



GUIDELINES FOR ORGAN DONOR MANAGEMENT (NDD)

The following are **recommendations only** and are not intended to replace clinical judgment

****For any potential Organ Donor please contact the Organ Donation Resource Nurse (ODRN)**
506-643-6848**

Patient Position		A
<ul style="list-style-type: none"> Elevation of the head of bed at 45 degrees when possible, otherwise greater than or equal to 30 degrees 	<ul style="list-style-type: none"> Turn and position Q2H 	
Nutrition		B
<ul style="list-style-type: none"> Initiate or continue enteral feeding as tolerated <p><i>* If unable to tolerate enteral feeds, consider intravenous dextrose infusions</i> <i>** Continue parenteral nutrition if already initiated prior to declaration</i></p>	<ul style="list-style-type: none"> 6 hours prior to OR for organ recovery, hold feeds and aspirate gastric contents 	
IV Fluid		C
<ul style="list-style-type: none"> <input type="checkbox"/> D5%W / NaCl 0.45% KCl 20 mmol/L at 100 mL/h <input type="checkbox"/> D5%W / NaCl 0.9% KCl 20 mmol/L at 100 mL/h <input type="checkbox"/> NaCl 0.9% at _____ mL/h <input type="checkbox"/> Other : _____ <p><i>* The choice and flow of IV solution may vary depending on the results of natremia, kaliemia and tolerance to enteral feed: aim for homeostasis.</i></p>		
General Monitoring and Targets (Vitals Q1H)		D
<ul style="list-style-type: none"> <input type="checkbox"/> Vitals hourly <input type="checkbox"/> Continuous EKG and SpO₂ <ul style="list-style-type: none"> ➢ HR between 60 to 120 beats per minute (bpm) ➢ SpO₂ greater than or equal to 95% <input type="checkbox"/> Continuous Arterial Line Pressure <ul style="list-style-type: none"> ➢ Mean arterial pressure (MAP) greater than or equal to 65 mmHg ➢ Systolic blood pressure (SBP) less than or equal to 180mmHg or diastolic blood pressure (DBP) less than or equal to 120 mmHg 	<ul style="list-style-type: none"> <input type="checkbox"/> Urine catheter – strict hourly intake and output <ul style="list-style-type: none"> ➢ Urine output 0.5 to 3ml/kg/hr <input type="checkbox"/> Blood Glucose <ul style="list-style-type: none"> ➢ target 6 to 10 mmol/L <input type="checkbox"/> Temperature every 4 hours <ul style="list-style-type: none"> ➢ Target 34 to 35°C (May target normothermia once kidneys are excluded) <input type="checkbox"/> Potassium, calcium, magnesium, phosphate results within normal limits <input type="checkbox"/> Sodium 135-155 mmol/L 	
Ventilation Targets		E
<ul style="list-style-type: none"> <input type="checkbox"/> Tidal Volume: 6 to 8 mL/kg predicted body weight <input type="checkbox"/> Positive End-Expiratory Pressure: greater than or equal to 8 cm H₂O <input type="checkbox"/> Plateau Pressure: less than or equal to 30 cm H₂O 	<ul style="list-style-type: none"> <input type="checkbox"/> Target : <ul style="list-style-type: none"> ➢ PaCO₂ : 35 to 45 mmHg ➢ PH : 7.35 to 7.45 ➢ PaO₂: greater than or equal to 80mmHg ➢ SpO₂: greater than or equal to 95% 	
Lung donor		F
<ul style="list-style-type: none"> <input type="checkbox"/> Daily portable chest x ray <input type="checkbox"/> Bronchoscopy with bronchial washings, right and left is possible, for gram stain and culture, culture for fungus and culture for Mycobacteria (TB) <input type="checkbox"/> Pulmonary Hygiene <input type="checkbox"/> Physiotherapy <input type="checkbox"/> RECRUITMENT MANEUVERS (RM) after ventilator disconnections and every 2 to 4 hours: <ul style="list-style-type: none"> Step 1. Increase FiO₂ to 1.0 Step 2. RM protocol is: <ul style="list-style-type: none"> a) Change ventilation mode to a support mode with no mandatory rate (Pressure Support or Volume Support) b) Set PEEP to 30 cm H₂O for 30 second Step 3. Stop the RM if acute hypotension develops (mean arterial blood pressure of less than 50 mmHg) OR SpO₂ drops to less than 85% for 5 seconds Step 4. After 30 seconds, return to previous mode of ventilation and return all parameters to initial settings for two minutes, leaving FiO₂ at 1.0 Step 5. Repeat RM x 1 as per above (Step 2 and 3) 		

Lung Donor Continued

After each RM proceed with LUNG CHALLENGE:

Step 1. Set PEEP to pre-recruitment level, FiO₂ to 1.0, ventilate for 20 minutes

Step 2. Obtain Arterial Blood Gas (ABG) after 20 minutes; Goal: PaO₂ greater than 300 mmHg

Step 3. Once ABG drawn, return ventilation to pre-recruitment/challenge settings

- Repeat RM and Lung Challenge including ABG every 2 to 4 hours until further notice of ODRN or until patient goes to the operating room for organ retrieval.

***Consider Methylprednisone 1-2 grams IV daily at the request of the lung transplant team. Discontinue hydrocortisone if Methylprednisone is prescribed.*

F

Kidney and Liver donor

- Abdominal Ultrasound. If ≥ 50 years old, comorbid conditions, elevated BMI (verify with the ODRN)

G

Heart donor

- Daily 12 lead electrocardiogram (ECG)

- For potential heart donor, Echocardiogram (cardiac)

- For potential heart donor, Coronary Angiography - if male greater than 55 years old or female greater than 60 years old or presence of risk factors (verify with the Organ Donor Resource Nurse (ODRN)) **OR**

- For potential heart donor, if Coronary Angiography is not possible: Coronary Computed Tomography Angiography (CTA) - if male greater than 55 years old or female greater than 60 years old or presence of risk factors (verify with the ODRN)

H

Donor Evaluation

Initially:	<input type="checkbox"/> electrolytes, urea, creatinine, glucose random, calcium, magnesium, phosphate, ALK, bilirubin, GGT (Zone 1 and Zone 3), AST, ALT, LDH, CK, lipase or amylase, troponin, arterial lactate, CBC, PT-INR, PTT, non fasting lipid profile, serum osmolality <input type="checkbox"/> crossmatch (hold 4 units on call to Operating Room) <input type="checkbox"/> urinalysis, albumin/creatinine ratio <input type="checkbox"/> urine culture, sputum culture, blood cultures x 2 sets (one peripherally and one from an existing line) Note: identify all cultures as Organ Donor
<input type="checkbox"/> every 2 hours	arterial blood gases (ABG) as per lung challenge procedure (20 minutes following recruitment maneuver – see above)
<input type="checkbox"/> every 6 hours	ABG, electrolytes, urea, creatinine, glucose random, arterial lactate
<input type="checkbox"/> every 12 hours	CBC, PT-INR, PTT, bilirubin, AST, ALT, ALK, CK, LDH, lipase or amylase, troponin
<input type="checkbox"/> every 24 hours	Repeat blood cultures, urine cultures and sputum cultures

I

Medications

1. Hypotension

MAP less than 65 mmHg + **Preload status not optimised**

- Wean short acting blood pressure agents
- IV Bolus NaCl 0.9% 500 mL over 30 mins x 1 PRN. If condition persists, consult physician

2. Persistent Hypotension

MAP less than 65 mmHg and **Preload status optimised**

- Wean short acting blood pressure agents
- vasopressin IV infusion:
Starting dose 0.01 units/min. Titrate by 0.005 units/min every 10 to 15 min until desired effect. Maximum dose 0.06 units/min
maintain this infusion unless SBP greater than 180 mmHg
- Hydrocortisone 50 mg IV every 6 hours when using Vasopressin (Discontinue if Methylprednisone is prescribed)

ADD PRN

- norepinephrine IV Infusion. Starting dose 0.1 mcg/kg/min. Titrate by 0.02 mcg/kg/min every 5 minutes until desired effect. Maximum dose 3 mcg/kg/min **AND/OR**
- EPINEPHrine IV Infusion. Starting dose 0.05 mcg/kg/min. Titrate by 0.05 mcg/kg/min every 10 minutes until desired effect. Maximum dose 0.5 mcg/kg/min **AND/OR**
- phenylephrine IV Infusion. Starting dose 0.5 mcg/kg/min. Titrate by 0.1 mcg/kg/min every 10 minutes until desired effect. Maximum dose 10 mcg/kg/min

**thyroid hormone therapy may be considered in cases of cardiac dysfunction or hemodynamic instability (Levothyroxine (T4): 100 mcg IV bolus followed by 50 mcg IV every 12 hours)*

***considered hydrocortisone for donors requiring vasopressor support*

**** Avoid the use of dopamine at any dose*

3. Hypertension

For a systolic blood pressure greater than **180 mmHg**
OR
Diastolic blood pressure greater than **120 mmHg**

- Wean and/or discontinue inotropes first followed by vasopressin.

4. Hypertension with Heart Rate greater than 80 bpm

- esmolol 500 mcg/kg IV bolus PRN over 1 minute followed by IV infusion. Starting dose 50 mcg/kg/min. Titrate by 50 mcg/kg/min with intervals of a minimum of 4 minutes, until desired effect. Maximum dose 300 mcg/kg/min **OR**
- labetalol 5 to 20 mg IV bolus every 5 minutes PRN. Maximum dose of 80 mg in 10 minutes and a cumulative dose of 300 mg in 1 hour (Consider labetalol infusion) **OR**
- metoprolol 1 to 5 mg IV bolus every 1 hour PRN. Maximum dose of 15 mg in 3 hours

5. Hypertension with Heart Rate less than 80 bpm

- nitroprusside IV infusion. Starting dose 0.25 to 0.5 mcg/kg/min. Titrate by 0.25 to 0.5 mcg/kg/min every 5 minutes until desired effect. Maximum rate of 10 mcg/kg/min for 10 minutes. Doses greater than 2 mcg/kg/min and infusion durations greater than 30 minutes have increased risk of cyanide toxicity. **OR**
- nitroglycerin IV infusion. Starting dose 5 mcg/min. Titrate by 5 to 10 mcg/min every 5 minutes until desired effect. If no response by 20 mcg/min, may increase by 10 to 20 mcg/min every 5 minutes until desired effect. Maximum dose 400 mcg/min

**Consider short acting antihypertensives agents*

J

Urine output (Target: 0.5-3.0 mL/kg/h)		K
Oliguria		
<p>If urine output less than 0.5 mL/kg/h and Preload status not optimised</p> <ul style="list-style-type: none"> <input type="checkbox"/> IV Bolus NaCl 0.9% 500 mL over 30 mins x 1 PRN. If condition persists, consult physician 		
Diabetes Insipidus Therapy		K
<p>Diabetes Insipidus is defined as:</p> <ul style="list-style-type: none"> ➤ urine output greater than 4 mL/kg/h associated with: ➤ rising serum Na greater than or equal to 145 mmol/L and/or ➤ rising serum osmolality greater than or equal to 300 mmol/kg and/or ➤ decreasing urine osmolality less than or equal to 200 mmol/kg <p>Therapy to be titrated to urine output less than or equal to 3 mL/kg/h</p> <ul style="list-style-type: none"> <input type="checkbox"/> vasopressin IV infusion. Starting dose 0.01 units/min. Titrate by 0.005 units/min every 10 to 15 min until. Maximum dose 0.06 units/min. **maintain this infusion unless SBP greater than 180 mmHg** <input type="checkbox"/> desmopressin (DDAVP) 4 mcg IV once then desmopressin 2 mcg IV every 6 hours PRN for urine output greater than 4 mL/kg/h. (There is no true upper limit for DDAVP dose; should be titrated to desired urine output rate) <p><small>*Both Vasopressin and DDAVP may be administered for Diabetes Insipidus</small></p>		
Temperature		
<p>Use non-invasive cooling methods:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ice packs <input type="checkbox"/> Air cooling blanket <input type="checkbox"/> Cooling blanket (i.e. Blanketrol III) <input type="checkbox"/> Cool gel mattress pad <p><small>* May stop cooling if kidney donation is not possible</small></p>		L
Coagulation and CBC		
<p>Target:</p> <ul style="list-style-type: none"> • Hemoglobin greater than or equal to 70 g/L • Platelets greater than or equal to 10 x 10⁹/L • No predefined targets for INR, PTT <p>If <u>active bleeding</u>:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Manage as per usual practice <p>If <u>no bleeding</u>:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid Fresh Frozen Plasma transfusions <input type="checkbox"/> Avoid platelet transfusions <input type="checkbox"/> Avoid blood transfusions 	<p style="color: red; text-align: center;">CAREFUL! <i>Contact the Organ Donation Resource Nurse before administering blood products that may interfere with the results of serology.</i></p>	M
Microbiology		
<p><small>*Continue antibiotics started before neurological determination of death</small></p> <p><small>**Administer antibiotics only for presumed or proven infection and not prophylactically</small></p>		N