**TIME CRITICAL**
If saturations below 70% or no improvement in acidosis or lactate despite starting prostaglandin.
Do not use Prostacyclin PG12 (Epoprostenol/Flolan)

**Additional equipment:**
- Prostin: PGE1 Alprostadil or PGE2 Dinoprostone
- Nitric oxide
- i-STAT machine

<table>
<thead>
<tr>
<th>Duct dependent – systemic circulation</th>
<th>Duct dependent pulmonary circulation</th>
<th>Differential diagnoses</th>
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<tbody>
<tr>
<td>Co-arctation of the aorta</td>
<td>Pulmonary atresia</td>
<td>Pulmonary hypertension (C18)</td>
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<tr>
<td>Critical aortic stenosis</td>
<td>Critical pulmonary stenosis</td>
<td>Sepsis (C20)</td>
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<tr>
<td>Hypoplastic left heart syndrome</td>
<td>Tricuspid atresia</td>
<td>Metabolic disorders (C19)</td>
</tr>
</tbody>
</table>

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<tr>
<th>Duct dependent systemic and pulmonary circulations</th>
<th>Aim for: palpable pulses, resolving acidosis</th>
<th>Aim for: sats 75-85%, lactate &lt; 2 mmol/L</th>
<th>Aim for: improved oxygen, BP, acidosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transposition of the great vessels with restrictive circulation</td>
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**Initial assessment**
- Antenatal and family history: antenatal scans, if antenatal Δ ?plan for care after birth
- History of labour and delivery: risk factors for sepsis, condition at birth, resuscitation.
- Time course of presentation and predominant symptoms / signs (cyanosis, shock, acidosis, ↑WOB)
- Management to date and rationale for therapeutic decisions
- ABC: Current clinical parameters and progression: RR, WOB, HR, MBP, perfusion, saturations, ↑liver size
- ABCDE: acidosis, lactate, BS, electrolytes, CRP, temperature, what have parents been told?
- Assess need for further urgent intervention (see below)
- Discuss findings and provisional plans with supervising neonatal consultant and paediatric cardiologist

**Respiratory support**
(In stable babies with a prostin of 10 ng/Kg/min or below, the risk of apnoea is low and do not need intubation for transfer)
- If apnoea, or if symptoms of respiratory or cardiac failure: intubate and ventilate.
- Ventilate in air. Add oxygen, if required, to achieve saturations of 75-85% (to avoid pulmonary over-circulation)
- If ventilated, give analgesia with morphine, +/- muscle relaxation
- Monitor pre and post ductal saturations. **Aim: PaO₂ 5 kPa, PaCO₂ 5 kPa**

**Cardiovascular**
- Establish secure access. UAC and double lumen UVC ideally (two peripheral cannulae minimum)
- Treat hypotension with 10 ml/kg fluid bolus (maximum 30 ml/kg)
- Treat resistant hypotension with dopamine. Adrenaline as second line.

**Commence Prostin (make up carefully to avoid errors)**
- if antenatal diagnosis and baby well and non-acidotic – start at 5 nanogram/Kg/min
- if presentation of absent femoral pulses but well and non-acidotic - start at 20 nanogram/Kg/min
- if acidic, unwell infant (late presentation) with suspected CHD – 50 nanogram/Kg/min

**Double the dose every 20 minutes if no improvement** (maximum of 100 nanograms / min- discuss with cardiology if considering >50ng/kg/min)

**Prostin can be given peripherally or centrally**

**Other considerations**
- Blood cultures, antibiotics. (Remember that sepsis can co-exist with antenatally diagnosed CHD)
- Check blood sugars regularly. Correct hypocalcaemia and hypomagnesaemia (if BP normal)
- Optimise acidosis with judicious use of alkalisers: NaCO₃ or THAM.
- If PPHN suspected: start inhaled nitric oxide.
- Check temp and avoid overheating/pyrexia. [?therapeutic hypothermia-discuss with consultant]

**You may need to transfer the baby despite being still hypoxic and acidotic ‘scoop and go’**
Keep a close dialogue with your supervising neonatal consultant / cardiologist