<td>Male</td>
<td>48.7%</td>
<td>38.1%</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>53.7%</td>
<td>48.6%</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>51.1%</td>
<td>43.2%</td>
<td>41</td>
</tr>
<tr>
<td>2019</td>
<td>Male</td>
<td>51.8%</td>
<td>41.1%</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>56.8%</td>
<td>48.0%</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>54.2%</td>
<td>44.6%</td>
<td>45</td>
</tr>
<tr>
<td>2020</td>
<td>Male</td>
<td>56.0%</td>
<td>40.5%</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>61.4%</td>
<td>49.8%</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>58.6%</td>
<td>45.0%</td>
<td>47</td>
</tr>
<tr>
<td>2021</td>
<td>Male</td>
<td>59.8%</td>
<td>60.2%</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>63.8%</td>
<td>62.5%</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>61.7%</td>
<td>61.4%</td>
<td>33</td>
</tr>
</tbody>
</table>
Here’s a vaccine Utahns have heartily embraced

The Eagle Forum and some lawmakers initially scorned the HPV vaccine, but new data shows 81% of teens are getting the cancer-preventing shots.

By Sofia Jeremias | Nov. 4, 2022, 6:00 a.m.

This story is part of The Salt Lake Tribune’s ongoing commitment to identify solutions to Utah’s biggest challenges through the work of the Innovation Lab.

[Subscribe to our newsletter here]

When a child steps into Dr. Neal Davis’ office, the patient’s first question usually is: “Do I have a shot today?”

Davis, a Murray pediatrician and a father, likes to reply:
Rural differences — HPV vaccination coverage

Vaccination coverage is consistently lower for rural areas.
Solutions Demonstrating Improvement

- Start HPV Vaccine series at age 9
- Standing orders (Protocols)
- Provider reminder/recall (Advisories)
- Feedback to providers (Registries)
- Client reminder/recall (Work the list)
- Patient education
- Expand access (Immunization clinics, shot nurse/room, walk-in)
Implement Evidence-based strategies

• Increase access; Build clinic capacity

• Treat EVERY visit as a VACCINATION visit

• Prompts (for discussing the vaccine)

• Make an effective recommendation

• Track series completion and follow-up

• Measure and improve performance
Messaging in Exam Rooms

- Immunization Schedule
- Non-Branded material for anyone to use
HPV Vaccination Healthcare Team Training Program in the Era of COVID 19
HPV Educational Training Modules

• Online independent study course for healthcare providers and their team members
  – Complete at any time throughout June 2022

• CME and partial CME credit offered

• Sections included:
  – The Journey of Two HPV-Cancer Survivors
  – Impact of the COVID-19 Pandemic on Vaccination
  – Education about Early Childhood HPV Vaccination
  – Strategies to Improve HPV Vaccination Rates within Clinical Practice

• Meet the presenters Q/A Sessions

• Follow-up course assessment focus groups
Table 1a. Participants of an online HPV and HPV vaccination course characteristics, June 2022 (N=339)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>(%)</th>
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<tbody>
<tr>
<td>Registered</td>
<td>339</td>
<td>(100.0)</td>
</tr>
<tr>
<td>Completed Module 1(^1)</td>
<td>160</td>
<td>(47.2)</td>
</tr>
<tr>
<td>Completed Module 2(^1)</td>
<td>131</td>
<td>(38.6)</td>
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<td>Completed Module 3(^1)</td>
<td>123</td>
<td>(36.3)</td>
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<td>Completed Module 4(^1)</td>
<td>111</td>
<td>(32.7)</td>
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<tr>
<td>Completed Final Evaluation</td>
<td>101</td>
<td>(29.8)</td>
</tr>
<tr>
<td>Requested/Received CME Credit(^2)</td>
<td>87</td>
<td>(25.7)</td>
</tr>
<tr>
<td>Employment Setting(^3)</td>
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</tr>
<tr>
<td>Clinic, Primary Care, Hospital, Urgent Care</td>
<td>201</td>
<td>(40.0)</td>
</tr>
<tr>
<td>Health Department, Community Health, Public Health</td>
<td>104</td>
<td>(30.7)</td>
</tr>
<tr>
<td>Rural Area</td>
<td><strong>91</strong></td>
<td>(26.8)</td>
</tr>
<tr>
<td>Medically Underserved Community</td>
<td>71</td>
<td>(20.9)</td>
</tr>
<tr>
<td>School, K-12</td>
<td>15</td>
<td>(4.4)</td>
</tr>
<tr>
<td>Academic, University, Research, University Student</td>
<td>11</td>
<td>(3.2)</td>
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<tr>
<td>FQHC</td>
<td>4</td>
<td>(1.2)</td>
</tr>
<tr>
<td>Tribal Community</td>
<td>3</td>
<td>(0.9)</td>
</tr>
<tr>
<td>Insurance Industry</td>
<td>3</td>
<td>(0.9)</td>
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State

<table>
<thead>
<tr>
<th>State</th>
<th>Count</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>4</td>
<td>(1.3)</td>
</tr>
<tr>
<td>CA</td>
<td>3</td>
<td>(1.0)</td>
</tr>
<tr>
<td>CO</td>
<td>1</td>
<td>(0.3)</td>
</tr>
<tr>
<td>GA</td>
<td>2</td>
<td>(0.6)</td>
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<tr>
<td>IA</td>
<td>1</td>
<td>(0.3)</td>
</tr>
<tr>
<td>ID</td>
<td>5</td>
<td>(1.6)</td>
</tr>
<tr>
<td>IL</td>
<td>1</td>
<td>(0.3)</td>
</tr>
<tr>
<td>MI</td>
<td>2</td>
<td>(0.6)</td>
</tr>
<tr>
<td>NC</td>
<td>3</td>
<td>(1.0)</td>
</tr>
<tr>
<td>NH</td>
<td>1</td>
<td>(0.3)</td>
</tr>
<tr>
<td>NY</td>
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<td>(0.6)</td>
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<tr>
<td>OH</td>
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<td>OK</td>
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<td>(0.3)</td>
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<tr>
<td>OR</td>
<td>9</td>
<td>(2.9)</td>
</tr>
<tr>
<td>PR</td>
<td>1</td>
<td>(0.3)</td>
</tr>
<tr>
<td>TN</td>
<td>2</td>
<td>(0.6)</td>
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<td>TX</td>
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<td>(0.3)</td>
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<tr>
<td>UT</td>
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<tr>
<td>WA</td>
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<td>(34.4)</td>
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<tr>
<td>WY</td>
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<td>(0.3)</td>
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</table>
Table. Participant evaluation of an online HPV and HPV vaccination course, June 2022 (N=339)

<table>
<thead>
<tr>
<th>Module 2</th>
<th></th>
<th>Mean¹</th>
<th>(STD)</th>
<th>P-Value²</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>My ability to describe the impact COVID-19 has had on immunization rates, prior to the training</td>
<td>2.89</td>
<td>(1.11)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Prior to the training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>After the training</td>
<td>4.38</td>
<td>(0.63)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My ability to provide useful and compelling information about the HPV vaccine to parents to aid in making the decision to vaccinate</td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Prior to the training</td>
<td>3.02</td>
<td>(1.12)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>After the training</td>
<td>4.41</td>
<td>(0.61)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>My knowledge of strategies to increase vaccination rates</td>
<td></td>
<td></td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Prior to the training</td>
<td>3.02</td>
<td>(1.04)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>After the training</td>
<td>4.24</td>
<td>(0.67)</td>
<td></td>
</tr>
</tbody>
</table>
Mountain West HPV Vaccination Coalition

Mission:

“The Mountain 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.”
Who we are:

• **2014**: Approximately 130 members (3 states)
• **2023**: More than 410 members (18 states)
Mountain West HPV Vaccination Coalition
Reach

Intermountain West HPV Vaccination Coalition
Member States

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

Deanna Kepka, PhD, MPH
Associate Professor
College of Nursing &
Huntsman Cancer Institute
Director, Intermountain West
HPV Vaccination Coalition
University of Utah
Office: 801.587.4565
deanna.kepka@hci.utah.edu
Questions & Answers with Presenters
To participate:

Go to www.menti.com and use the code 5580 1784

Go to https://www.menti.com/al3q v8je1bqk

Scan the QR code with your phone camera

mentimeter: we want to hear from you
Final Thoughts & Next Steps
Learn more at stjude.org/IHAD2023.

Direct registration link will be provided in the chat.

2023 SEMINAR SERIES
International HPV Awareness Day

Join the HPV Cancer Prevention Program as we celebrate the week leading up to the 6th annual International HPV Awareness Day on March 4th. Don’t miss our week-long series of virtual seminars as we aim to help spread awareness about HPV and educate the public about HPV vaccination as a tool for cancer prevention.

Feb 27
Addressing HPV Vaccination Gaps in the Southeastern U.S.

Feb 28
Improving HPV Vaccination Rates among Childhood Cancer Survivors

Mar 1
Promoting PRIDE in HPV Vaccination Among LGBTQIA+ Communities

Mar 3
Wide Open Spaces: Improving HPV Cancer Prevention with Rural Communities

If you have questions, please email PreventHPV@stjude.org or stjude.org/IHAD2023.
Thank you for joining us today!

Sign up today to be added to the rural HPV vaccination listserv and receive information following today’s introductory meeting. Direct URL will be in the chat. Questions? Email PreventHPV@stjude.org.
St. Jude
Rural HPV Vaccination Introductory Meeting

January 23, 2023
1-2:30 pm Central Time

Special thanks to Heather’s dad Gene Brandt and her friend Gina Puck for providing some of the photos used in today’s presentation.