Outline

• GAVI Alliance (Global Alliance for Vaccines and Immunization) and HPV vaccination
• New recommendations from CDC ACIP (Advisory Committee on Immunization Practices)
• Vaccine implementation: Scientific and other issues
• Vaccine impact at population level
• Going forward
GAVI Alliance and HPV/cervical cancer

- GAVI Alliance intends to support HPV vaccination of young adolescent girls and cervical cancer screening of adult women in the developing world
  - An opportunity for sustained support in low resource settings
New Recommendations of CDC ACIP (Advisory Committee on Immunization Practices)

• “Routine” vaccination for males 11-21 (new)
  – Target 11-12, catch-up 13-21
  – “Permissive” vaccination 9-10, 22-26

• “Routine” vaccination for females 11-26 (unchanged)
  – Target 11-12, catch-up 13-26
  – “Permissive” 9-10

NB: Merck vaccine FDA approved for both genders; GSK vaccine approved for females
Rationale for “Routine” male vaccination

• Low uptake among females implies limited herd immunity
  – Without herd immunity, female vaccination will not protect men from HPV-associated disease
• ~30% of HPV-associated cancers in US occur in males (and a higher percentage of genital warts)
• Herd immunity with male vaccination is more likely to extend to men who have sex with men
• Gender equity
United States: Incidence and Distribution of Cancers Attributable to HPV

- Pap screening has reduced the incidence of cervical cancer by ~80%
- Incidence of HPV-positive oropharynx cancer 1988-2004 increased 225%

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Lower Uptake of HPV Vaccine in US

• Medical uncertainties at time of FDA approval (June 2006)
• Concerns from efforts to make vaccine mandatory in 2007
• Concerns about promotion of sexual disinhibition
Medical Uncertainties at time of FDA Approval of HPV Vaccine (2006)

• Rare serious adverse events?
  – Target population (11-12 year olds) had been studied less extensively than 16-23 year olds

• Duration of protection? (need for booster?)

• Lack of protection against some HPV types that cause cervical cancer

• Replacement of HPV “vaccine types” with other HPV types?
Lower Uptake of HPV Vaccine in US

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Ambivalent Reception in Some Medical Circles

- Editorial: The risks and benefits of HPV vaccination. C. Haug, JAMA 2009
  - “The relationship between infection at a young age and development of cancer 20 to 40 years later is not known...It is impossible to predict exactly what effect vaccination of young girls and women will have on the incidence of cervical cancer 20 to 40 years from now.”
Changes in US Cervical Cancer Incidence: Squamous Cell Carcinoma vs. Adenocarcinoma

Chaturvedi et al, J Adolesc Health, 2010 (from NCI SEER data)

Reduction in CIN2+ cervical dysplasia: Gardasil in Australia

Post-licensure assessment of 600,558 doses (Gardasil) from 7 managed care organizations

No vaccine-related increased risk to prespecified outcomes: Guillan-Barré syndrome, stroke, venous thromboembolism, appendicitis, seizure, allergic reaction

Rate of anaphylaxis (1 case, 26 y.o.) similar to other vaccines

Rate of fainting similar to that of other adolescent vaccines
Future Directions

• Educate medical community and general population with current information:
  – Protection conferred by vaccinating young adolescents
  – Immunogenicity, duration of protection
  – Adverse events
  – Ongoing second generation vaccine development

• Encourage research to address ongoing vaccine-related issues