

Lothian University Hospitals NHS Trust
Department of Cardiology and Department of Pharmacy, Royal Infirmary of Edinburgh

Isoprenaline

Indication	Asystole Heart block with slow ventricular escape rhythm																																																																														
Recommended Dosage	0.01 microgram/kg/minute – 0.15 microgram/kg/minute (titrating the dose according to response) Doses are expressed in terms of isoprenaline hydrochloride																																																																														
Recommended Administration	<p style="text-align: center;"><i>isoprenaline sulphate 1.125mg is equivalent to isoprenaline hydrochloride 1mg</i></p> <p><u>IV infusion</u></p> <ul style="list-style-type: none">• Dilute 10ml (2 ampoules of 5ml) of isoprenaline hydrochloride (2mg) in 500ml sodium chloride 0.9% solution for injection OR• Dilute 10ml (2 ampoules of 5ml) of isoprenaline hydrochloride (2mg) in 500ml glucose 5% solution of injection <p style="text-align: center;">∴ isoprenaline hydrochloride infusion strength = 4 micrograms/mL</p>																																																																														
Rate	0.01 microgram/kg/minute – 0.15 microgram/kg/minute (titrating the dose according to response) Dose can be increased in increments of 0.01 microgram/kg/minute.																																																																														
	<p>Example calculation: 60kg patient commencing on 0.01 microgram/kg/ minute Isoprenaline infusion. <i>0.01 micrograms x 60kg = 0.6 micrograms / minute</i> <i>0.6 micrograms x 60 minutes = 36 micrograms / hour</i> <i>4 micrograms/mL → 36micrograms/ 4 = 9 mL/hr</i></p> <p>Example infusion rates:</p> <table><tr><th>Weight (kg)</th><th colspan="5">Isoprenaline hydrochloride 4 micrograms/mL Infusion Rate (mL/hr)</th></tr><tr><th></th><th>0.01 microgram /kg/minute</th><th>0.02 microgram /kg/minute</th><th>0.05 microgram /kg/minute</th><th>0.1 microgram /kg/ minute</th><th>0.15 microgram /kg/minute</th></tr><tr><td>50</td><td>7.5</td><td>15.0</td><td>37.5</td><td>75.0</td><td>112.5</td></tr><tr><td>55</td><td>8.3</td><td>16.5</td><td>41.3</td><td>82.5</td><td>123.8</td></tr><tr><td>60</td><td>9.0</td><td>18.0</td><td>45.0</td><td>90.0</td><td>135.0</td></tr><tr><td>65</td><td>9.8</td><td>19.5</td><td>48.8</td><td>97.5</td><td>146.3</td></tr><tr><td>70</td><td>10.5</td><td>21.0</td><td>52.5</td><td>105.0</td><td>157.5</td></tr><tr><td>75</td><td>11.3</td><td>22.5</td><td>56.3</td><td>112.5</td><td>168.8</td></tr><tr><td>80</td><td>12.0</td><td>24.0</td><td>60.0</td><td>120.0</td><td>180.0</td></tr><tr><td>85</td><td>12.8</td><td>25.5</td><td>63.8</td><td>127.5</td><td>191.3</td></tr><tr><td>90</td><td>13.5</td><td>27.0</td><td>67.5</td><td>135.0</td><td>202.5</td></tr><tr><td>95</td><td>14.3</td><td>28.5</td><td>71.3</td><td>142.5</td><td>213.8</td></tr><tr><td>100</td><td>15.0</td><td>30.0</td><td>75.0</td><td>150.0</td><td>225.0</td></tr></table>	Weight (kg)	Isoprenaline hydrochloride 4 micrograms/mL Infusion Rate (mL/hr)						0.01 microgram /kg/minute	0.02 microgram /kg/minute	0.05 microgram /kg/minute	0.1 microgram /kg/ minute	0.15 microgram /kg/minute	50	7.5	15.0	37.5	75.0	112.5	55	8.3	16.5	41.3	82.5	123.8	60	9.0	18.0	45.0	90.0	135.0	65	9.8	19.5	48.8	97.5	146.3	70	10.5	21.0	52.5	105.0	157.5	75	11.3	22.5	56.3	112.5	168.8	80	12.0	24.0	60.0	120.0	180.0	85	12.8	25.5	63.8	127.5	191.3	90	13.5	27.0	67.5	135.0	202.5	95	14.3	28.5	71.3	142.5	213.8	100	15.0	30.0	75.0	150.0	225.0
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Stability	Stable for 24 hours at room temperature
Adverse Effects	Tachycardia, cardiac arrhythmias, palpitations, hypotension, nausea, tremor, headache, sweating, facial flushing. Prolonged use has been associated with swelling of the parotid glands.
Half life	1 to several minutes (depending on rate of injection)
Monitor	<ul style="list-style-type: none"> • Continuous ECG monitoring • Oxygen saturation as per CCU practice • Intermittent non-invasive BP monitoring <ul style="list-style-type: none"> → every 15 minutes for first hour after starting infusion → every 30-60 minutes thereafter → within 15 minutes of each dose increase
Additional Information	Keep unopened ampoules refrigerated (2 °C – 8 °C) and protected from light.

References

1. INJECTABLE MEDICINES GUIDE. Isoprenaline sulphate – *Intravenous monograph*. [online]. Available from: www.injguide.nhs.uk [Accessed 17 October 2021].
2. MARTINDALE THE COMPLETE DRUG REFERENCE. Isoprenaline – Drug monograph. [online]. Available from: <https://www.medicinescomplete.com/> [Accessed 11 May 2017]
3. Medicines.org.uk. 2021. Isoprenaline Macure 0.2mg/ml concentrate for solution for infusion - Summary of Product Characteristics (SmPC) - (emc). [online] Available at: <<https://www.medicines.org.uk/emc/product/12511>> [Accessed 17 October 2021].