

LRI Emergency Department

Bradycardia management

Version 67

Intended for adults with a heart rate of less than 60 beats per minute

Use in conjunction with guidance concerning the management of specific reversible causes, such as STEMI or hyperkalaemia

Disclaimer:
This is a clinical template; clinicians should always use judgment when managing individual patients

Re-approved by ED guideline committee on 30May23
Review date: May 2026 . Trust Ref: C189/2016

Patient details

Full name

DoB

Unit number

(use sticker if available)

① Adverse signs present?

Yes - at least one of the below

- Shock
- Syncope
- Myocardial ischaemia
- Acute decompensated heart failure

No - none of the above

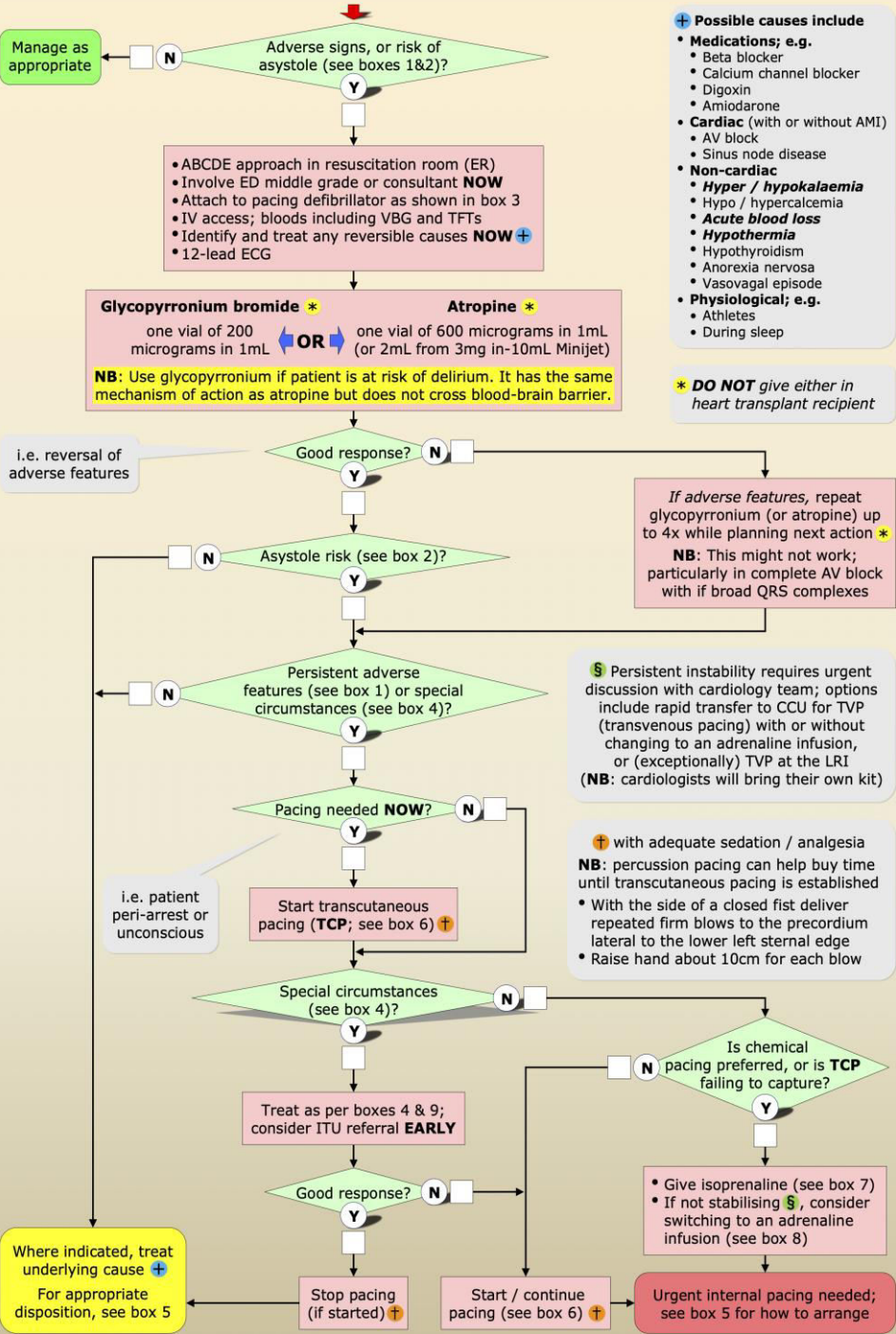
② Asystole risk present?

Yes - at least one of the below

- Complete AV block with broad QRS complexes heart rate < 40bpm
- 2nd degree AV block Möbitz type II
- Ventricular pauses > 3sec
- Recent asystole

No - none of the above

To prescribe in NC Meds, go to Emergency Medicine (ED) > Common scenarios (ED) > Bradycardia



③ Pacing preparations

Ensure the defibrillator in patient's bay has pacemaker function (circled below).

Centre anterior defibrillator (pacing) pad over 'V3' ECG chest lead position.

Posterior pad should mirror this position.

Ensure the defibrillator's ECG electrodes are attached also (**NB:** place shoulder electrodes on the back if possible)

④ Special circumstances?

YES - at least one of the below

- Spinal cord injury with neurogenic shock
- Heart transplant recipient
- **Aminophylline 100mg IV (give 1mL (25mg) aliquots per minute; give a further 100mg if required)**
- Beta blocker toxicity
- **Glucagon 5-10mg IV then start infusion (see box 9 on reverse)**
- **NB: If GlucaGen® 1mg powder kit is not available, High-Dose Insulin Euglycaemic Therapy (HIET; see protocol) on ITU required instead**
- Calcium channel blocker toxicity
- **Calcium Chloride 10% 10mL IV**
- **High-Dose Insulin Euglycaemic Therapy (HIET) on ITU; see above**
- Digoxin toxicity
- **Consider giving Digoxin-specific antibody fragments (DigiFab) 2 vials (80mg; in ER fridge)**
- NB: Consult toxbase.org** in every case of bradycardia induced by the drugs above

NO - none of the above

⑤ Appropriate disposition

CCU (unless patient requires critical care):

- Need for urgent internal pacing; to arrange:
 - Bleep CCU 'registrar' on *88-2584-[extn]
 - Try CCU on 13774 or 13719 if no answer
 - If unable to locate, call (via switchboard)
 - In hours: CCU consultant
 - OOH: Non-interventional cardiologist
 - Ensure e-referral is completed
 - Check CCU is expecting pt before transfer
- NSTEMI/STEMI
- Risk of asystole if cause is cardiac

ACB (unless patient requires critical care):

- Requiring treatment for bradycardia due to
 - Medication side effects or overdoses
 - Hypothermia
 - Potassium or calcium derangement

Critical care:

- Pt too sick for CCU/ACB (e.g. receiving HIET)
- Hyperkalaemic patients requiring CVWH

CDU:

- Patients with cardiac cause of bradycardia not needing transcutaneous or chemical pacing, as deemed suitable by on-call CCU middle grade

In all other patients, use clinical judgment

Assessment carried out by

Print name _____ Signature _____ Role _____ Date _____

⑥ Transcutaneous pacing (TCP)



1 Press 'PACER' button (this will activate pacing function but not yet start pacing)

2 Press 'RATE ▲' button (set to 60bpm by default but 70 or 80 bpm may be more effective)

3 Start pacing by pressing 'CURRENT ▲' button. Repeat until monitor shows QRS complex after every pacing spike (consider increasing current by a further 10mA to be sure).

4 Feel pulse to confirm mechanical capture

5 Ensure good analgesia +/- sedation as needed

⑦ Isoprenaline Hydrochloride

- Add 2mg of isoprenaline hydrochloride (i.e. 2 ampoules of the 1mg in 5mL preparation) to 500mL glucose 5% (concentration = 4 microgram/mL)
- Take 15mL from bag using a 20mL syringe for initial bolus
- Give 5mL (20 microgram) IV over 60 seconds
- Repeat up to twice if required
- Starting dose for infusion is 5 microgram/min (set pump to 75mL/h); titrate as needed as per table below

Dose in microgram/min	Infusion rate in mL/h
1	15
2	30
3	45
4	60
5	75
6	90
7	105
8	120
9	135
10	150

⑧ Adrenaline

- Add four 1mL ampoules of adrenaline 1:1000 (= 1mg) to 246mL of NaCl 0.9% (concentration = 16 microgram/mL)
- Starting dose for infusion is 3.5 microgram/min (set pump to 13mL/h)
- Dose range is 2-10 microgram/min; titrate as needed as per table below

Dose in microgram/min	Infusion rate in mL/h
2	7
3	11
3.5	13
4	15
5	19
6	22
7	26
8	30
9	33
10	37

⑨ Glucagon

- **NB: If GlucaGen® 1mg powder kit not available, DO NOT attempt to give glucagon; ITU team to use HIET**
- Give 5mg IV neat over 1min
- Repeat once if necessary
- Add further 10mg to 40mL 0.9% NaCl in a 50mL syringe (concentration = 0.2mg/mL)
- If initial bolus effective, start IV infusion at 0.1mg/kg/h
- See below for the suggested starting rate (dose calculated for a 70kg patient)
- Dose range is 0.05-0.15mg/kg/h up to a maximum rate 10mg/h; titrate as needed
- **Call pharmacist to arrange emergency replenishment as soon as infusion started**

Patient weight in kg	Dose in mg/h	Infusion rate in mL/h
	2	10
	3	15
	4	20
50	5	25
60	6	30
70	7	35
80	8	40
90	9	45
100	10	50

⑩ Positive chronotrope infusion – prescription on UHL paper chart during NC downtime

Date	Infusion fluid		Additions to infusion		IV or SC	Line	Start Time	Time to run or ml/hr	Fluid Batch No.	Prescriber
	Type/strength	Volume	Drug	Dose						
DD/MM/YY	NaCl 0.9%	246ml	Adrenaline	4mg = 4ml of 1: 1000	IV		HH:MM	7 - 37mL/h (start at 13mL/h)		Dr.'s Name

Date	Infusion fluid		Additions to infusion		IV or SC	Line	Start Time	Time to run or ml/hr	Fluid Batch No.	Prescriber
	Type/strength	Volume	Drug	Dose						
DD/MM/YY	Glucose 5%	500ml	Isoprenaline hydrochloride	2mg = 10ml	IV		HH:MM	15 - 150mL/h (start at 75mL/h)		Dr.'s Name

Date	Infusion fluid		Additions to infusion		IV or SC	Line	Start Time	Time to run or ml/hr	Fluid Batch No.	Prescriber
	Type/strength	Volume	Drug	Dose						
DD/MM/YY	Water	40ml	Glucagon	10mg = 10 1ml vials	IV		HH:MM	10 - 50mL/h (start at 35mL/h)		Dr.'s Name