# Total Intravenous Anesthesia – An Evidence-based Update

Terri M. Cahoon, DNP, CRNA  
Department of Nurse Anesthesia  
Ida V. Moffett School of Nursing  
Samford University  
tmcahoon@samford.edu

## TIVA Bolus and Infusion Maintenance Rates

<table>
<thead>
<tr>
<th>Drug</th>
<th>Anesthesia Load Dose (µg/kg)</th>
<th>Anesthesia Maintenance Infusion (µg/kg/min)</th>
<th>Sedation/Analgesia Load Dose (µg/kg)</th>
<th>Sedation/Analgesia Maintenance Infusion (µg/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfentanil</td>
<td>50 – 150</td>
<td>0.5 – 3</td>
<td>10 – 25</td>
<td>0.25 – 1</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>5 – 15</td>
<td>0.03 – 0.1</td>
<td>1 – 3</td>
<td>0.01 – 0.03</td>
</tr>
<tr>
<td>Sufentanil</td>
<td>0.5 – 5</td>
<td>0.001 – 0.05</td>
<td>0.1 – 0.5</td>
<td>0.005 – 0.01</td>
</tr>
<tr>
<td>Remifentanil</td>
<td>0.5 – 1.0</td>
<td>0.1 – 0.4</td>
<td>*</td>
<td>0.025 – 0.1</td>
</tr>
<tr>
<td>Ketamine</td>
<td>1500 – 2500</td>
<td>25 – 75</td>
<td>500 – 1000</td>
<td>10 – 20</td>
</tr>
<tr>
<td>Midazolam</td>
<td>50 – 150</td>
<td>0.25 – 1.5</td>
<td>25 – 100</td>
<td>0.25 – 1</td>
</tr>
<tr>
<td>Methohexital</td>
<td>1500 – 2500</td>
<td>50 – 150</td>
<td>250 – 1000</td>
<td>10 – 50</td>
</tr>
<tr>
<td>Dexmedetomidine</td>
<td>0.5 – 1 over 10 mins</td>
<td></td>
<td>0.2 – 0.7</td>
<td></td>
</tr>
</tbody>
</table>

*An initial bolus of remifentanil is not given for sedation or analgesia because the rapid onset may cause apnea or chest wall rigidity.

References


Sneyd JR, Holmes KA. Inhalational or total intravenous anaesthesia: is total intravenous anaesthesia useful and are there economic benefits? Curr Opin Anaesthesiol. 2011;24:182–187.


