

<b>Setting</b>	UHBristol: Neonatal Emergency Stabilisation and Transport Team
<b>Staff</b>	NEST Team, staff making referrals to the NEST team
<b>Patients</b>	

The aim of this guideline is to provide a pragmatic unified treatment algorithm for infants retrieved by NEST requiring cardiovascular support, when echocardiography may not be readily available.

### Definition of Neonatal Hypotension

The normal physiologic blood pressure range for neonates which would ensure appropriate organ perfusion is uncertain. Treatment decisions are therefore based on statistically defined normative values combined with the judgement of the attending clinician. A newborn infant may also have significant pulmonary hypertension and thus require a relatively higher systemic blood pressure, at the same time as strategies are employed to reduce the pulmonary blood pressure.

Avoidance of blood pressure fluctuation in the first few days of life may also be important and thus changes should be made gradually.

Cardiac output is the product of heart rate and stroke volume. Stroke volume is dependent on preload (ventricular filling), afterload (systemic and pulmonary vascular resistance) and myocardial contractility.

### Initial Management

- Appropriate airway and respiratory support – consider the impact of mean airway pressure on cardiac output
- Access
  - Optimal peripheral venous access will be required (consider if 2 access points are needed)
  - Central venous access will be required for a prolonged period of inotrope infusion although both dobutamine and dopamine can be administered in the short term via a large peripheral vein (diluted- see NEST drug sheet). If infusing inotropes via a central line the NEST team must check and document the position of the line tip on the most recent x ray available
  - Continuous arterial blood pressure monitoring via an arterial line should be performed in patients receiving inotropic support

### Initial Investigations

- History and examination (gestational age, postnatal age, presence of PDA, pulse volume, consideration of a primary cardiac lesion – heart rhythm, predisposing antenatal risk factors- infant of diabetic mother, risk factors for sepsis, perinatal asphyxia, clinical judgement of presence or absence of peripheral vasodilation: “warm shock or “cold shock”, pneumothorax, blood loss)
- Blood gas (arterial) including lactate
- Urine output

### Treatment Notes

Consider the underlying physiological state.

Consider the likely disease process.

Consider whether pulmonary hypertension is likely to be present.

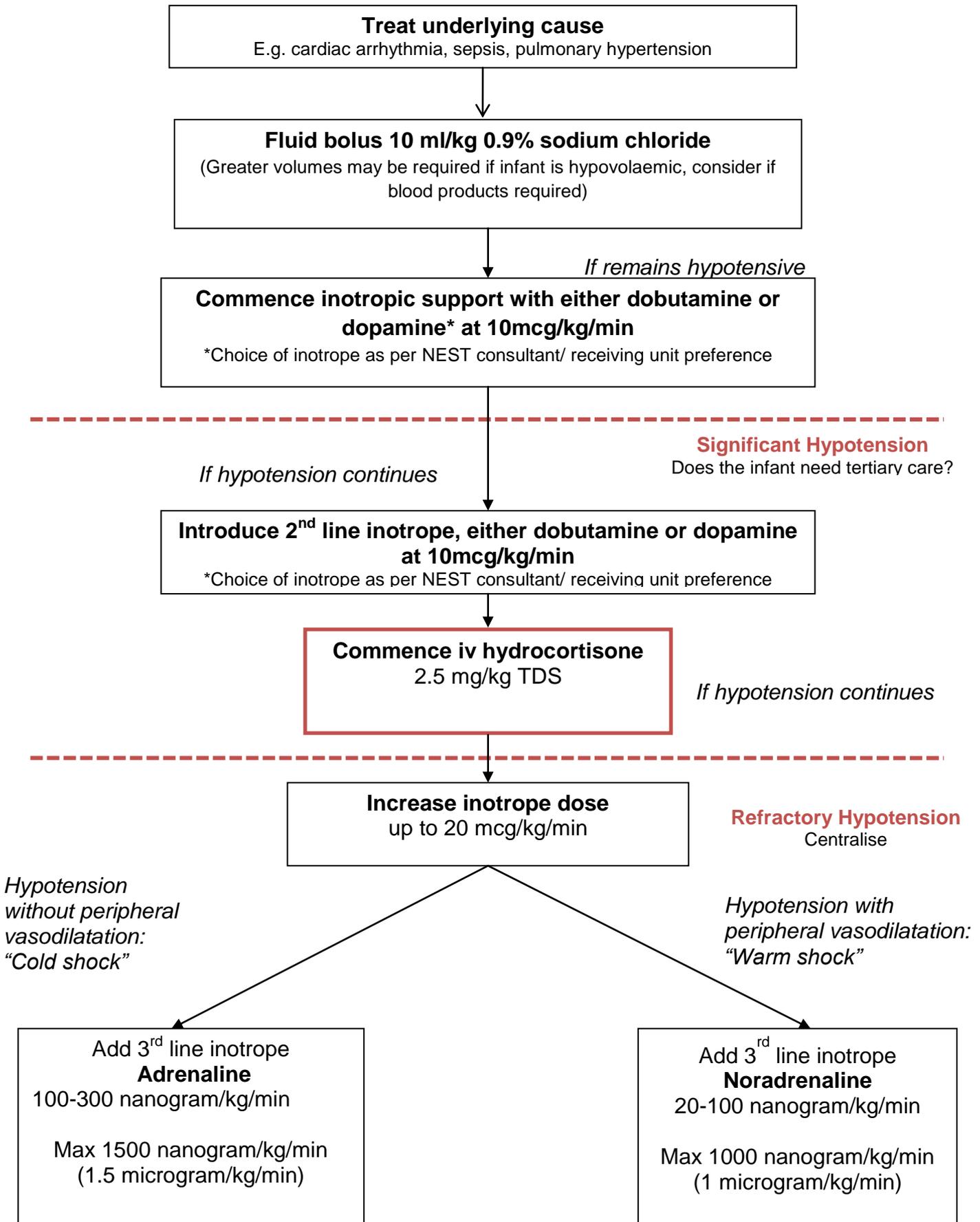
Consider optimising blood calcium levels.

Most newborn infants will not be fluid deplete. Some infants may require greater volumes of fluid resuscitation depending on the underlying disease process (NEC, blood loss). There is insufficient evidence to determine whether infants with cardiovascular compromise benefit from volume expansion.

Tertiary-level cardiovascular support with milrinone or vasopressin should only be commenced on the advice of a tertiary centre neonatologist or cardiologist.

### Specific Transport Considerations

Infants on more than one inotrope should be transported with the Top Cover NEST consultant in attendance.



<b>Related documents</b>	NEST drug calculator and Western Neonatal Network drug algorithms
<b>Safety</b>	
<b>Queries</b>	Dr J Tooley. NEST Team 21745

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