

Donor Optimisation Care Bundle – Paediatric (37 wks CGA - 15 yrs)

Patient Name _____

Date of Birth _____

Unit Number _____

Date _____

Cardiovascular

- | | Y | N/A |
|--|--------------------------|-------------------------------------|
| 1. Monitor cardiovascular state aim for normal parameters ¹ | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Measure CVP (4 – 10 mmHg) (if suitable access available) | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Review intravascular fluid status and correct hypovolaemia with isotonic Fluid boluses (10mls/kg aliquot) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Measure central venous oxygen saturation (maintain >70%) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Measure cardiac output if appropriate (non-invasive monitoring is appropriate if available) | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Commence vasopressin where vasopressor required, wean or stop catecholamine pressors as able | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Commence dopamine / noradrenaline to maintain MAP as required | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Introduce adrenaline / dobutamine if echo indicates poor cardiac function | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Consider esmolol / labetalol in cases of persistent hypertension in the absence of vasopressors. | <input type="checkbox"/> | <input type="checkbox"/> |

Respiratory

(>1 month old - pH > 7.25 PaO₂ ≥ 10 kPa)

(37wk CGA - <1 month old pH >7.2 PaO₂ >8kPa)

- | | | |
|--|--------------------------|-------------------------------------|
| 1. Perform lung recruitment manoeuvres (following apnoea tests, disconnections, suction, de-saturations). | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Review ventilation, ensure lung protective strategy (Tidal volumes 6– 8ml/kg (< 1month old 4-6mls/kg) and optimum PEEP (5 – 10 cm H ₂ O), PIP <30cmH ₂ O) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Maintain regular chest physio incl. suctioning as per unit protocol | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Maintain 30 – 45 degrees head of bed elevation | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. If appropriate use a cuffed endotracheal tube and ensure it is adequately inflated (consider changing to cuffed tube if indicated) | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Patient positioning (side, back, side) as per unit protocol | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Where available, and in the context of lung donation, perform bronchoscopy, bronchial lavage and - toilet for therapeutic purposes | <input type="checkbox"/> | <input type="checkbox"/> |

Fluids and metabolic management

- | | Y | N/A |
|--|--------------------------|-------------------------------------|
| 1. Review fluid administration. IV crystalloid maintenance fluid (or NG water where appropriate) to maintain Na ⁺ < 150 mmol/l | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Maintain urine output between 1.0 – 2.0ml/kg/hr (If > 4ml/kg/hr, consider Diabetes insipidus and treat promptly with vasopressin and/or DDAVP.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Administer methylprednisolone | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Start insulin infusion if necessary to maintain blood sugar (4 –12 mmol/l) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Continue NG feeding as appropriate, ensure prescribed gastric protection as unit policy | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Correct electrolyte abnormalities (maintain Na, K, Ca, Phos, and Mg within normal ranges) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Thrombo-embolic prevention

- | | | |
|---|--------------------------|--------------------------|
| 1. Ensure prevention measures in place as per unit policy | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|

Lines, Monitoring and Investigations (if not already completed)

- | | | |
|--|--------------------------|-------------------------------------|
| 1. Insert arterial line | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Continue hourly observations as per critical care policy | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Perform CXR (post recruitment procedure where possible) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Perform a 12-lead ECG | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Send Troponin level in all cardiac arrest cases (and follow-up sample where patient in PICU > 24 hours) | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Where available, perform an echocardiogram | <input type="checkbox"/> | <input type="checkbox"/> |

Other

- | | | |
|---|--------------------------|-------------------------------------|
| 1. Maintain normothermia using active warming /cooling where required | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Review and stop all unnecessary medications | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Consideration for blood sampling volumes ² | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Family considerations and support throughout | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Bibliography / References

1. European Paediatric Advanced Life Support 4th ed (2016). European Resuscitation Council. Lippincott Williams & Wilkins
2. SOP 5058 – Neonatal and Infant Organ Donation
3. Rozenfeld V, Cheng JW. The role of vasopressin in the treatment of vasodilation in shock states. *Ann Pharmacother.* 2000; 34:250-4
4. Ralston.C & Butt. W Continuous vasopressin replacement in diabetes insipidus. *Arch Dis. Child.* 1990 65; 896-897 doi 10.1136/adc.65.8.896
5. Malleroy GB Jr, Schechter MG, Elidemir O, Management of the Paediatric Organ donor to optimise lung donation. *Paediatric Pulmonol.* 2009 Jun; 44(6):536-46
5. Paediatric Formulary Committee. *BNF for Children* (2015 -2016) London: BMJ Group, Pharmaceutical Press, and RCPCH Publications; (2015)
6. Optimisation care bundle http://www.odt.nhs.uk/pdf/dbd_care_bundle.pdf
7. Shemie. S Organ donation management in Canada; recommendations of the forum on medical management to optimise donor organ potential. 2006. Mar 14; 174(6):s13-s30

Systolic BP - Age specific ranges (mmHg) – EPALS guidance ¹	
0-1 month	50-60 mmHg
1-12 months	70-80 mmHg
1-10 years	70+(2 x age(yrs)) to 90+(2 x age(yrs))
> 10 yrs	90-120 mmHg

Drug	Standard infusion	Diluent	Rate of infusion	Dose
Dopamine	15mg/kg in 50mls (max 800mg in 50ml)	NaCl 0.9% OR Glucose 5%	1 ml /hr = 5 micrograms/kg/min	<10 micrograms/kg/min
Noradrenaline	0.3mg / kg in 50mls (max concentration 8mg in 5ml)	Glucose 5%/ Na Cl 0.9%	1ml/hr = 0.1 micrograms/kg/min (of standard infusion)	0-0.5 micrograms/kg/min (maximum rate = 5mls/hr of standard infusion)
Vasopressin/ Argipressin	20 units in 50ml diluent	NaCl 0.9% / Glucose 5%	0.0003 units/kg/min = 0.045ml/kg/hr	0.0003-0.001units/kg/min (Max dose 6 u/hr) ³
Vasopressin – treatment for Diabetes Insipidus ⁴	2-5 units / litre diluent	NaCl 0.9% / Glucose 5%	ml for ml replacement of urine output	N/A
Adrenaline	0.3mg /kg in 50ml	Glucose 5%	1 ml /hr = 0.1micrograms/kg/min (of standard infusion)	0-0.5micrograms/kg/min
Dobutamine	30mg/kg in 50mls	Glucose 5%, 10% / Nacl 0.9%	1ml/hr = 10micrograms/kg/min	5-20 micrograms/kg/min

Esmolol	10mg/ml (pre-diluted)	50-300 micrograms/kg/min (max 500 micrograms/kg/min)	IV continuous infusion – titrated to response
Labetalol	5mg/ml (neat)	0.5 – 3 milligrams/kg/hr (max 5 milligrams/kg/hr)	IV continuous infusion – titrate to response

Drug	Dose	Administration
Methylprednisolone	15milligrams/kg (max 1g)	IV infusion over 1 hour
DDAVP (desmopressin)	1 month – 12 years 400 nanograms 12-18 years 1-4 micrograms	IV bolus
Insulin (50 units in 50ml)	0.1units/kg/hr	IV continuous infusion – titrated to response

Donor Optimisation Care Bundle – Paediatric (37 wks CGA - 15 yrs)

Patient Name _____

Date of Birth _____

Unit Number _____

Date _____

Physiological Parameters / Goals

Tick ✓ = achieved, x = not achieved

	O/A	+1hr	+2hrs	+4hrs	+6hrs	+8hrs	+10hrs	+12hrs	+14hrs	+16hrs	+18hrs
Target Systolic BP (primary goal)mmHg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CVP 4 – 10 mmHg (secondary goal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PaO ₂ ≥ 10.0 kPa (>1month) (37wk CGA - < 1month old PaO ₂ >8 kPa and pH> 7.2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FiO ₂ < 0.4 as able											
PaCO ₂ 5 – 6.5 kPa (or higher as long as pH > 7.25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ScvO ₂ > 70%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cardiac index > 2.5 - 6 l/min/m ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SVRI 400– 1200 dynes*sec/cm ⁵ /m ²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperature 36 – 37°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blood glucose 4.0 – 12 mmol/l	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintain Na < 150mmol/l	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urine output 1- 2 ml/kg/hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signature / Print Name											
Date / Time											