Pacing Modes: Chamber-paced; Atrial (A) / Ventricular (V) / Dual (D) / Asynchronous (O). 

Response Modes: Inhibitory (I) / Excitatory (E) / Triggered (T) / Dual (D) / Asynchronous (O).

Asynchronous (O); atrial pacing=AOO; ventricular pacing=VOO

Pacing: Post-op: Atrial wires on Right, Ventricular wires on Left; also transvenous (endocardial), transthoracic & transoesophageal.

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Bleeding: Any bleeding more than 3ml/kg/hr warrants attention. Blood loss of > 10 ml/kg/hr at any stage requires immediate surgical review. (Est. blood vol. ±85 ml/kg-100kg, 80ml/kg-10 kg, & 75 ml/kg-20kg).

Management: fluid resuscitation, check formal FBC/coagulation profile/T&E & replace factors as indicated (most likely to need transfusions are: coagulopathy, Tici bleeding, organ failure). For patients with hypotension, sudden cessation of drainage, decreased CO, increased arterial pressures - ECHO/T/E required; keep drains patent, ensure 2 units blood are available; notify surgeon (may need to re-explore).

Post ops fluids: neonates: 10% dextrose, 0.45% NaCl & 30ml/kg/500ml; infants: 5% Gluc./0.45% NaCl & 30ml/kg/500ml for fast-track cases use KCl 10ml/kg/500ml additive instead. By-pass cases: D1 - 50% maintenance.

Non-bypass patients; with recent CCF: <20 ml/kg/day in presence of CCF): Fluid type as for post-ops above as per age but 100 ml/kg/500ml.

Neonates D1: 60; D2: 90; D3: 120; D4: 150 mg/kg/day

Infants and children 100 – 100 ml/kg/day for the first 10kg; 50 ml/kg/day for the next 10kgs; 20 ml/kg/day for subsequent kg's. Although a child's fluid regimen may be expressed as ‘% maintenance’, fluid orders must be written as ‘ml/kg/day’.

Nutrition / electrolytes: Potassium restriction to target range 3.8-4.3 mmol/l; usual maintenance=1mmol/kg/day, but may require more with diuretic therapy or metabolic alkalosis; Hypokalaemia: infusion if serum K+ <3.5 (to a maximum of 4.5) in presence of tachyarrhythmias; 0.25mmol/g (over 30min)/0.5mmol/kg/hover 1h (Max 20mmol/kg). Potassium infusions are to be used on the Unit unless discussed with the family doctor, and may be continued if serum potassium levels 3 mmol/kg/h in divided doses.

Hyperkalaemia: stop any K+ containing infusions; consider furosemide - 1 - 5 mg/kg; calcium resorcin (0.125-0.25g/kg pr, repeat if necessary Q6-H); Ca gluconate (0.067 - 0.11 mmol/kg over 10 min or 30 min); or glucose 10% 5ml/kg +/- insulin 0.05 - 0.1 units/kg/hour dextrose bicarbonate 1mmol/kg over 30 min; salbutamol (2.5 - 5 mg reduced, be necessary if or mcg/kg over 5 mins), CVVH or PD.

Protein: 1g/kg/day initially, increasing daily to 3g/kg/day (1g protein = 0.16g nitrogen). Lipid: 1g/kg/day initially, increasing daily to 3g/kg/day (over 20 h)

Sodium: target range 135-145 mmol/l; usual maintenance = 2 - 3 mmol/kg/day. Hyponaetraemia: give sodium chloride 3ml/kg/2.7% NaCl over 1 hour to raise serum Na to >125. Then aim to increase Na by 10 mmol/day.

Calcium: target range for ionised Ca 1.05 - 1.25; usual maintenance = 1.0 mmol/kg/day

Hypocalcaemia: give calcium IV. Incompatible with fluid infusion. Oral replacement - 0.25 - 0.5 g/kg/day Mg* usual maintenance 0.2mmol/kg/day. Oral replacement: Mg glycophosphate 0.2mmol/kg (max 8mmol q8h).

Glucose: 10 - 15% (usually 4.6 - 8.8 mg/kg/min). Glucose requirements of >10 mg/kg/min usually assoc. with hyperinsulinism. Glucose (mg/kg/min) – (insulin x % Gluc.) / (6 x wt). In the event of ‘unexplained’ hypoglycaemia, draw blood for cortisol, insulin, ACTH, 17-α hydroxyprogesterone and GH before administering glucose 2mmol/kg/day in divided doses.

Oliguria: Exclude blocked catheter, hypovolaemia, poor cardiac output; furosemide 1 mg/kg; if poor response 5 mg/kg; consider mannitol / metolazone in “stable” cases; if no previous response to furosemide and if unstable patient, consider proceeding to definitive treatment early, i.e. renal replacement therapy.

Intubations: It's considered „best practice” for two doctors to be present at all intubations.

Most drugs: ‘cardiovascularly stable’ induction:

- Fentanyl 2.5 micrograms/kg (or Morphine 0.1-0.2 mg/kg (including neonates))
- Sevoflurane 1-1.5%
- Etomidate 0.5-1 mg/kg
- Succinylcholine 1.5 mg/kg
- Atropine 0.02 mg/kg

Other agents: thiopentone / midazolam may decrease B P & CO should be avoided

Tube size (age4y) = Tube length -oral (cm): (age2) +12 (nasal add 2-3); or 3 x 3’s internal diameter (oral).

HR, FIO2, T&A, TEC, BP, Vt, Tidal volume, ETT placement, F/V ratio, Etco2, End exp CO2, Vt, ETT: humidification, FET, Tidal volume, O2 Saturation

- ‘Oxygenation’ related to FO2 & MAP: ‘Ventilation’ related to frequ. (inversely related-decreased frequ.→increased amplitude) and amplitude (Vt) related to ‘power’ and ETT/ tubing diameter. Check ABG within 20 min. as CO2 may drop precipitously.

Neonatal ECMO criteria: D1 = 40 (O1 + MAP x FIO2 x 100 / Paco2 (mmHg)); (PaO2 = 7.5 mmHg). don't apply Olie ad CO2 in the presence of air-leaks – consider early rather than late.

Pulmonary hypertension: In: useful (for PH, PPHN, post cardiac arrest). During normal hours consult ventilator technicians. Directions for set up are normally sent in with the ventilator. If a problem develops the ventilator may be changed to 2 seconds, 28 breaths/min; a definite response occurs, attempt to wean after an hour to 2,5ppm. other agents – Epoprostenol, oral Sildenafil. Maintain sedation. Consider muscle relaxation and magnesium.

Cardiac arrests / dysrhythmias: paediatric arrests are usually secondary to hypoxia, acidemia or hypotension. if a dramatic arrest occurs, attempt to wean after an hour to 2,5ppm, other agents – Epoprostenol, oral Sildenafil. Maintain sedation. Consider muscle relaxation and magnesium.

Cardiac arrest: primary arrest: CPR: 1/min, 1.0 mg/kg, then 1.5 mg/kg, repeated q5 min

EMD arrest: consider:

- HR: <50; Hypotension/Hypovolaemia: Hypo: Hypo-hypocalcaemia/hypothyroid
- BP: <70mm Hg: PaO2 <100<br>PaCO2 (mmHg): pH <7.35; PAFx (7.5mmHg). don't apply O2 ad CO2 in the presence of air-leaks – consider early rather than late.
- T: <36°C or >39°C
-滩anards: >1000mg/kg in infants, >12yr: 100mg/kg in infants
- ACLS: >12yr: 3mg/kg q6h for 24h then 1.5mg/kg, if necessary 2x1.5mg/kg, then 2mg/kg, then 3mg/kg (q6h until arrhythmia resolves), consider DC cardioversion (0.5-1J/kg); consider JET

Tetralogy of Fallot repair:

- Morfing response occurs, attempt to wean an hour to 2,5ppm, other agents – Epoprostenol, oral Sildenafil. Maintain sedation. Consider muscle relaxation and magnesium.