Pneumocystis jirovecii is a ubiquitous fungus that causes PCP pneumonia. Primary infection occurs in infants and young children\(^1\) and is typically characterized by mild upper respiratory tract symptoms or is asymptomatic in an immunocompetent host. Fulminant pneumonia can occur in immunocompromised hosts and is likely from re-infection, not reactivation. \(P. jirovecii\) has not been shown to be latent in animal models. The most important risk factors for PCP pneumonia are prolonged corticosteroids\(^2\) (e.g. >20 mg/day for >2 weeks or 30mg/day for 12 weeks) and intensity of the immune suppression (e.g. during induction with ATG or during allograft rejection).

**Recommendations:**

1. PCP prophylaxis should be given to all pediatric solid organ transplant patients after transplantation.
2. First-line medication for prophylaxis is Trimethoprim/Sulfamethoxazole (TMP/SMX). Studies have shown this medication to be the most effective prophylaxis against PCP in pediatric oncology patients\(^3,4\) and in adult HIV patients\(^5\). These data are used as the basis for solid organ transplant patients\(^2\).
3. Any of the second-line medications for prophylaxis can be used, if there are problems with using TMP/SMZ. There is little data to recommend one medication over another among the choices of second-line medications. All of the second-line medications are associated with an increased risk of “breakthrough” episodes of PCP pneumonia, so close monitoring is warranted.
4. Duration of prophylaxis is around 6 months. Longer durations may be considered for lung and small bowel transplantation\(^2\).
5. Prophylaxis should be re-started during periods of enhance immunosuppression (e.g. allograft rejection episode).
6. Specific medications and doses are listed in attached table.

**References**

1. Gigliotti F. PLOS Pathogens 2012, 8:e1003025
3. Hughes WT. NEJM 1977, 297:1419
5. Ioannidis JPA. Arch Intern Med 1996, 156:177
<table>
<thead>
<tr>
<th>Name</th>
<th>Dose Infants/Children</th>
<th>Dose Adults</th>
<th>Formulations</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug of choice&lt;br&gt;(First-line agent)</td>
<td>Trimethoprim-sulfamethoxazole</td>
<td>75 mg/m²/dose BID&lt;sup&gt;a&lt;/sup&gt; Equivalent to 2.5-5 mg/kg/dose BID 2.5 – 5mg/kg/dose BID for 3 consecutive days in a week&lt;sup&gt;b&lt;/sup&gt; Dosing based on Trimethoprim</td>
<td>1 single or double strength tablet once a day 1 double strength tablet once a day for 3 days in a week</td>
<td>Added benefit of prophylaxis to other organisms, if given daily: <em>Toxoplasma, Listeria, Nocardia, Salmonella, Haemophilus, Staphylococcus</em></td>
</tr>
<tr>
<td>Alternative&lt;br&gt;(Second-line agent)</td>
<td>Atovaquone</td>
<td>(1-3 months) 30mg/kg/day once a day (4-24 months) 45 mg/kg/day once a day (&gt;24 months) 30 mg/kg/day once a day (Max: 1500 mg/day)</td>
<td>(13-16 years) 1500 mg once a day</td>
<td>Mepron 750mg/5ml (5ml, 210ml) Generic 750mg/5ml (210ml)</td>
</tr>
<tr>
<td>Alternative&lt;br&gt;(Second-line agent)</td>
<td>Dapsone</td>
<td>(≥ 1 month) 2 mg/kg/dose once a day Max: 100mg/day OR 4 mg/k/dose once a week Max: 200mg/week</td>
<td>100 mg once a day OR 50 mg BID</td>
<td>Tablet (scored) 25mg</td>
</tr>
<tr>
<td>Alternative&lt;br&gt;(Second-line agent)</td>
<td>Pentamidine</td>
<td>&lt;5 years 150mg every 4 weeks ≥5 years 300 mg every 4 weeks</td>
<td>300 mg every 4 weeks</td>
<td>Powder for nebulization 300mg</td>
</tr>
</tbody>
</table>

<sup>a</sup> Hughes WT. NEJM 1977, 297:1419,  <sup>b</sup> Hughes WT. NEJM 1987, 316:1627, Based on HIV OI guidelines and AST ID guidelines