CDC HPV Typing of Cancers Study: Evaluating Representativeness

NAACCR Annual Conference
June 22, 2011

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Background

- **Typing study:**
  - Cases randomly sampled from 4 registries
    - LA, KY, MI, 3 counties in FL
    - Traced cases back to path labs
    - Varying ability to acquire cases
  - Additional cases from Residual Tissue Repositories (RTRs)
    - HI, IA, LAX
    - Convenience sample, not random sample
  - Sent tissue samples to CDC lab for HPV typing

- **Assessing representativeness**
  - Not all randomly sampled cases were available
  - RTR cases not randomly sampled (will analyze in future)
**Methods:**
Typed cases vs. Registry data

<table>
<thead>
<tr>
<th>Typing study</th>
<th>Registry data</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA, KY, MI, FL (3 counties):</td>
<td>LA, KY, MI, FL (3 counties):</td>
</tr>
<tr>
<td>random sample</td>
<td>ALL cases</td>
</tr>
</tbody>
</table>

**Selection criteria (same for both datasets):**

- Cases diagnosed in 2004-2005
- Cervix, Vagina, Vulva, Anus, Penis, Oropharynx (specific subsites known to be potentially HPV-associated)
- Excluded certain histologies not typically HPV-associated (e.g. lymphoma, sarcoma, melanoma)
- Invasive cancers (some in situ typed, not included here)
- Histologic confirmation

*RTR cases (Los Angeles, Iowa, Hawaii) not included in current analysis.*
Methods

- Calculated % distribution (registry vs. all cases typed) for:
  - Age
    - Continuous
    - Categorical (age 20+)
  - Sex (Anal and Oropharynx)
  - Race
    - White, Black, Other
    - Hispanic ethnicity for FL only
  - Histology
    - Cervix only
  - Stage

- Significance testing
  - Chi square
  - T test for continuous (age)
Background:
HPV Typing Representativeness Analysis
Cases from LA, KY, MI, FL

Registry cases
- 5917 cases
- 100%

Sampled cases
- 3127 cases
- 53%

Typing data
- 1403 cases
- 24% of registry
- 45% of sampled
Sampling frame: Sampled and typed cases, percent of registry data

Typing | Sampled | Registry

<table>
<thead>
<tr>
<th>Area</th>
<th>Typing</th>
<th>Sampled</th>
<th>Registry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervix</td>
<td>25%</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td>Vagina</td>
<td>27%</td>
<td>71%</td>
<td>71%</td>
</tr>
<tr>
<td>Vulva</td>
<td>22%</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>Anus</td>
<td>14%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Penis</td>
<td>36%</td>
<td>72%</td>
<td>72%</td>
</tr>
<tr>
<td>Oropharynx</td>
<td>25%</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Total</td>
<td>24%</td>
<td>53%</td>
<td>53%</td>
</tr>
</tbody>
</table>
FL, LA, KY, MI comparison by age

Typing data

Registry data

Cervix

Vagina

Vulva

Anus

Penis

Oropharynx
FL, LA, KY, MI comparison by sex

Typing data  Registry data

100%
80%
60%
40%
20%
0%

Male  Female  Male  Female
Anus  Oropharynx
FL, LA, KY, MI comparison by race

Typing data  Registry data

0%  20%  40%  60%  80%  100%

White  Black  Other  White  Black  Other  White  Black  Other  White  Black  Other  White  Black  Other

Cervix  Vagina  Vulva  Anus  Penis  Oropharynx
FL, LA, KY, MI comparison by histology: cervix only

- Squamous Cell
- Glandular
- Other & unknown

Typing data
Registry data
Conclusions

- Typing sample representative of diagnosed cases
  - Distributions of typed cases not significantly different from registry cases
    - One exception: fewer distant stage oropharyngeal cases than expected

- Future plans
  - Include RTRs
    - Increases #
    - Convenience sample not random sample; probably less representative
  - Examine in situ tumors
    - RTRs
    - CIN3 from Michigan
Acknowledgements

**CDC**
Mona Saraiya, MD MPH
Zahava Berkowitz MSc MSPH
Elizabeth Unger, MD PhD

**Battelle**
Christopher Lyu
Dale Rhoda

**Florida**
Youjie Huang
Jill Mackinnon

**Kentucky**
Claudia Hopenhayn

**Louisiana**
Ed Peters

**Michigan**
Glenn Copeland, MBA

**Iowa**
Charles Lynch, MD MS PhD

**Los Angeles**
Maria Sibug-Saber MD

**Hawaii**
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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.