Regulated Facilities / Venues

- Swimming Pools and Spas (hotels, condos, apartments, schools, city)
- Interactive Water Features: Pop Jet Sprays (municipal and private)
- Artificial Impoundments (Fresh and Saltwater)
- Water Recreation Attractions (Waterparks)
Adult Supervision + Good Construction & Operation Prevents or Avoids:

- Entrapment Injury
- Infectious Disease Illness
  - Bacteria
  - Virus, Protozoa
- Skin Ailments
- Slips, Trips & Fall Injury
- Drowning
## Drowning Deaths in Florida Swimming Pools, By Age Group and Year, 2000-2004

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>00-04 Total</th>
<th>00-04 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>16</td>
<td>2.6%</td>
</tr>
<tr>
<td>1-4</td>
<td>51</td>
<td>49</td>
<td>47</td>
<td>55</td>
<td>36</td>
<td>238</td>
<td>38.3%</td>
</tr>
<tr>
<td>5-9</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>30</td>
<td>4.8%</td>
</tr>
<tr>
<td>10-14</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>18</td>
<td>2.9%</td>
</tr>
<tr>
<td>15-24</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>32</td>
<td>5.2%</td>
</tr>
<tr>
<td>25-34</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>24</td>
<td>3.9%</td>
</tr>
<tr>
<td>35-44</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td>10</td>
<td>4</td>
<td>38</td>
<td>6.1%</td>
</tr>
<tr>
<td>45-54</td>
<td>5</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>9</td>
<td>39</td>
<td>6.3%</td>
</tr>
<tr>
<td>55-64</td>
<td>8</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>8</td>
<td>35</td>
<td>5.6%</td>
</tr>
<tr>
<td>65-74</td>
<td>8</td>
<td>10</td>
<td>16</td>
<td>10</td>
<td>11</td>
<td>55</td>
<td>8.9%</td>
</tr>
<tr>
<td>75-84</td>
<td>7</td>
<td>17</td>
<td>7</td>
<td>9</td>
<td>14</td>
<td>54</td>
<td>8.7%</td>
</tr>
<tr>
<td>85+</td>
<td>7</td>
<td>12</td>
<td>12</td>
<td>6</td>
<td>5</td>
<td>42</td>
<td>6.8%</td>
</tr>
<tr>
<td>Total</td>
<td>118</td>
<td>143</td>
<td>132</td>
<td>118</td>
<td>110</td>
<td>621</td>
<td>100%</td>
</tr>
</tbody>
</table>


Prepared By: Office of Injury Prevention, Florida Department of Health, 12/19/05 by Michael Lo, MSPH, Injury Epidemiologist
If waste pathogens are present in high concentrations in recreational waters and are ingested while swimming or enter the skin through a cut or sore, they may cause gastrointestinal illnesses, infections or rashes.

Pathogens

Hepatitis A - 30nm

Cryptosporidium - 3-6μm

E. coli - 1x4μm

Giardia - 6-12μm
Etiologic Agents of Recreational Water Outbreaks Causing Gastrointestinal Illness, United States, 1989-2000

Treated Water
N=54

- *Crypto. parvum* 64.0%
- *Other* 6.0%
- *Shigella* 6.0%
- *E. coli* O157:H7 6.0%
- *Acute gastroenteritis* 7.0%
- *Giardia* 9.0%

Fresh Water
N=65

- Acute gastroenteritis 34.0%
- *E. coli* O121 2.0%
- *C. parvum* 6.0%
- *Giardia* 8.0%
- *Norwalk-like virus* 8.0%
- *Shigella* 27.0%
- *E. coli* O157:H7 15.0%
- *Other* 6.0%
- *Shigella* 6.0%
- *Giardia* 9.0%
Crypto Basics

- Infectious Dose:
  - <10- 30 oocysts

- Single bowel movement (4 oz. sample)
  - =1 Billion oocysts

- 1,000,000,000 oocysts per 10,000 gal. reservoir
  - =100,000 oocysts per gallon of water
Environmental Investigation of Splash Park

September 8, 2006
Environmental Results

- Major violation: concentration of chlorine <0.5 ppm

- Other observations
  - Non-functioning pH/ORP sensor unit
  - Paper cartridge filter (effective to 15 μm)
  - Not draining properly
  - No maintenance log
  - Bathrooms not clean
  - Algae build-up
Total Splash Park Cases

<table>
<thead>
<tr>
<th></th>
<th>Giardiasis Cases</th>
<th>Cryptosporidiosis Cases</th>
<th>Co-infection Cases</th>
<th>Total Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Cases</td>
<td>38</td>
<td>9</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>Confirmed</td>
<td>35</td>
<td>7</td>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td>Probable</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Suspect</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>6</td>
</tr>
<tr>
<td>Secondary Cases</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>
E. coli O157:H7 in a water park in Georgia, 1998

- 26 children laboratory confirmed with E. coli 0157:H7
  - 7 HUS
  - 1 death

- Common exposure: water park, June 11, 12, 17, 18

- Possible contamination:
  - four fecal accidents and/or
  - two fecal accidents with high concentrations of bacteria on June 11 and 17 with residual contamination on June 12 and 18
Immediate Pool Closure

- Main Drain grate missing, damaged or loose
- Main Drain is not visible, water clarity poor
- Chlorine/Bromine too low or too high
- pH too low or too high (7.2-7.8 is OK)
- Filters or disinfection system inoperable
- Any other conditions which endangers the health, safety, or welfare of patrons