Vancomycin Dosing for Pediatrics
University Health System

Necessary patient information for dosing

**Body weight**
- Use ACTUAL body weight

\[ CrCl (\text{ml/min/1.73m}^2) = \frac{[\text{length (cm)} \times k]}{\text{SCr}} \]
  - \( k = 0.45 \) for infants 1 to 52 weeks old
  - \( k = 0.55 \) for children 1 to 13 years old
  - \( k = 0.55 \) for adolescent **females** 13-16 years old
  - \( k = 0.7 \) for adolescent **males** 13-16 years old

**General rules**
- Vancomycin should initially be dosed Q6 hours in children >30 days old with normal renal function
- Doses infused over 1-2 hours, depending on tolerability
- Peak serum concentrations are no longer recommended
- Trough serum concentration monitoring
  - Should be checked at least once weekly for pediatric patients
  - 30 minutes prior to 4th dose
    - Goal trough 10-20 mcg/mL
  - Troughs only collected for neonates requiring vancomycin treatment for >48 hours
- Rapid clearance seen in patients with cystic fibrosis, children between 1-12 years of age, and burn patients
- Nephrotoxicity secondary to vancomycin is uncommon in pediatrics; more frequent monitoring may be warranted in critically ill children on multiple concomitant nephrotoxins

**General dosing recommendations**

**Neonatal dosing** (infants <30 days old)
- Meningitis 15 mg/kg/dose
- Others 10 mg/kg/dose

<table>
<thead>
<tr>
<th>CGA* (weeks)</th>
<th>Postnatal age (days)</th>
<th>Interval (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤29</td>
<td>0-14</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>&gt;14</td>
<td>12</td>
</tr>
<tr>
<td>30-36</td>
<td>0-14</td>
<td>12</td>
</tr>
<tr>
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<td>&gt;14</td>
<td>8</td>
</tr>
<tr>
<td>37-44</td>
<td>0-7</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>&gt;7</td>
<td>8</td>
</tr>
<tr>
<td>&gt;45</td>
<td>ALL</td>
<td>6</td>
</tr>
</tbody>
</table>

*Corrected gestational age

**Infants >30 days and all other pediatric patients**
- Mild/moderate infections (skin soft tissue infections, prophylactic dosing)
  - 45 mg/kg/day
  - Divided Q6-8 hours
  - Prophylactic dose = 10-15 mg/kg x 1
- Serious infections
  - 15-20 mg/kg/dose
  - Q6 hour dosing
  - Max starting dose = 1 gram every 6 hours
- Adjust interval to every 8 or 12 hours for impaired renal function (CrCl <50 mL/min)
- If renal function is unknown but presumed to be impaired, give one-time dose of 15 mg/kg and check random level 8 hours post dose

- **Vancomycin continuous infusions**
  - Not routinely utilized in pediatric patients
  - May be utilized for infants/children with rapid renal elimination unable to achieve troughs >10 mcg/mL on q 6 hour dosing
  - Default concentration= 5 mg/mL (1000 mg/200mL normal saline)
  - Default dose= 60 mg/kg/day given continuously over 24 hours

References