Cervical Cancer and HPV-related Disease in Texas

82nd Annual TPHA Conference
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State Epidemiologist

Cervical Cancer

• HPV is the major cause
• HPV infection is common
  – 15% even with just one lifetime sexual partner
  – >50% over lifetime
• Takes years from infection to pre-cancer to cancer: screening effective
• Incidence rises in the late 20s, peaking near age 40 and staying elevated


*Rates are per 100,000 and are age-adjusted to the 2000 U.S. standard population.

Invasive Cervical Cancer Incidence and Mortality Rates,* by Age Group, SEER in U.S., 1998-2002

Age-Adjusted Invasive Cancer Incidence Rates, Among Women, US, 2000

United States Cancer Statistics: 2000 Incidence; NPCR
Cervical Cancer Incidence Rates and Average Annual Cases by Race/Ethnicity, Texas, 1999–2003

Cervical Cancer Mortality Rates and Average Annual Deaths by Race/Ethnicity, Texas, 1994–2003
Cervical Cancer Mortality Rates Compared by Urban and Rural Counties, Texas, 1994–2003

Prevention of Cervical Cancer

- Prevent pre-cancers
  - HPV vaccine prevents infection with HPV types that cause 70% of cervical cancer if given before onset of sexual activity
  - Don’t smoke
- Screen (Pap) and treat pre-cancer
Percentages of Women 18 and Older Who Have Had a Recent Pap Test, 2004

Cervical Cancer Stage at Diagnosis by Race/Ethnicity, Texas, 1999–2003
### Annual HPV-related Costs in Texas
Women and Men, in millions, preliminary

<table>
<thead>
<tr>
<th>Condition</th>
<th>Costs ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genital Warts</td>
<td>19.6</td>
</tr>
<tr>
<td>Abnormal Cervix Tests</td>
<td>114.1</td>
</tr>
<tr>
<td>Cervical Cancer</td>
<td>40.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>174.3</strong></td>
</tr>
</tbody>
</table>

### The Vaccine(s)

- **Gardasil®—Merck:** Recombinant (not live) vaccine  
  - Virus-like particles (VLPs) of capsid protein
- **Protects against 4 HPV Types:**  
  - 16 & 18: responsible for 70% of cervical cancer  
  - 6 & 11: responsible for 90% of genital warts
- **FDA Approved for females age 9-26: June 2006**  
  - 3 doses: 0; 2 months; 6 months
- **Advisory Committee on Immunization Practices (ACIP) recommends¹**  
  - Routinely for females 11-12 (start as early as 9)  
  - Catch-up vaccination for females 13-26
- **Also Cervarix® (GlaxoSmithKline)**  
  - Types 16 & 18 only; Not yet FDA Approved
Injection-Site Adverse Events, Days 1 to 5 Following Any Vaccination

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Quadrivalent HPV Vaccine (%)</th>
<th>Aluminum-Containing Placebo (%)</th>
<th>Saline Placebo (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>84</td>
<td>75</td>
<td>49</td>
</tr>
<tr>
<td>Swelling</td>
<td>25</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Erythema</td>
<td>25</td>
<td>18</td>
<td>12</td>
</tr>
</tbody>
</table>

Package Insert: Gardasil®

Rationale: Routine Vaccination Females at 11-12 Years

- Prevalent infection, targeting ‘high risk’ groups not possible
- Vaccination prior to sexual debut
- Implementation advantages; consistent with young adolescent health care visit (Tdap, Menactra)
- High antibody titers after vaccination at this age
- Data through 5 years show no evidence of waning immunity; ongoing studies will monitor duration of protection
**Annual HPV-related Costs in Texas Women, ages 20-29, in millions, preliminary**

<table>
<thead>
<tr>
<th></th>
<th>Costs ($M)</th>
<th>Avoidable Costs ($M)</th>
<th>% Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genital warts</td>
<td>3.02</td>
<td>2.18</td>
<td>72%</td>
</tr>
<tr>
<td>Abnormal Cervix Tests</td>
<td>47.05</td>
<td>18.82</td>
<td>40%</td>
</tr>
<tr>
<td>Cancer</td>
<td>2.58</td>
<td>1.45</td>
<td>56%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52.66</strong></td>
<td><strong>22.44</strong></td>
<td><strong>43%</strong></td>
</tr>
</tbody>
</table>

Annual costs could be avoided in this age group starting in about 10 years.
Annual HPV-related Costs in Texas Women, ages 20-29, in millions, preliminary

Annual costs could be avoided in this age group starting in about 10 years

Texas Medicaid Recipients by Ethnicity, FY 2005

Average Monthly Enrollment, SFY 2005 = 2,779,373
Summary

• Cervical cancer and HPV-related disease
  – Known cause is very common, effective vaccine for strains that cause 70% of cervical cancer
  – Effective screening, but still groups without good coverage
  – Disproportionately affects uninsured, minority, poor