Meet Hansel and Gretel

- 2-fold purpose
  - Credentialing
  - Lung dose measurements

- 10 yr old pediatric CIRS phantom
  - No slices
  - No pre-drilled holes
• 13 TLD
• Visible on CT
• Loaded in rods physicist can reload
Directions

• Deliver 3 Gy to midline umbilicus
• Use lung blocks as you would for patient
Irradiations

7 institutions
16 irradiations
Variety of setups
Variety of delivery
With and without lung blocks
<table>
<thead>
<tr>
<th>Position/Beam Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
</tr>
<tr>
<td>6 decubitus</td>
</tr>
<tr>
<td>4 sitting</td>
</tr>
<tr>
<td>1 supine</td>
</tr>
<tr>
<td>5 supine/prone</td>
</tr>
</tbody>
</table>
Plans/Lung Blocks

2 plans
(1 Eclipse, 1 Pinnacle)

8 blocked irradiations
8 non-blocked irradiations
## Results

<table>
<thead>
<tr>
<th>Area</th>
<th>Average dose</th>
<th>% of RX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umbilicus</td>
<td>297.5 ± 10.7</td>
<td>0.99</td>
</tr>
<tr>
<td>Neck</td>
<td>282.4 ± 21.8</td>
<td>0.94</td>
</tr>
<tr>
<td>Lung without blocks</td>
<td>324.1 ± 10.9</td>
<td>1.08</td>
</tr>
<tr>
<td>Lung with blocks</td>
<td>176 ± 101</td>
<td>0.59</td>
</tr>
</tbody>
</table>
Conclusions

• Good agreement with RX point
• Unblocked lungs receive ~8% higher than RX
• Large variation in blocked lung dose
• Some treatments give even blocked lung high doses
Questions

• Thanks!