**GUIDELINES FOR THEOPHYLLINE USE FOR ACUTE ASTHMA IN CHILDREN**

**IV LOADING DOSE**

A. **IF NO PREVIOUS THEOPHYLLINE GIVEN:**
   - load with 6 mg/kg aminophylline over 20 - 30 minutes

B. **IF THEOPHYLLINE HAS BEEN GIVEN WITHIN PAST 6 - 12 HOURS:**
   1. Take pre-load level and dose accordingly (see guidelines below for re-bolus)
   or 2. Give empiric loading dose of 2 - 3 mg/kg aminophylline

   (if theophylline has been given within last 6 hours, note dosage form before dosing:
   -sustained release products peak 4 - 6 hours after dose and regular release dosage forms
   peak 1 - 2 hours after dose [see guidelines above])

**POST-LOAD SERUM THEOPHYLLINE LEVEL**
- 30 minutes after the IV loading dose
- aim for serum concentration of about 70 µmol/L (depends on clinical condition)

**RE-BOLUS**
- generally 1.25 mg/kg gives a 11 µmol/L increase in serum level
- when re-bolusing, remember to increase the infusion rate as well

**MAINTENANCE INFUSION**
- doses may need to be reduced to compensate for hepatic dysfunction or cardiac disease
  - 6 wk – 6 mo: 0.5 mg/kg/hr
  - 6-12 mo: 0.6 -0.7 mg/kg/hr.
  - 1-9 yr: 1-1.2 mg/kg/hr
  - 9 –12 yr & adult smokers: 0.9 mg/kg/hr.
  - 12 – 16 yr & Non-smoking adults: 0.7 mg/kg/hr.

**6 HOUR SERUM THEOPHYLLINE LEVEL**
- this level, along with clinical findings, indicates if the continuous infusion is maintaining
  therapeutic blood levels
  A. if level is < 60 µmol/L increase infusion by approximately 25%,
  or B. if level is > 90 µmol/L decrease infusion by approximately 25%

**SERUM THEOPHYLLINE LEVEL 24 HOURS AFTER ANY CHANGE IN DOSE**
- this level, along with clinical findings, allows calculation of clearance and half life

**DRUG INTERACTIONS**
Erythromycin and cimetidine inhibit the metabolism of theophylline, resulting in increased
serum theophylline levels. Monitor for toxicity when either of these drugs are used concurrently
with theophylline.