UNIVERSITY OF UTAH SCHOOL OF MEDICINE

Beyond Sex:

The HPV Vaccine is Cancer Prevention

Diane Liu, MD

Assistant Professor, Division of General Pediatrics

Director, Utah Pediatric Partnership to Improve Healthcare Quality

Associate Chief Value Officer, Department of Pediatrics

Disclosures

- I have no financial disclosures or conflicts of interest
- I am not an oncologist or cancer researcher / expert
- Please note this is an old U Health branding ppt slide set

WELCOME!

- Intermountain West HPV Coalition
  - Deanna Kepka, PhD MPH
- Area Health Education Center (AHEC)
  - Mindy Bateman, Director Crossroads Utah AHEC. Immediate Past President, National AHEC Organization
- Courageous HPV-related cancer survivors
- ECHO participants

Disclosures

- So why am I here?

"The field of Pediatrics is concerned with the health of infants, children, and adolescents, their growth and development, and their opportunity to achieve full potential as adults"

-Nelson Textbook of Pediatrics

Objectives for the learner

- Name types of HPV causing cancer
- Name HPV-related cancers
- Understand the current HPV vaccine schedule
- Consider characteristics that influence the uptake of HPV vaccine in primary care clinical practice

What is HPV?

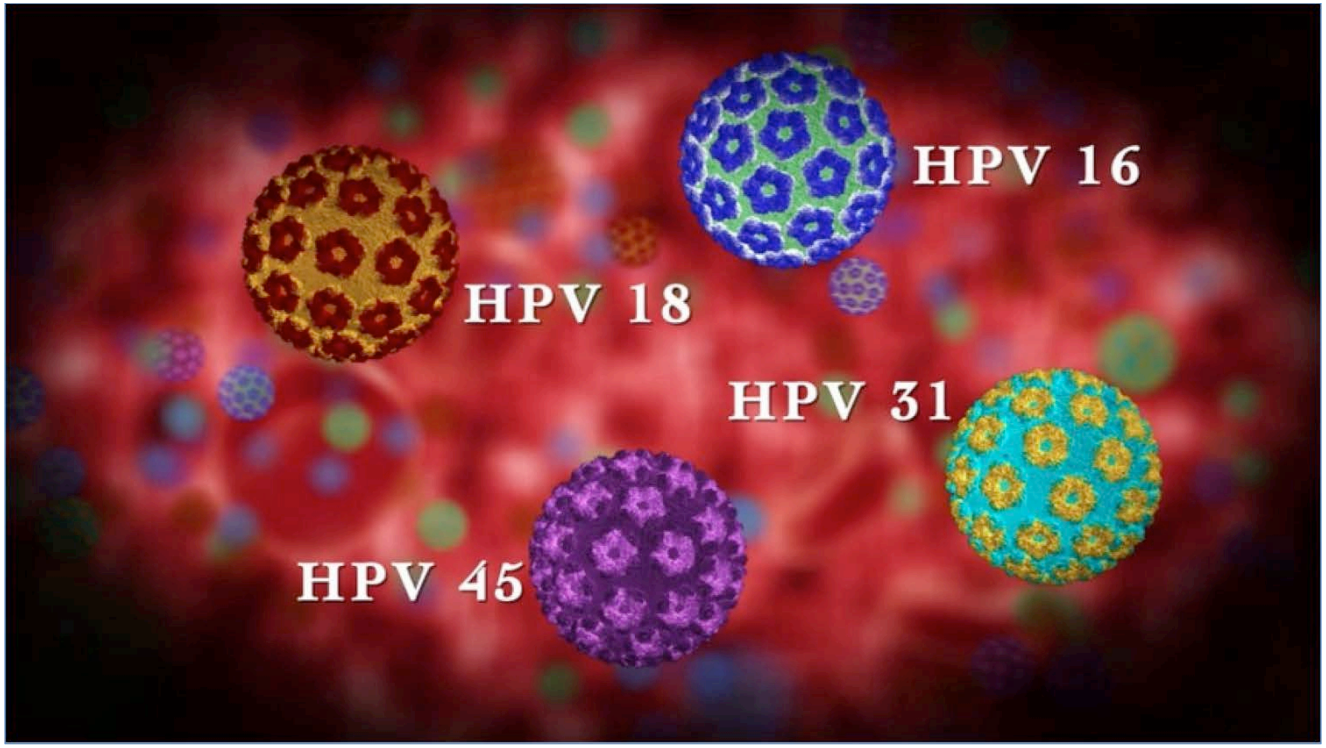


Image Source: University of California Irvine
"Epidemiology of HPV Related Cancers, the Unfolding Story"

Background

- Human Papilloma Virus
- Group of 150+ types of HPV
  - Most infections clear spontaneously
  - Some cause warts of the skin
- "Mucosal" types mainly infect the anogenital/cervix, mouth/tongue, throat
- Spread through intimate skin to skin and sexual contact

HPV is ubiquitous

"HPV is so common that nearly all sexually active men and women get it at some point in their lives"

-Centers for Disease Control and Prevention

Disease Burden

- 25% of the U.S. Population have some form of HPV (est. 80 million)
  - 14 million new infections each year
  - Most commonly transmitted STD in the US and world
- In the U.S. Annual HPV-associated cancer rates (estimate 35K)
  - 20,000+ women
    - 12K cervical cancer (4K will die)
  - 12,000+ men

Source: Centers for Disease Control and Prevention

Disease Burden

- Cancer (high risk types)
  - 100% of cervical cancer (13 types – but 7/10 by types 16 and 18)
  - 70% oropharyngeal
  - 80% anal
  - 40% vulvar
  - 50% penile
- Genital Warts (low risk types)
- Fetal transmission during delivery

Source: American Academy of Dermatology National Library of Dermatologic Teaching Slides

How do I prevent HPV infection?

- Lower chances of getting HPV by
  - "being in a faithful relationship with one partner"
  - "limiting number of sex partners"
  - "choosing a partner who has had no or few prior sex partners"
- "But even people with only one lifetime sex partner can get HPV"!
- "It may not be possible to determine if a partner who has been sexually active in the past is currently infected"!
- "The only sure way to prevent HPV is to avoid all sexual activity"! ***(effectiveness of teaching abstinence to teens is a topic for another day…)***

Source: Centers for Disease Control and Prevention

Beyond Sex

- Can be transmitted through genital-to-genital contact (absence of intercourse)

- Vaccinate and Prevent!
  - Antibody response better when young and also pre-exposure
    - Most new infections are diagnosed in females 15-24 years of age

Beyond Sex

- Vaccinate and Prevent!
  - Antibody response better when young and also pre-exposure
    - Most new infections are diagnosed in females 15-24 years of age
- HPV-related cancer is not an immediate disease of childhood
  - Symptoms = advanced stage
  - Screening – only for cervical; none for the other cancers (women or men)

Vaccine – Safe and Effective!

- Composed of surface protein from types of HPV
- Years of testing at NIH
- Clinical trials
  - Gardasil 9 – 15,000 F/M
  - Gardasil – 29,000 F/M
  - Cervarix – 30,000 F
- Uptake of the vaccine is LOW!

Brief Timeline HPV vaccine

- 2006 – Quadrivalent FDA-approval in female
- 2011 – ACIP recs routine quadrivalent in males ages 11-12 yrs..
- 2014 – 9valent FDA-approval in females and males
- 2015 – ACIP recs routine 9valent in both female males ages 11-12 yrs.

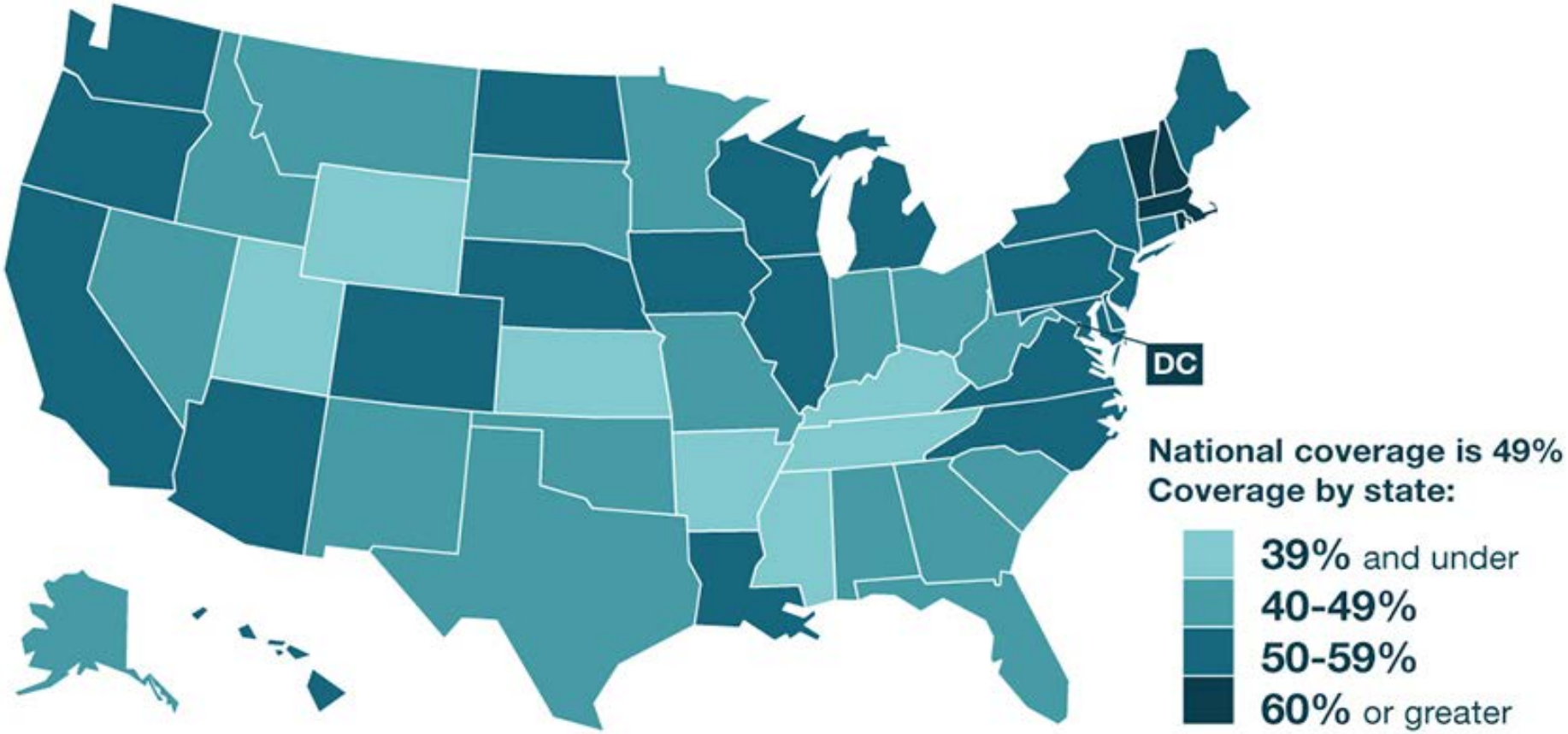
FDA = Food and Drug Administration
ACIP = Advisory Committee on Immunization Practices

FDA NEWS RELEASE

FDA approves expanded use of Gardasil 9 to include individuals 27 through 45 years old

For Immediate Release: October 05, 2018

Percentage of adolescents who are up to date on HPV vaccination



Source: MMWR August 24, 2018

www.cdc.gov/hpv

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

In 2017, the percentage of adolescents who received the first dose of the HPV vaccine was ***11 percentage points lower*** in rural areas compared to urban areas. The percentage of adolescents receiving the first dose of the meningococcal conjugate vaccine was ***7 percentage points lower*** in rural areas compared to urban areas.

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CDC.gov/ruralhealth/vaccines

Progress to date

- Down by 86%
  - HPV types that cause most HPV cancers and genital warts
- Down by 40%
  - HPV types linked to cervical cancer

Most common side effects

- Injection site
  - Swelling
  - Redness
  - Pain
- Dizziness
- Headache
- Nausea
- Fainting (not increased over other teen vaccines)

But I read online…

- Blood clots
- Allergic reactions
- Strokes
- Seziures
- Guillain-Barre Syndrome
- Birth defects
- Miscarriages
- Infertility
- Premature ovarian failure
- Fetal death

But I read online…

- Blood clots
- [illegible]ic reaction
- [illegible]
- [illegible]
- Gu[illegible]rome
- Bi[illegible]
- [illegible]
- [illegible]
- [illegible]nature ovarian [illegible]ure
- Fetal death

NO CAUSAL LINK!

Current 2016 Vaccine Recs

- 2-doses and intervals for children ages 9-14
- 3-doses and intervals for children 15 and older
- Routine recs same
  - F 9-26
  - M 9- 21 (22-26 if indicated)

Available HPV Vaccine

Vaccine (all noninfectious)	Licensed for use in age & sex	Dose series	Serotypes protected against	Manufacturer
Gardisil 9 (9vHPV)	15-26 Females Males 9-14 F/M	3-dose 0, 1or2, & 6 mo (2-dose 6-12 months)	16, 18, 6, 11, 31, 33, 45, 52, 58	Merck & Co
Gardisil* (4vHPV)	9-26 Females Males	3-dose 0, 1or2, 6 mo	16, 18, 6, 11	Merck & Co
Cervarix*	9-25 Females	3-dose 0, 1or2, 6 mo	16, 18	GlaxoKline Smith

*No longer being distributed in U.S. as of late 2016

9-Valent HPV Vaccine Prevents

- Cancer by types 16 & 18
  - Cervical
  - Vulvar
  - Vaginal
  - Anal
- Dysplastic precancerous lesions
  - Intraepithelial neoplasia (cervical, vulvar, vaginal, anal)
  - Cervical adenocarcinoma in situ
- Genital warts by types 6 & 11

Ideal Adolescent Vaccines

- At age 11 or 12

- Tdap (once)
- MCV4 (booster given age 16)
- HPV (2-doses 6 months apart)
- Flu (if relevant)
  - Unless contraindicated

HPV-cancer survivors

- Welcome and thank you for joining us
- What thoughts would you like to share today?

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Improving HPV Vaccination Rates

Linking the Provider Recommendation

ECHO participants

- What is your experience with recommending HPV vaccination?
- What questions do caregivers and patients have for you?
- What are your (or your staff/team's) concerns about the HPV vaccine?

But Doctor...

- My child is not currently sexually active
- My child will never have sex
- My child will never have more than one sexual partner
- My child's future partner will never have another sexual partner besides by child
- My child will only have consensual sex

The Cancer Experience

- Has anyone in your family had cancer?
- What was this experience like for the patient and the family?

- Intermountain West HPV Coalition

Nontraditional disparity

- Characteristics that are known to drive other health disparities – economics and race – are not classically applicable to HPV

- Disparity is regional
- Cultural norms

What is known about HPV vaccine uptake

- Health Insurance
- Receipt of other adolescent vaccine (Tdap, MCV4, flu)
- Frequent use of healthcare
- Having a healthcare provider who was considered a source of information
- Strong provider recommendation
- All factors associated with higher vaccine uptake among GIRLS

What is NOT known about HPV vaccine uptake…

- Little research to understand how the healthcare system affects the recommendations providers make

- How do those recommendations actually produce uptake of the HPV vaccine

What is NOT known about HPV vaccine uptake…

- What characteristics of the provider, parent/patient, and clinic setting can enhance or inhibit the making of the recommendation and the resulting vaccine uptake?

- Context in Dissemination and Implementation Research

Research question

What are the contextual components of "healthcare delivery" that impact HPV vaccine implementation in a practice and uptake by patients?

Provider

- The message given by the provider to the parent/patient affects uptake
- Providers own conviction about safety of the vaccine influences uptake

Caregiver

- Existing doubts about vaccines in general
- Simply unable to plan leaving work for a multi-dose series
- Cost

Clinic setting

- Practice team – knowledge base or understanding of the vaccine within team-based care (nurses and office staff)
- Processes around vaccine delivery
- Vaccine supply in clinic
  - Not available/not in stock
  - Too costly

REMEMBER

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THANK YOU! QUESTIONS?

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- Courageous HPV-related cancer survivors
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