

ADRENALINE IV

BOLUS DOSE IV

**Open a vial of 1:1000 ADRENALINE
1 mg /ml**

**Add 1 ml to 9 ml N/Saline
= 1mg adrenaline in 10 ml
(or 100 mcg/ml)**

**Add 1 ml 1:10,000 to 9 ml N/Saline
= 100 mcg adrenaline in 10 ml
(or 10 mcg/ml)**

Use 5 - 10 mcg IV boluses

STD ADRENALINE INFUSION

1:1000 ADRENALINE vial (1 mg / ml)

**Add 3 mg (3 vials 1:1000)
to total 50 mls N Saline (60 mcg/ml)**

Run at 2 - 20 ml / hr aim MAP > 70

QUICK N EASY ADRENALINE INFUSION

**Add 1 mg (one vial of 1:1000) adrenaline to
1000ml N/Saline = 1 microgram/ml**

**BOLUS DOSE 10 ml IV (10mcg)
RUN INFUSION at 1 mcg/min
[in kids, 0.1 micrograms/kg/min for 10 kg child]**

ADRENALINE BOLUS

Use IM adrenaline in advance of IV dosing

IM Adr 1:1000 (1 mg/ml) 0.01 mg/kg to max 0.3-0.5 mg IM
Can repeat 5 minutely if not better or worse

AGE	DOSE ADRENALINE 1:1000 vial	VOLUME 1:1000/1ml
Adult	500 micrograms IM	0.5 ml
>12 yrs	500 micrograms IM	0.5 ml
6 -12 yrs	300 micrograms IM	0.3 ml
< 6 yrs	150 micrograms IM	0.15 ml

Don't forget to give normal saline 10-20ml/kg boluses for persistent hypotension.

Salbutamol nebulisers may help with ongoing bronchospasm.

Patients on beta-blockers who do not respond to adrenaline may benefit from glucagon IV (20 to 30 mcg/kg up to a maximum of 1 mg).

IV adrenaline may be given if there is no resolution despite multiple doses of IM adrenaline — experts vary in their recommendations of how to give this. APLS guidelines suggest 0.1-5.0 micrograms/kg/min

PAEDIATRIC ARREST

IV: 0.01 mg/kg (10mcg/kg)
1/10,000 - 0.1 ml/kg IV ie. 10kg - 1ml
ETT - 1/1000 - 0.1ml/kg

ADULT ARREST

Non-shockable- 1mg immediately
Shockable - 1mg after 2nd shock
then after every second loop

ISOPRENALINE

Syringe Driver Isoprenaline 1 mg / 50 ml (20 mcg/ml)

Use Isoprenaline hydrochloride 1mg/5ml ampoules

Dilute 1 mg (5 ml) up to 50 ml with 5% Dextrose

Give 20 µg (1 ml), repeated to clinical response, followed by infusion at 1-4 µg/min (3 - 12 ml/hr)

50 ml syringe	DOSE RANGE	RATE OF INFUSION (Syringe Driver)
	1 mcg / min	3 ml / hr
	2 mcg / min	6 ml / hr
	4 mcg / min	12 ml / hr

1. Side effects include palpitations, headache, flushing, angina, nausea, vomiting, tremor, dizziness, weakness & sweating.

2. If HR exceeds 80 or patient develops chest pain or other arrhythmias decrease dose or temporarily discontinue infusion.

3. Administer with caution in the elderly, diabetic, hyperthyroid, patients with ischaemic heart disease or concurrently with other inotropes

Required response usually achieved at doses of < 3 µg/min, though may increase up to 20 µg/min if necessary to obtain required response

PACING

ENSURE A VALID INDICATION

- symptomatic bradycardia

CONSIDER ISOPRENALINE INFUSION (see over)

ADEQUATE SEDATION IF CONSCIOUS

(midazolam and/or ketamine)

SWITCH ON DEFIBRILLATOR

PLACE EXTERNAL PADS

AP OVER L STERNUM AND L SPINE

PACING MODE

START AT 60 mAs

RATE OF 80 bpm

SET AT >10% ABOVE CAPTURE mAs

Consider alternatives & adjuncts

eg: Isoprenaline Infusion
Glucagon in beta-blocker OD

SEEK EXPERT HELP - I3STAR

GTN INFUSION

Syringe Driver - Niki T34L GTN 50 mg / 50 ml (1000 mcg/ml)

- Use GTN 50 mg in 10 ml ampoule
- Dilute 50 mg (10 ml) up to 50 ml with 5% Dextrose
- Commence at 25 - 50 mcg/min (1.5 - 3.0 ml/hr)
- Increase by 1 ml/hr every 5-10 mins according to clinical response, watch BP

	DOSE RANGE	RATE OF INFUSION (Syringe Driver)
50 ml syringe	50 mcg/min	3 ml/hr
	100 mcg/min	6 ml/hr
	150 mcg/min	9 ml/hr
	200 mcg/min	12 ml/hr

This infusion is for NIKI T34L syringe driver

GTN INFUSION

Precautions and Side Effects

Up to 80% of active agent may be absorbed by PVC giving sets or IV fluid bags. Absorption increases with increased concentration and increased exposure time to the plastic. Plastic syringes & minimum volume tubing reduce absorption but the dose may still need to be gradually increased. Use clinical response rather than calculated dose to get a dose that is appropriate for the patient.

Headache is common. Other CNS effects can include restlessness, dizziness, apprehension, vomiting. CVS side effects include hypotension, reflex tachycardia, palpitations and circulatory collapse.

Usual starting dose is 50 µg/min but some patients, particularly those with low blood pressure or pulmonary oedema, may require a lower starting dose. Monitor blood pressure at least 15 minutely until stable.

Once a blood pressure response is noted increments should be made more cautiously. Titrate rate against patient's tolerance and therapeutic response rather than a precise dose. Cease infusion if the systolic blood pressure falls below 95 mmHg.

Avoid skin contact with concentrated solution when preparing infusion.

MORPHINE-MIDAZ

Syringe Driver Morphine 30 mg & Midazolam 30mg (30ml)

Dilute 30 mg Morphine plus 30 mg Midazolam made up to 30 ml with Normal Saline

1 mg/ml dose

Administer a loading dose of 2 - 10 ml

Commence infusion at 2.5 - 5 ml/hr

	DOSE RANGE	RATE OF INFUSION
30 ml Syringe	2.5+2.5mg/hr	2.5 ml/hr
	5.0+5.0mg/hr	5 ml/hr
	10+10mg/hr	10 ml/hr
	15+15mg/hr	15 ml/hr

MORPHINE-MIDAZ

Syringe Driver Morphine 50 mg & Midazolam 50mg (50ml)

Dilute 50 mg Morphine plus 50 mg Midazolam made up to 50 ml with Normal Saline

1 mg / ml dose

Administer a loading dose of 2 - 10 ml

Commence infusion at 2.5 - 5 ml/hr

	DOSE RANGE	RATE OF INFUSION
50 ml Syringe	2.5+2.5mg/hr	2.5 ml/hr
	5.0+5.0mg/hr	5 ml/hr
	10+10mg/hr	10 ml/hr
	15+15mg/hr	15 ml/hr

MgSO4 INFUSION

Syringe Driver - MgSO4 9.88 (40 mmol) / 20 ml (0.5 g/ml)

For Pre-Eclampsia, use 4 ampoules of MgSO4 (2.47 g [10 mmol] per 5 ml ampoule = 20ml)

Give a loading dose of approx 4 g (8 ml) over 20 min

Follow the loading dose with an infusion of 1 g/hr (2 ml/hr)

If further seizures occur, give 2 g (4 ml) over 5 minutes (48 ml/hr for 5 minutes)

		DOSE RANGE	RATE OF INFUSION
50 ml syringe	Loading Dose	4 g (8 ml)	24 ml / hr for 20 mins only
	Maintenance	1 g / hr	2 ml / hr
	If further seizures	2 g (4 ml)	48 ml / hr for 5 mins only

MgSO4 INFUSION

Precautions & Side Effects

Urine output should be maintained at > 30 ml/hr. Exercise caution with fluid administration to avoid fluid overload.

MAGNESIUM TOXICITY is suggested by :

- disappearance of the patella reflex (check hourly). Absence mandates cessation of the infusion. Serum magnesium should be measured if possible
- respiratory depression (<12/min) RR should ideally be maintained at >16/min and the infusion should be definitely be ceased if the rate drops below 12/min
- bradycardia (HR < 60/min) may result from CHB

Treatment of Mg overdose

- Cease infusion
- Intravenous administration of 5-10 mEq of 10% Calcium Gluconate (10 - 20 ml) to reverse respiratory depression or heart block

KETAMINE

Induction Dose **1-2 mg/kg** **IV**
 5-10 mg/kg **IM**

Analgesia **0.1 - 0.3 mg/kg** **IV**

Sedation **0.25 - 0.5 mg/kg** **IV**
 2 - 4 mg/kg **IM**

(NB: above is recreational dose, risk putting into the K hole)

Infusion **200mg in 50ml (4mg/ml)**
 1-2mg/kg/hr **IVI**

Intranasal **Analgesia 0.5-1.0 mg/kg**
 Sedation up to 10mg/kg
 with the MAD intranasal

KETAMINE

