

## IV DRUG CALCULATION FORMULAS

**1. Basic IV Flow Rate (pump):**

$$\text{ml/hr} = \frac{\text{volume (ml)}}{\text{total time (hr)}}$$

**2. Basic IV Flow Rate (gtt/min):**

$$\text{gtt/min} = \frac{\text{total volume (ml)} \times \text{drop factor (gtt/ml)}}{\text{total time (minutes)}}$$

$$\text{gtt/min} = \frac{\text{rate (ml/hr)} \times \text{drop factor (gtt/ml)}}{60 \text{ (min/hr)}}$$

**3. Heparin & Insulin Drips:**

1. Calculate drug concentration =  $\frac{\text{amount of drug in solution (units)}}{\text{amount of solution (ml)}}$

2.  $\text{ml/hr} = \frac{\text{dose (units/hr)}}{\text{concentration (units/ml)}}$

**4. Steps for IV Drug Calculations:**

1. Change weight to kg: Divide weight in lbs by 2.2

2. Calculate drug Concentration =  $\frac{\text{amount of drug in solution (mg)}}{\text{amount of solution (ml)}}$

3. Convert "mg" to "mcg": Multiply by 1000

4. Plug in the correct formula

**5. IV Drug Calculation Formulas:**

1.  $\text{mcg/kg/min} = \frac{\text{concentration (mcg/ml)} \times \text{infusion rate (ml/hr)}}{\text{wt (kg)} \times 60 \text{ (min/hr)}}$

2.  $\text{mcg/min} = \frac{\text{concentration (mcg/ml)} \times \text{infusion rate (ml/hr)}}{60 \text{ (min/hr)}}$

3.  $\text{ml/hr} = \frac{\text{wt (kg)} \times \text{dose (mcg/kg/min)} \times 60 \text{ (min/hr)}}{\text{drug concentration (mcg/ml)}}$

| <b>DYSRHYTHMIA REVIEW</b>  |  |   |   |
|--|--|---|---|
| <b>Sinus: (SA Node)</b><br>Regular.<br>P waves: Normal.<br>PRI: 0.12 – 0.20 sec.<br>QRS: Normal.     | NSR: 60 – 100 bpm.<br>S. Tach: > 100 bpm.<br>S. Brady: < 60 bpm.                                 | <b>Atrial: (Atria)</b><br>Regular.<br>P waves: Hidden in preceding T wave.<br>PRI: Not measurable.<br>QRS: Narrow.                            | A. Tach: > 130 bpm.<br>SVT: > 170 bpm.  |
| <b>Atrial fibrillation (Atria)</b><br>Irregular.<br>P Waves: Ø.<br>QRS: Narrow.                      | Erratic baseline.<br>Controlled: < 100 bpm.<br>Uncontrolled: > 100 bpm.                          | <b>Atrial Flutter: (Atria)</b><br>Regular/irregular.<br>P waves: Sawtoothed.<br>QRS: Narrow.  | Controlled: < 100 bpm.<br>Uncontrolled: > 100 bpm.  |
| <b>Junctional: (AV Node)</b><br>Regular.<br>P waves: Ø. Inverted.<br>QRS: Wide or narrow.            | Junctional: 40 – 60 bpm.<br>J. Brady: < 40 bpm.<br>Accl. J: 60 – 100 bpm.<br>J. Tach: > 100 bpm. | <b>Idioventricular: (Bundle branches – Purkinje fibers)</b><br>Regular.<br>P waves: Ø.<br>QRS: Wide.  | Idioventricular: 20 – 40 bpm.<br>Agonal: < 20 bpm.<br>Accl. Idio: 40 – 100 bpm.   |
| <b>V. Tachycardia: (Ventricles)</b><br>Regular.<br>P waves: Ø. Hidden.<br>QRS: Wide.                 | V. Tach: > 100 bpm.<br>Torsades de Pointes: > 100 bpm. Twisting of the points.                   | <b>V. Fibrillation: (Ventricles)</b><br>Irregular.<br>Erratic baseline.<br>QRS: Absent.   | Coarse: Recent onset.<br>Fine: Present longer.  |
| <b>First Degree Heart Block: (SA node)</b><br>Regular.<br>P waves: Normal.<br>QRS: Normal.           | PR Interval: Prolonged.<br>PR Interval: Constant.  | <b>Second Degree Heart Block: Type 1 (Mobitz I or Wenchebach) (SA Node).</b><br>A: Regular. V: Irregular.<br>P waves: Normal.<br>QRS: Normal. | PR Interval: Progressively lengthens until a P wave occurs without a QRS.<br>"Long – Longer – Drop".<br>"Grouped beating".                            |
| <b>Second Degree Heart Block: Type II (Mobitz II) (SA Node).</b><br>Regular.<br>QRS: Normal or wide. | P waves: Sinus. 2 – 3 before each QRS.<br>PR Interval: Normal or prolonged. Constant.            | <b>Third Degree Heart Block: (Complete)</b><br>Regular.<br>Atrial: SA Node.<br>Ventricles: Purkinje fibers.<br>QRS: Normal or wide.           | P waves: Sinus. No constant relationship between P waves & QRS.<br>P waves are seen "marching through QRS & T waves".<br>PR Interval: Varies greatly. |