# LSU/Children’s Hospital Pediatric Heme/Onc Dosing Guidelines for Antibiotics

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<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand Name</th>
<th>Pediatric Daily Dose</th>
<th>Typical Adult Dose</th>
<th>Max Daily Dose</th>
<th>Renal Dosing</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Penicillins</strong></td>
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</tr>
<tr>
<td>Penicillin G</td>
<td>Pfizerpen</td>
<td>250,000-400,000 units/kg/day IV div Q 4-6 hr</td>
<td>2-4 Million units IV Q 4-6 hr</td>
<td>24 Million units</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Penicillin VK</td>
<td>Veetids</td>
<td>25-50 mg/kg/day PO div Q 6-8 hr</td>
<td>125-500 mg PO Q 6-8 hr</td>
<td>2 gm</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Dicloxacillin</td>
<td>Dynapen</td>
<td>25-50 mg/kg/day PO div Q 6 hr</td>
<td>125-500 mg PO Q 6 hr</td>
<td>2 gm</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Oxacillin</td>
<td>Bactocil</td>
<td>100-200 mg/kg/day IV div Q 6 hr</td>
<td>1-2 gm IV Q 4-6 hr</td>
<td>12 gm</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Ampicillin/Subactram</td>
<td>Unasyn</td>
<td>100-200 mg/kg/day IV div Q 6 hr</td>
<td>1.5-3 gm IV Q 6 hr</td>
<td>12 gm amp</td>
<td>Q 8 hr</td>
<td>Dose based on ampicillin component</td>
</tr>
<tr>
<td>Amoxicillin/Clavulanic Acid</td>
<td>Augmentin</td>
<td>20-40 mg/kg/day PO div Q 8 hr “BID”: 25-40 mg/day PO div Q 12 hr</td>
<td>250-500 mg PO Q 8 hr “BID”: 500-875 mg PO Q 12</td>
<td>2 gm amox</td>
<td>Q 12 hr</td>
<td>There are “Q 8 hr” and “BID” formulations which will need to be specified</td>
</tr>
<tr>
<td>Piperacillin</td>
<td>Piperacil</td>
<td>200-400 mg/kg/day IV div Q 4-6 hr</td>
<td>2-4 gm IV Q 4-6 hr</td>
<td>24 gm</td>
<td>Q 6-8 hr</td>
<td></td>
</tr>
<tr>
<td>Piperacillin/Tazobactam</td>
<td>Zosyn</td>
<td>240-400 mg/kg/day IV div Q 6 hr</td>
<td>3.375 gm IV Q 4-6 hr</td>
<td>18 gm pip</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Ticarcillin/Clavulanic Acid</td>
<td>Timentin</td>
<td>200-300 mg/kg/day IV div Q 4-6 hr</td>
<td>3.1 gm IV Q 4-6 hr</td>
<td>24 gm ticar</td>
<td>Q 6-8 hr</td>
<td></td>
</tr>
<tr>
<td><strong>Cephalosporins</strong></td>
<td></td>
<td></td>
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<tr>
<td>Cefazolin (1st gen)</td>
<td>Kefzol, Ancef</td>
<td>50-100 mg/kg/day IV Q 8 hr</td>
<td>1-2 gm IV Q 8 hr</td>
<td>6 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td>Cephalexin (1st gen)</td>
<td>Keflex</td>
<td>25-100 mg/kg/day PO div Q 6-8 hr</td>
<td>250-500 mg PO Q 6 hr</td>
<td>4 gm</td>
<td>Q 8 hr</td>
<td></td>
</tr>
<tr>
<td>Cefuroxime IV (2nd gen)</td>
<td>Kefurox, Zinacef</td>
<td>75-150 mg/kg/day IV Q 8 hr</td>
<td>750 mg -1500 mg IV Q 8 hr</td>
<td>6 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td>Cefuroxime PO (2nd gen)</td>
<td>Ceftin</td>
<td>Suspension: 20-30 mg/kg/day PO div Q 12 hr OR Tabs: 125-250 mg PO Q 12 hr</td>
<td>250-500 mg PO Q 12 hr</td>
<td>1 gm</td>
<td>Q 12 hr</td>
<td>Table and suspension are not bioequivalent and can't be substituted on a mg/mg basis</td>
</tr>
<tr>
<td>Cefaclor (2nd gen)</td>
<td>Ceclor</td>
<td>20-40 mg/kg/day PO div Q 8-12 hr</td>
<td>250-500 mg PO Q8 hr</td>
<td>2 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td>Cefotaxime (3rd gen)</td>
<td>Claforan</td>
<td>100-200 mg/kg/day IV div Q 6-8 hr</td>
<td>1-2 gm IV Q 6-8 hr</td>
<td>12 gm</td>
<td>8-12 hr</td>
<td>12-24 hr</td>
</tr>
<tr>
<td>Ceftazidime (3rd gen)</td>
<td>Tazidime, Fortaz</td>
<td>150 mg/kg/day IV div Q 8 hr</td>
<td>2 gm IV Q 8 hr</td>
<td>6 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td>Ceftriaxone (3rd gen)</td>
<td>Rocephin</td>
<td>50-75 mg/kg/day IV div Q 12-24 hr</td>
<td>1-2 IV Q 12-24 hr</td>
<td>4 gm</td>
<td>Not Necessary</td>
<td>1-2 gm Q 24 hr</td>
</tr>
<tr>
<td>Cefepime (4th gen)</td>
<td>Maxipime</td>
<td>150 mg/kg/day IV div Q 8 hr</td>
<td>2 gm IV Q 8 hr</td>
<td>6 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td><strong>Carbapenems</strong></td>
<td></td>
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</tr>
<tr>
<td>Imipenem/Cilastatin</td>
<td>Primaxin</td>
<td>60-75 mg/kg/day IV div Q 6 hr</td>
<td>500 mg IV q 6 hr</td>
<td>4 gm</td>
<td>Q 8-12 hr</td>
<td></td>
</tr>
<tr>
<td>Meropenem</td>
<td>Merrem</td>
<td>60-120 mg/kg/day IV div Q 8 hr</td>
<td>1 gm IV Q 8 hr</td>
<td>6 gm</td>
<td>Q 12 hr</td>
<td></td>
</tr>
<tr>
<td>Drug</td>
<td>Brand Name</td>
<td>Pediatric Daily Dose</td>
<td>Typical Adult Dose</td>
<td>Max Daily Dose</td>
<td>Renal Dosing Mild-moderate</td>
<td>Mod-severe</td>
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<tr>
<td><strong>Monobactams</strong></td>
<td>Aztreonam</td>
<td>90-120 mg/kg/day IV div Q 6-8 hr</td>
<td>1-2 IV Q 8-12 hr</td>
<td>8 gm</td>
<td>50% dose red</td>
<td>75% dose red</td>
</tr>
<tr>
<td><strong>Macrolides</strong></td>
<td>Azactam</td>
<td>10 mg/kg PO x 1 day; 5 mg/kg/day PO Q 24 hr x 4 days</td>
<td>500 mg PO x 1 day;</td>
<td>500 mg/dose</td>
<td>Not Necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Blaxin</td>
<td>15 mg/kg/day PO div Q 12 hr</td>
<td>250-500 mg PO Q 12 hr</td>
<td>1 gm</td>
<td>Not Necessary</td>
<td>50% of dose</td>
</tr>
<tr>
<td><strong>Aminoglycosides</strong></td>
<td>Garamycin</td>
<td>7.5 mg/kg/day IV div Q 8 hr</td>
<td>Weight dependent</td>
<td>N/A</td>
<td>Q 12 hr</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td></td>
<td>Nebcin</td>
<td>7.5 mg/kg/day IV div Q 8 hr</td>
<td>Weight dependent</td>
<td>N/A</td>
<td>Q 12 hr</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td></td>
<td>Amikin</td>
<td>15-30 mg/kg/day IV div Q 8 hr</td>
<td>Weight dependent</td>
<td>N/A</td>
<td>Q 12 hr</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td><strong>Fluoroquinolones</strong></td>
<td>Cipro</td>
<td>15-25 mg/kg/day IV div Q 12 hr</td>
<td>200-400 mg IV Q 12 hr</td>
<td>800 mg</td>
<td>Not necessary</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td></td>
<td>Cipro</td>
<td>20-30 mg/kg/day PO div Q 12 hr</td>
<td>250-750 mg PO Q 12 hr</td>
<td>1.5 gm</td>
<td>Not necessary</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td></td>
<td>Levaquin</td>
<td>6 mth-5yr: 10 mg/kg IV/PO Q12hr &gt;5yr: 10 mg/kg IV/PO Q24hr</td>
<td>500 mg IV/PO Q 24 hr</td>
<td>750 mg</td>
<td>50% dose red</td>
<td>25% dose red</td>
</tr>
<tr>
<td></td>
<td>Tequin</td>
<td>5-10 mg/kg/day IV/PO Q 24 hr</td>
<td>400 mg IV/PO Q 24 hr</td>
<td>400 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Avelox</td>
<td>5-10mg/kg/day IV/PO Q 24 hr</td>
<td>400 mg IV/PO Q 24 hr</td>
<td>400 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
<td>Cleocin</td>
<td>25-40 mg/kg/day IV div Q 6-8 hr</td>
<td>600-900 mg IV Q 8 hr</td>
<td>4.8 gm</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Cleocin</td>
<td>10-30mg/kg/day PO div Q 6-8 hr</td>
<td>150-450 mg PO Q 8 hr</td>
<td>1.8 gm</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td></td>
<td>Flagyl</td>
<td>30 mg/kg/day IV/PO div Q 6-8 hr</td>
<td>500 mg IV/PO Q 8 hrs</td>
<td>4 gm</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td><strong>Linezolid</strong></td>
<td>Zyvox</td>
<td>&lt;12: 30 mg/kg/day IV/PO div Q 8 hr</td>
<td>600 mg IV/PO Q 12 hrs</td>
<td>1200 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
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<td></td>
<td></td>
<td>12+: 600 mg IV/PO Q 12 hr</td>
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<tr>
<td><strong>Vancomycin</strong></td>
<td>Vancocin</td>
<td>40-60 mg/kg/day IV div Q 6-8 hr</td>
<td>1 gm IV Q 12 hr</td>
<td>4 gm/24 hr</td>
<td>Q 8-12 hr</td>
<td>Q 12-24 hr</td>
</tr>
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<tr>
<td>Sulfamethoxazole/Trimethoprim</td>
<td>Bactrim</td>
<td>Tx: 15-20 mg/kg/day IV div Q 6-8  Prophy: 5 mg/kg/day PO div Q 12 3 consecutive days/week</td>
<td>Tx: Weight Dependent Prophy: 1 DS tab PO Q 12 hr 3 cons days/week</td>
<td>N/A</td>
<td>Q 8-12 hr</td>
<td>Q 12-24</td>
</tr>
<tr>
<td>Dapsone</td>
<td>Avlosulfon</td>
<td>1-2 mg/kg/day PO 2-3 x/wk OR 4 mg/kg/day Q week</td>
<td>50 mg PO Q 12 hr</td>
<td>200 mg/dose</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Pentamidine</td>
<td>NebuPent</td>
<td>Tx: 4 mg/kg/day IV Prophy:4 mg/Kg/dose IV Q month &gt;5 years: 300mg in 6 ml H2O via inhalation Q month</td>
<td>Tx: Weight Dependent Prophy: As Pediatric Dose</td>
<td>N/A</td>
<td>Q 24-36</td>
<td>Q36-48</td>
</tr>
<tr>
<td>Antifungals</td>
<td></td>
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<tr>
<td>Fluconazole</td>
<td>Diflucan</td>
<td>3-6 mg/kg/day IV/PO Q 24 hr</td>
<td>400 mg IV/PO Q 24 hr</td>
<td>800 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Itraconazole</td>
<td>Sporanox</td>
<td>3-5 mg/kg/day PO div Q 12-24 hr</td>
<td>200-400 mg PO Q 12-24 hr</td>
<td>600 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Posaconazole</td>
<td>Noxafil</td>
<td>&gt;13 years-old: 200 mg (5ml) PO Q 8 hr</td>
<td>200 mg (5ml) PO Q 8 hr</td>
<td>800 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Voriconazole IV</td>
<td>Vfend</td>
<td>6mg/kg/dose IV Q 12 hr x 2 doses Maint: 8 mg/kg/day IV div Q 12 hr</td>
<td>Weight Dependent</td>
<td>N/A</td>
<td>Not necessary</td>
<td>Consider holding</td>
</tr>
<tr>
<td>Voriconazole PO</td>
<td>Vfend</td>
<td>&lt;40 kg: 100 mg PO Q 12 hr  &gt;40 kg: 200 mg PO Q 12 hr</td>
<td>200 mg PO Q 12 hr</td>
<td>600 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Liposomal Amphotericin B</td>
<td>Ambisome</td>
<td>3-5 mg/kg/day IV Q 24 hr</td>
<td>3-5mg/kg/day IV Q24hr</td>
<td>15 mg/kg/day</td>
<td>Not necessary</td>
<td>Consider holding</td>
</tr>
<tr>
<td>Micafungin</td>
<td>Mycamine</td>
<td>&lt;2: 6 mg/kg/day IV Q 24 hr  &gt;2: 3 mg/kg/day IV Q 24 hr</td>
<td>100-150 mg/day IV Q 24 hr</td>
<td>150 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Caspofungin</td>
<td>Cancidas</td>
<td>Load Day 1: 70 mg/m2 IV Maint Day 2+: 50 mg/m2 IV Q 24 hr</td>
<td>Load: 70 mg IV on Day 1 Maint: 50 mg IV Q 24 hr</td>
<td>100 mg</td>
<td>Not necessary</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Antivirals</td>
<td>Valtrex</td>
<td>Tx:60-90 mg/kg/day PO div Q 8 Prophy:15-20 mg/kg/day Q 24 hr</td>
<td>Tx: 500-1000 mg PO Q 8 hr Prophy: 500 mg PO QD</td>
<td>3 mg</td>
<td>Q 12 hr</td>
<td>Q 24 hr</td>
</tr>
<tr>
<td>Drug</td>
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<tr>
<td>Ganciclovir</td>
<td>Cytovene</td>
<td>Indxn: 10 mg/kg/day IV div Q 12 hr Maint: 5 mg/kg/day IV Q 24 hr</td>
<td>Weight Dependent</td>
<td>N/A</td>
<td>2.5 mg/kg Q 12 hr</td>
<td>2.5 mg/kg Q 24 hr</td>
</tr>
<tr>
<td>Foscarnet</td>
<td>Foscavir</td>
<td>Indxn: 180 mg/kg/day IV div 8 hr Maint: 90 mg/kg/day IV Q 24 hr</td>
<td>Weight Dependent</td>
<td>N/A</td>
<td>Based on individual</td>
<td>Based on individual</td>
</tr>
<tr>
<td>Cidofovir</td>
<td>Vistide</td>
<td>1-5 mg/kg/dose IV Q week (Highly Nephrotoxic—Discuss its use and dose with attending)</td>
<td>Weight Dependent</td>
<td>N/A</td>
<td>Discuss with attending/fellow</td>
<td>Hold</td>
</tr>
<tr>
<td>Acyclovir</td>
<td>Zovirax</td>
<td>HSV (mucosal &amp; cutaneous) Tx: &lt;12: 30 mg/kg/day IV div Q 8 hr &gt;12: 15 mg/kg/day IV div Q 8 hr PO: 2400 mg/m2/day div Q 6 hr</td>
<td>Weight Dependent</td>
<td>N/A</td>
<td>Q 8-12 hr</td>
<td>Q 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Varicella zoster (chicken pox) Tx: &lt;12: 60 mg/kg/day IV div Q 8 hr &gt;12: 30 mg/kg/day IV div Q 8 hr PO: 10-20 mg/kg/dose Q 6 hr</td>
<td>Weight Dependent</td>
<td>800 mg/dose if given PO</td>
<td>Q 8-12hr</td>
<td>Q 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Herpes zoster (shingles)Tx: 1000-3000 mg/m2/day PO div 4-5 times/day</td>
<td>Weight Dependent</td>
<td>800 mg/dose</td>
<td>3-4 x/day</td>
<td>2-3 x/day</td>
</tr>
</tbody>
</table>
**Body Surface Area (BSA):** height (cm) X weight (Kg) divided by 3600. The square root of this will be the BSA in m$^2$.

**Initial Management of Acute Leukemia:**

1. **IV Hydration:** D$_5$ 1/4NS + 30-50mEq/L of NaHCO$_3$ at 125 ml/m$^2$/hour *(No Potassium)*-this 2x maintenance. May need to modify rate if patient is severely anemic!

2. **Allopurinol:** 10 mg/Kg/24 hours po divided tid (Max 800 mg/day) or 200 mg/m$^2$/day IV divided tid (Max 600 mg/day)

3. **Rasburicase:** 0.1-0.2 mg/Kg/day IV to be used in certain cases (Discuss with fellow/attending before ordering)

4. **Every 4-6 hours labs:** BMP, uric acid, Phosphorus

5. **Need to monitor for tumor lysis syndrome (TLS):** Hyperkalemia, hyperuricemia, hypocalcemia, hyperphosphatemia, renal failure

**Transfusion Guidelines**

***All blood products used for oncology and BMT/HSCT patients need to be irradiated!***

1. **Oncology and Post-BMT/HSCT Patients:**

   - Baseline labs for all new oncology patients before first transfusion: EBV and CMV titers, Varicella titers, Hepatitis Panel, HIV, IgGAME.

   - Transfuse for Hb <8 g/dL or <10 g/dL if undergoing XRT
      
      - 10mL/Kg of *irradiated, leukodepleted, CMV appropriate* PRBC’s over 3-4 hours.

   - Transfuse for platelets <20,000 (For brain tumor patients use <50,000):
      
      - Neonates and children <10 Kg: Give 10 mL/Kg of single donor platelet apheresis, *irradiated, leukodepleted, CMV appropriate* over 1 hour.

      - Children 10-15Kg: Give ½ unit single donor platelet apheresis, *irradiated, leukodepleted, CMV appropriate* over 1 hour.
• Children >15 Kg and adults: Give 1 single donor platelet apheresis, **irradiated, leukodepleted, CMV appropriate** over 1 hour.

  ❖ Post-transfusion platelet count to be drawn 10 minutes after completion.

2. **Sickle Cell Patients:** Transfuse with **leukodepleted, sickle-negative PRBC’s. No need for irradiation.**

3. **FFP (for DIC, some coagulation factor deficiency):** 10 mL/Kg

4. **Cryoprecipitate (for hypofibrinogenemia):** 1 unit/10 Kg

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**Fever and Neutropenia Management:**

**Absolute Neutrophil Count (ANC):** (WBC Count) X (% segs + %bands) divided by 100.

**Profound Neutropenia (ANC<200) or severe neutropenia (ANC <500) and fever (Temp>100.4°F) is a life-threatening emergency and requires immediate attention:**

1. Stat blood cultures central and peripheral (subsequent blood cultures [if patient remains febrile] only from central line; repeat any positive blood culture [central or peripheral or both]; obtain blood cultures before adding or changing antibiotic coverage).

2. Cefepime 50 mg/Kg/dose (Max dose: 2 grams) IV every 8 hours (First dose is always STAT).

3. If patient is unstable, hypotensive, has poor perfusion, or any other signs of decompensation or sepsis, discuss with fellow/attending immediately and consider stat use of vancomycin, gentamicin, and/or antifungals.

4. If using vancomycin or gentamicin, monitor levels (peak and trough after 3rd dose). On BMT/HSCT patients, do trough level before each dose.

**Sickle Cell and Fever:**

1. Blood and urine cultures.

2. Ceftriaxone (50-75 mg/kg/day) IV divided Q 12-24 hours, (Max daily dose is 4 gm).

3. If respiratory symptoms add Zithromax.

4. If persistent fever and/or ACS/PNA, add vancomycin.
Common Chemotherapy Side Effects:

1. **Doxorubicin, Daunorubicin (anthracyclines):** Heart failure (patient needs EKG, ECHO results on chart before first dose).

2. **Cyclophosphamide (alkylating agent):** Hemorrhagic cystitis (monitor urine for blood, urine output).

3. **Cisplatin (alkylating agent):** Hearing loss, nephropathy (Monitor urine output), hypomagnesemia (check daily Magnesium).

4. **Ifosfamide (alkylating agent):** Renal Fanconi’s (monitor lytes, Phosphorus), CNS effects including seizures; similar to cyclophosphamide.

5. **Asparaginase:** Severe allergic reaction (Need anaphylaxis orders on chart), pancreatitis (order amylase and lipase if abdominal symptoms), thrombosis, hypofibrinogenemia/bleeding.

6. **Vincristine (mitosis inhibitor):** Peripheral neuropathy, SIADH.

7. **Steroids (hormones):** Hypertension, hyperglycemia, increased appetite and weight gain, psychiatric effects.

8. **Methotrexate (antimetabolite):** Renal failure, severe mucositis, chemical hepatitis (Monitor MTX levels, urine output, lytes, creatinine).

9. **Cytarabine (antimetabolite):** Conjunctivitis (Need to use steroid eye drops); CNS changes when given intrathecal.

10. **Irinotecan (topoisomerase inhibitor):** Diarrhea

11. **Carboplatin (alkylating agent):** Hearing loss, renal failure, peripheral neuropathy
Antibiotic Prophylaxis for Oncology and BMT/HSCT Patients:

Bactrim dosing given PO bid on Mondays, Tuesday, and Wednesdays (Fridays and Saturdays for BMT/HSCT patients):

By Weight (kg) dosage: based on TMP at 2.5 mg/kg/dose (prefer dosing) or By BSA dosing: based on TMP at 150 mg/m\(^2\)/day

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>BSA (m(^2))</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-12</td>
<td>&lt;0.3</td>
<td>2.5 mL of suspension (20 mg)</td>
</tr>
<tr>
<td>12.1-20</td>
<td>0.3-0.79</td>
<td>5 mL of suspension (40 mg)</td>
</tr>
<tr>
<td>20.1-28</td>
<td>0.8-1.39</td>
<td>7.5 mL of suspension (60 mg)</td>
</tr>
<tr>
<td>28.1-40</td>
<td>1.4-1.89</td>
<td>10 mL of suspension or 1 regular strength tablet (80 mg)</td>
</tr>
<tr>
<td>40.1-56</td>
<td>&gt;1.89</td>
<td>1 ½ regular strength tablet or 15 mL of suspension (120 mg)</td>
</tr>
<tr>
<td>Greater than 56.1</td>
<td></td>
<td>1 double strength tablet or 20 mL of suspension (160 mg)</td>
</tr>
</tbody>
</table>

Antibiotic Prophylaxis for Sickle Cell Patients:

Penicillin VK:

- <3 years: 125 mg p.o. bid
- >3 years: 250 mg p.o. bid
Important Points:

- No rectal exam or suppository for oncology patients.
- No Motrin for oncology patients unless cleared by fellow/attending.

Diet

- If ANC < 500, use regular diet but no raw food.
- For BMT/HSCT patients, use low-bacteria/neutropenic diet.

Prepared by:
Jaime Morales, MD
Revised:
August 2013
Bleeding Disorders Treatment Guidelines

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Division of Pediatric Hematology/Oncology
LSU Health Sciences Center

Minor Bleeding Episodes

Mucocutaneous:
1. Local measures
   - Apply pressure
   - Topical Thrombin: use approximately 100 units/mL applied to site, or apply powder directly to wet gauze and apply to site
   - Ice pack
2. Anti-fibrinolytic agents (aminocaproic acid or Amicar® at 75-100 mg/kg/dose, max 3 gm, po/IV q 6 hrs)
3. If profuse or refractory to #1 and #2, give factor replacement:
   - FVIII: 30% correction
   - FIX: 15% correction

Soft Tissue:
1. Local measure (Rest, Ice, Compression, Elevation)
2. If significant pain or dysfunction, give factor replacement:
   - FVIII: 40% correction
   - FIX: 30% correction

Joint Bleeds:
1. Rest, Ice, Compression, Elevation
2. Immobilize joint for 48 hours
3. Factor replacement:
   - Mild joint bleed (treated early, with minimal pain and swelling):
     - FVIII: 40% correction
     - FIX: 30% correction
   - Severe joint bleed (bleed into target joint, or bleed which causes severe pain and swelling:
- FVIII: 80% correction ("double above dose")
- FIX: 60% correction
- Repeat dose in 8-12 hours if not substantially improved after first dose
  - FVIII: 40% correction
  - FIX: 30% correction
- Follow-up doses on days 1 and 3 after injury
- Continue every other day dosing until joint is normal

**Fractures/Lacerations:**
1. Give 80% correction prior to suturing or reduction
2. Continue prophylaxis regimen until sutures or cast removed

**Major Bleeding Episodes**

**Head Trauma:**
1. **Immediate 100% correction**, prior to scans
2. After factor replacement, obtain head CT without contrast
3. For intracranial hemorrhage, maintain Factor level > 100% for 14 days.
   - For Factor VIII deficiency, can start continuous infusion of 4 units/kg/hr after bolus is given
   - Monitor factor levels q day

**Compartment Syndrome**
1. Immediate 100% correction
2. Maintain Factor Level > 100% until resolved
3. Contact Ortho/Plastics for possible decompression

**Ileopsoas Bleed**
1. Factor correction: 80%
2. Obtain ultrasound or CT to diagnose ileopsoas bleed vs. hip bleed or femoris rectus bleed
3. For ileopsoas bleed: maintain factor > 50% for 7 days
GI Bleed
1. Factor correction: 100%
2. Maintain factor level >100% until resolved

Head & Neck Bleed
1. Factor correction: 100%
2. Maintain factor level > 100% until resolved

Surgery
1. Pre-operative Factor correction: 100%. Check level prior to OR (a normal PTT is adequate pre-op surrogate marker if factor level not available)
2. Maintain factor level > 100% at least 7 days post-op
   • For Factor VIII deficiency, can start continuous infusion at 4 units/kg/hr after bolus is given.
   • Monitor factor levels daily

**DOSING RECOMMENDATIONS FOR SPECIFIC BLEEDING DISORDERS**

**Factor VIII Deficiency**
- 1 unit/kg FVIII replacement dose increases plasma level by 2%
- Half-life of infused FVIII is 8-12 hours
- Continuous Infusion: start at 4 units/kg/hour, titrate to achieve level. Cannot interrupt infusion for any reason. Re-bolus if necessary to maintain factor level in target range

**FVIII Deficiency with Inhibitor**
- Patients with inhibitors may not respond to factor replacement
- If inhibitor titer is < 5 B.U., adjuvant use of factor replacement may be considered:
  - **Factor Replacement** dose= % correction needed X inhibitor titer (B.U.) X 2.
  - **“Bypass” agents:**
    - Prothrombin Complex Concentrate (PCC) = FEIBA, Konyne, Bebulin, Autoplex
      - Dose by FIX units
      - 75-100 units/kg
      - Requires repeat dosing
rFVIIa=Novoseven
- 90 mcg/kg
- Round off to 1200 or 4800 mcg vials
- Repeat dose every 2-4 hours for minimum 3, maximum 5 doses

Porcine FVIII (Hyate C)
- Consider for use if human inhibitor titer < 10 B.U. and porcine inhibitor titer < 1 B.U.
- 75 units/kg
- Pre-treat with Solumedrol and Benadryl
- Observe for thrombocytopenia

Factor IX Deficiency
- **Important Note:** Patients with inhibitors to Factor IX can have anaphylaxis when exposed to Factor IX products. Inhibitors are most likely to develop within the first 10-20 treatment exposures. Epi/Solumedrol/Benadryl should be available at bedside for patients receiving their first 20 treatments.
  - Monoclonal product (Mononine®): 1 unit/kg FIX replacement increase plasma level by 1 %
  - Recombinant product (Benefix®): 1 unit/kg FIX replacement increases plasma level by 1.4%
  - Half-life =12-18 hours

Factor IX Deficiency with Inhibitors
- Patients with inhibitors to Factor IX can have anaphylaxis when exposed to Factor IX products
  - They should not receive any products containing FIX (including PCC). Treat with rFVIIa only.
  - rFVIIa=Novoseven®
    - 90 mcg/kg (Round off to 1200 or 4800 mcg vials)
    - Repeat dose every 2-4 hours for minimum 3, maximum 5 doses

Undiagnosed Bleeding Disorder:
- FFP (type-specific)
- 20 mL/kg every 6 hours
Fibrinogen Deficiency
- Cryoprecipitate: each bag has 200-300 mg Fibrinogen
- Use 1 bag per 5 kg
- Fibrinogen replacement: 50 mg/kg
- Half-life = 3 days

Factor II (Prothrombin) Deficiency
- Prothrombin Complex Concentrate (Bebulin preferred)
- 1 unit prothrombin = 1 unit FIX
- Half-life = 60 hours

Factor V Deficiency
- FFP 20 mL/kg
- Half-life = 12 hours

Factor VII Deficiency
- Novoseven (rFVIIa) 25 mcg/kg (Vial sizes are 1200 mcg and 4800 mcg)
- Half-life = 4-6 hours

Factor X Deficiency
- Prothrombin complex concentrate (Bebulin preferred)
- 1 unit Factor X is approximately 1 unit FIX in PCC
- May use FFP 20 mL/kg
- Half-Life = 24 hours

Factor XI Deficiency
- FFP 20 cc/kg
- Half-life = 36 hours

Factor XIII Deficiency
- FFP 20 cc/kg
- Half-life = 6 weeks
**Von Willebrand’s Disorder, Type I:**

**Minor Bleeding Episodes:**
- Local measures
  - Apply pressure
  - Topical Thrombin: use approximately 100 units/mL applied to site, or apply powder directly to wet gauze and apply to site
  - Ice
- Anti-fibrinolytic agents (Amicar® 75-100 mg/kg, max 3 gm, po/IV q 6 hrs)
- If DDAVP treatment trial has been done, and patient is responsive:
  - IV: DDAVP 0.3 mcg/kg mix in 50 mL NS and infuse over 30 minutes. If given pre-operatively, administer 30 minutes prior to surgery
  - Intranasal: **Stimate (1.5 mg/mL)**
    - < 50 kg – one spray (150mcg)
    - >50 kg – one spray each nostril (300 mcg)
  - Before inhalation, ask patient to blow nose
  - Free-water fluid restriction for 8 hours following dose
  - Maximum one dose per 24 hours; do not give for more than 3 consecutive days
  - DDAVP is contraindicated in pregnancy

**Major Bleeding Episodes:**
- Humate-P units: Loading dose = 80 Ristocetin Cofactor (RCF) units/kg
  - Repeat dose = 40 units/kg every 8 hours

**Von Willebrand’s Disorder Type II, III**
- Local measures (Topical thrombin)
- Anti-fibrinolytic agents (Amicar® 100 mg/kg, max 3 gm, po/IV q 6 hrs)
- Humate-P®: Loading dose = 80 Ristocetin Cofactor (RCF) units/kg
  - Repeat dose = 40 units/kg every 8 hours

**NOTE REGARDING AMICAR:** When using Amicar for oral or nasal bleeding, po route is preferred. Use the oral suspension of Amicar 250 mg/mL and NOT the tablets, as this medication has both local and systemic effects. Do not give for more than 7 consecutive days without discussing with attending. **Amicar is contraindicated in urinary tract bleeding.** Avoid using together with Factor IX concentrates, Prothrombin Comlpex Concentrate, or oral contraceptives as there is an increased risk of thrombosis.
NOTE REGARDING INTRANASAL DDAVP: Verify that the product being used is Stimate (1.5 mg/mL) and NOT regular DDAVP (100 mcg/mL) which is typically used for Diabetes Insipidus.

NOTE: Do not use aspirin or aspirin-containing product for patients with bleeding disorders. Avoid non-steroidal anti-inflammatory agents (Ibuprofen, Motrin, Advil, Naproxen). Other medicines which may affect platelet function: antihistamines, guafenisin.

These guidelines are offered as general advice only. Individual circumstances may vary. Please contact the Division of Pediatric Hematology/Oncology at Children’s Hospital New Orleans for specific instructions.

Prepared by:
Jaime Morales, MD
Medical Director, HTC and
Maria C. Velez, MD
Associate Medical Director, HTC

Revised: August 2013
Helpful Information

**Prescription Writing:**
- Superscription: Date, Patient Name and Address (required on schedule II scripts), age, and Rx (“take thou”)
- Inscription: Name, strength and form of drug
- Transcription or Signatura: Directions for patient, it’s a good habit to use plain English rather than Latin abbreviations, and to write what it is for, but most people don’t (take one tablet daily for blood pressure)
- Subscription: Directions to pharmacist (dispense #30, 120ml, etc.)
- Refills: Fill in for every script; write out so it can’t be altered (“zero” or “Ø” instead of 0 which could be made into 10)
- Signature and DEA # for scheduled drugs, medical license number

**Controlled Substances**
- Schedule I: no accepted medical use and high abuse potential – heroin, marijuana, LSD
- Schedule II: high abuse potential, no refills, must deliver to pharmacy within 72 hrs – morphine, oxycodone
- Schedule III: lower abuse potential but dependence – vicodin
- Schedule IV: lower abuse potential – phenobarbital, diazepam (Valium)
- Schedule V: even lower potential – lomotil, Robitussin with codeine

**Admission Orders**
- There are lots of mnemonics to help you remember how to write admission orders: ADC VANDALISM, ADC VAN DISMAL, or the 6 D’s (disposition, diagnosis (dx), diet, diagnostics, drugs, danger).
  - Admit: floor, room (if you know it), service, attending
  - Diagnosis: in order of priority
  - Condition: stable, good, fair, poor
  - Vitals: routine, q shift (aka every 8 hours), q 4hours
  - Allergies: NKA/NKDA, or name allergy AND reaction (e.g., hives, anaphylaxis)
  - Nursing: I/O’s, daily weights, Foley, O₂ requirement, wound care
  - Diet: regular, ADA, soft, renal, NPO
  - IV Fluids: as needed by the patient’s status, i.e., D₂W + 0.45NS at 100mL/hr
  - Special studies: CXR, Head CT
  - Medications: name, dose, route, schedule
  - Activity: ad lib, OOB (out of bed) to chair
  - Labs: CBC with diff, BMP, Ca⁺², Mg⁺², Phos
  - Can add “danger” or Call H.O. if: systolic BP >200, HR >150/min, etc.
SOAP note

Subjective: any issues overnight, changes in pain, fever, etc.

Objective: vitals, physical exam and lab findings

Assessment/Plan: Here is where you write your thoughts/assessment about patient’s condition and why you are doing what you are doing.