



Human Papillomavirus (HPV) Vaccine Session

Introduction

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Advisory Committee on Immunization Practices

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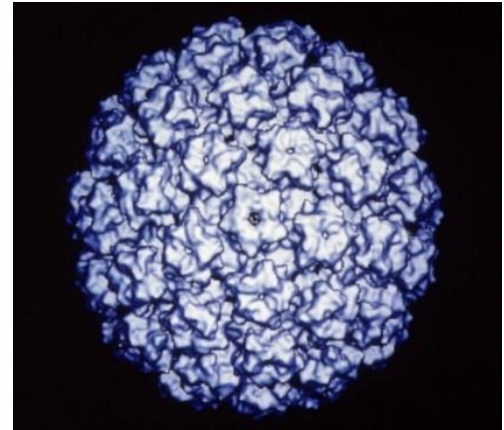
Purpose

- Provide an overview of evidence on 1-dose HPV vaccination
- Summarize updated recommendations of WHO's Strategic Advisory Group of Experts on Immunization, made in April 2022
- Provide an update on HPV vaccination coverage and impact of the U.S. HPV vaccination program

Available HPV vaccines

- Virus-like particle (VLP) vaccines
- The L1 major capsid protein expressed using recombinant technology
- L1 proteins self-assemble into VLPs
- Noninfectious

HPV VLP



HPV vaccines licensed in the United States

Vaccine and brand name	Quadrivalent (4vHPV) Gardasil	Bivalent (2vHPV) Cervarix	9-valent (9vHPV) Gardasil 9
Types	16, 18, 6, 11	16, 18	16, 18, 6, 11 31, 33, 45, 52, 58
Adjuvant	225 µg AAHS (amorphous aluminium hydroxyphosphate sulfate)	ASO4 (500 µg aluminium hydroxide, 50 µg 3-O-deacylated 4'-monophosphoryl lipid A)	500 µg AAHS (amorphous aluminium hydroxyphosphate sulfate)
Year licensed	2006	2009	2014
Manufacturer	Merck & Co.	GlaxoSmithKline	Merck & Co.

- Before 2015, almost all HPV vaccine used in the United States was 4vHPV

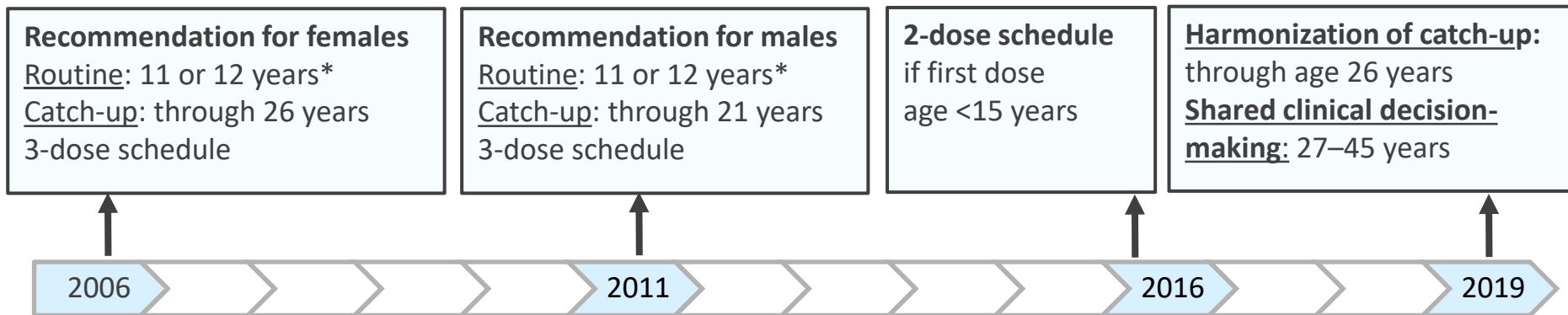
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- Before 2015, almost all HPV vaccine used in the United States was 4vHPV
- Since the end of 2016, only 9vHPV has been available in the United States

HPV 16 and 18 are oncogenic types that cause most HPV-attributable cancers; HPV 31,33,45,52,58 are oncogenic types that cause about 12% of HPV-attributable cancers; HPV 6, 11 cause most anogenital warts and recurrent respiratory papillomatosis

HPV vaccination recommendations, United States



*Vaccination can be started at age 9 years

Current HPV vaccination recommendations, United States

- **Routine vaccination**
 - Age 11 or 12 years
 - Vaccination can be started at age 9 years
- **Catch-up vaccination**
 - Through age 26 years
- **Shared clinical decision-making**
 - Age 27–45 years

Number of doses

2 doses (0, 6-12 months) if starting series before 15th birthday

3 doses (0,1-2, 6 months) if starting series on or after 15th birthday or if immunocompromising condition

HPV session agenda

National and state-level HPV vaccination coverage

Dr. Shannon Stokley ISD/NCIRD

Impact of the U.S. HPV vaccination program on HPV-associated outcomes

Dr. Julia Gargano DVD/NCIRD

One-dose HPV vaccination – overview of current evidence

Dr. Lauri Markowitz DVD/NCIRD
