1. Introduction
- Nebraska regularly conducts spatial surveillance on cancer incidence, and it is required to report mortality data by county and by major cancer sites.
- Recent software development in SatScan includes the spatial survival cluster surveillance functionality.
- With improved treatment data quality, it becomes possible to conduct spatial surveillance for major cancer sites.
- We intend to assess both SatScan and the traditional age and stage adjusted survival methods of spatial survival surveillance.

2. Method
- Selected cases for 2000 to 2004 from the Nebraska Cancer Registry (NCR) with the case finding date through March 1, 2011. Only malignant cancer was included.
- Vital status was updated using the national death index.
- SatScan was used to conduct spatial surveillance on 5 cancer sites (Lung, colorectal, pancreatic, breast, prostate). The scan statistics did not adjust age and stage due to the software limitation. It also used the exponential function, which is quite different from the often used hazard ratio.

3. Findings
- Incidence information
  - To provide some background rates, we calculate age-adjusted incidence rates (per 100,000 population) for 4 cancer sites.

Table 1. Cancer incident rates in Nebraska by cancer sites

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH-White</td>
<td>46.8</td>
<td>48.6</td>
<td>44.8</td>
<td>48.5</td>
<td>153.4</td>
<td>151.2</td>
</tr>
<tr>
<td>NH-Black</td>
<td>69.9</td>
<td>54.8</td>
<td>140.2</td>
<td>58.9</td>
<td>201.9</td>
<td>107.7</td>
</tr>
<tr>
<td>NH-African</td>
<td>28.4</td>
<td>66.4</td>
<td>75.8</td>
<td>51.9</td>
<td>88.2</td>
<td>66.0</td>
</tr>
<tr>
<td>NH-Asian</td>
<td>65.4</td>
<td>36.4</td>
<td>39.7</td>
<td>52.0</td>
<td>69.4</td>
<td>46.8</td>
</tr>
<tr>
<td>Hispanic White</td>
<td>38.1</td>
<td>27.8</td>
<td>52.8</td>
<td>24.3</td>
<td>73.3</td>
<td>59.7</td>
</tr>
</tbody>
</table>

- Breast cancer: lower than national rates for most groups.
- Colorectal cancer: higher than the national rates for most groups.
- Lung cancer: slightly higher than the national rate for most groups.
- Prostate cancer: similar to the national rates, but the difference between NH Blacks and NH Whites was much smaller than national rates.

4. Conclusion
- Finally, since survival is closely related to cancer stage, public health cancer surveillance may have to work with medical staff to determine meaningful use and interpretation of spatial surveillance findings.