

**OPERATIVE DETAILS**

**Section 1**

Donor Hospital <input style="width:90%;" type="text"/> Name <input style="width:90%;" type="text"/> DoB <input style="width:15%;" type="text"/> <input style="width:15%;" type="text"/> <input style="width:15%;" type="text"/> <input style="width:15%;" type="text"/> <input style="width:15%;" type="text"/> <input style="width:15%;" type="text"/> NHS or CHI No <input style="width:90%;" type="text"/> ODT Donor No <input style="width:90%;" type="text"/> Blood Group <input style="width:50%;" type="text"/> Height (cm) / Weight (kg) / Girth (cm) <input style="width:20%;" type="text"/> <input style="width:20%;" type="text"/> <input style="width:20%;" type="text"/> Donor allergies <input style="width:90%;" type="text"/> SNOD <input style="width:90%;" type="text"/> SNOD contact no <input style="width:90%;" type="text"/>	NRP Centre <input style="width:90%;" type="text"/> NRP Centre Contact Number <input style="width:90%;" type="text"/> Cardiothoracic Retrieval (circle) NO / LUNG / HEART / TA NRP Cardiothoracic Team(s) <input style="width:90%;" type="text"/> CT Lead Surgeon (PRINT) <input style="width:90%;" type="text"/> CT Organ Preservation <input style="width:90%;" type="text"/> Stapler technique (lungs) YES / NO NRP Perfusion Specialist <input style="width:90%;" type="text"/> AB Organ Preservation <input style="width:90%;" type="text"/> NRP Surgeon (PRINT) <input style="width:90%;" type="text"/> NRP Surgeon contact no <input style="width:90%;" type="text"/> NRP Surgeon signature <input style="width:90%;" type="text"/>
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*By signing here, the NRP surgeon is prescribing all drugs, fluids, and blood products as initialled on chart*

**FLUIDS/EQUIPMENT**

**Section 2**

<b>PRIME</b>						
	Amount/Vol	Expiry	Batch/Ref (DIN)	Rx	Checked	Given
Sterile Circuit						
Hartmann's Solution (ml)						
Hartmann's Solution (ml)						
Sodium Bicarbonate 8.4% (1ml/kg)						
Heparin	50,000 units					
Fluconazole 2mg/mL	400mg					
Teicoplanin	200mg					
Gentamicin	120mg					
Metronidazole	500mg					
Methylprednisolone	1g					
Phentolamine	5mg					
<b>ADDITIONAL FLUIDS</b>						
Blood						
Blood						
Blood						
Blood						

ODT Donor No

**CANNULATION AND CIRCULATION** Section 3

Arterial cannulation site (circle) Femoral / EIA / CIA / Aorta Arterial cannula size

Venous cannulation site (circle) Femoral / EIV / CIV / IVC Venous cannula size

Ascending aortic vent cannula **Mandatory prior to NRP start** Vent cannula size

Descending thoracic aortic occlusion External CLAMP IVC clamp on (circle) YES / NO

method (circle) Balloon occlusion confirmed in correct position SVC clamp on (circle) YES / NO

**PUMP PARAMETERS** Section 4

Clock Time / NRP Duration	Blood Flow	FiO <sub>2</sub>	Gas Flow (l/min)	SvO <sub>2</sub> %	HCT %	Reservoir Volume	Temp °C	Notes
0								
10								
20								
30								
40								
50								
60								
70								
80								
90								
100								
110								
120								

ODT Donor No

**GASES**

**Section 5**

Clock time								
NRP duration	0		30		60	90	120	
Sample type (A/V)								
pH								
pCO <sub>2</sub>								
pO <sub>2</sub>								
HCO <sub>3</sub>								
BE								
Sats								
Lact								
Na <sup>+</sup>								
K <sup>+</sup>								
Gluc								
Ca <sup>2+</sup>								
Hct								
Hb								

**BIOCHEMISTRY**

**Section 6**

Clock time								
NRP duration	0		30		60	90	120	
Gluc								
Urea								
Crea								
Uric Acid								
Ca								
ALB								
Tot Prot								
ALT								
AST								
ALP								
Bili								
GGT								
AMY								

ODT Donor No

TIMINGS				Section 7
WLST location (circle) ITU / THEATRE SUITE		Knife to skin	<input type="text"/>	<input type="text"/>
WLST	<input type="text"/>	Aortic arch vented	<input type="text"/>	<input type="text"/>
Systolic BP < 50 mmHg	<input type="text"/>	NRP Start (Time 0)	<input type="text"/>	<input type="text"/>
Asystole	<input type="text"/>	NRP stop time	<input type="text"/>	<input type="text"/>
Verified Deceased	<input type="text"/>	In situ cold Flush	<input type="text"/>	<input type="text"/>

ORGAN QUALITY ASSESSMENT				Section 8			
Liver weight	<input type="text"/>	kg	QUOD Box No <input type="text"/>	NRP Box No <input type="text"/>			
Minimum dataset: LFT/amylase is <b>0, 60 and 120 minutes</b> . Glucose, lactate and haemoglobin data are required at <b>0, 30, 60, 90 and 120 minutes</b> . Blood cultures may be taken at <b>0 and 120 minutes</b> . This is optional.							
	0	30	60	90	120	Validating Lab	Notes
ALT (U/l)							
BILI (umol/l)							
AMYLASE (U/l)							
GLUCOSE (mmol/l)							
LACTATE (mmol/l)							
Hb (g/l)							
BLOOD CULTURES (optional)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		

**INSTRUCTIONS FOR SNODS:** Upload pages 1-4 to DonorPath under the 'NRP Passport' category.

## Guidance Notes for the NRP Passport and NRP Management (FRM6725)

### Section 2. Fluids/Equipment

Hartmann's solution is used in the Prime. To avoid severe haemodilution, blood may be added to the prime, and/or the total prime volume may be reduced, particularly in small or paediatric donors. The minimum recommended total prime volume is 1500ml. Hartmann's contains high levels of lactate (27mM) and if added after pump start, will lead to confusion regarding lactate metabolism by the liver.

**Avoid further Hartmann's solution once NRP has commenced as it contains lactate.**

### Section 5. Gases

**Arterial blood gases** are essential to ensure appropriate acid-base status, tissue oxygenation and CO<sub>2</sub> levels and best describe oxygenator function and acid base status. Repeated arterial blood gases are **strongly recommended** for safe perfusion in NRP. Please ensure that gas samples are capped immediately to prevent loss of CO<sub>2</sub>.

**pH and Bicarbonate.** pH<7 or H<sup>+</sup>>100nmol/l at time 0 can lead to mitochondrial dysfunction. Therefore add 25ml (or 50ml) 8.4% NaHCO<sub>3</sub> once, as early as possible in this situation. The resolution of acidosis during NRP is an index of organ quality so adding more bicarbonate later will be confusing.

**Avoid further Bicarbonate administration once NRP is in progress.**

**PaCO<sub>2</sub>.** Optimise arterial CO<sub>2</sub> by adjusting gas flow rate. If PaCO<sub>2</sub> is <4.5kPa, decrease gas flow rate; if PaCO<sub>2</sub>>6.0 kPa, increase gas flow rate.

Optimise **PaO<sub>2</sub>** by changing FiO<sub>2</sub> alone.

**Venous blood gases** give an accurate measurement of SvO<sub>2</sub>. Mixed venous oxygen saturation (SvO<sub>2</sub>) is an essential measure of tissue oxygen uptake, and hence adequacy of oxygen delivery to tissues. However, other analytes in venous gases (pH, pCO<sub>2</sub> etc) cannot be used to gauge acid-base status or gas exchange accurately, as normal venous ranges are not defined. This is why arterial blood gases are recommended for safe perfusion.

**SvO<sub>2</sub>** between 60% and 80% indicates satisfactory oxygen delivery (good flow, good arterial O<sub>2</sub>, adequate Hb) to tissues.

Optimise SvO<sub>2</sub> by adjusting pump flow rate. If SvO<sub>2</sub> <60%, increase pump flow; if SvO<sub>2</sub> >80% decrease pump flow (NB; Hb needs to be >60g/l for SvO<sub>2</sub> to be reliable).

When interpreting arterial gases, at least one set of venous gases should be performed for to confirm the SvO<sub>2</sub> monitor on the perfusion device is reading correctly. They tend not to read well if Hb is low, which may trigger transfusion to promote adequate oxygen delivery.

### Section 8. Organ Quality Assessment Bloods.

The 'Validating Lab' is the NHS Laboratory which quality assures the point-of-care-testing ('POCT') device which is used in the donor theatre for rapid blood results. This will either be the donor hospital lab, for bloods tested with donor hospital equipment, or the NORS base hospital lab which has provided quality assurance for the POCT devices used by the NORS team, or both.

LFTs and gases are processed with POCT devices ('Piccolo', 'i-Stat') or via the Donor Hospital Lab. Haemoglobin and lactate are measured on the gas sample. Whichever device/laboratory is used, please ensure that the same device/laboratory/sample type is used on each occasion.

Red cells in a gas sample may settle to the bottom of a sample tube, and cause inaccurate Hb readings. Please ensure gas samples are well mixed prior to analysis.