

**INTRA-ABDOMINAL PRESSURE MONITORING IN NEONATES**

<b>DATE DEVELOPED</b> 24/9/2017	<b>DATE EFFECTIVE</b> 6/11/2017	<b>DATE FOR REVIEW</b> 6/11/2022	<b>RISK RATING</b> Low	<b>WRITTEN BY</b> Eszter Jozsa CNE
<b>DATE REVISED</b> original	<b>REVISED BY</b>			
<b>APPLICABLE TO</b>	Newborn Care Centre Staff – Nursing & Medical			
<b>IMPLICATIONS</b>	To be included in induction training of all new nursing /medical staff. 15 staff to be randomly audited on the procedure for evidence of knowledge of the procedure.			
<b>APPROVED BY</b> Newborn Care Centre Quality Committee on 6 November 2017				
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<b>ABBREVIATIONS &amp; DEFINITIONS OF TERMS</b>				
<b>Intra-abdominal Pressure (IAP):</b>	Pressure within the abdominal cavity. Normal IAP in a well child is 0 mmHg and in a child on positive pressure ventilation is 1 - 8 mmHg.			
<b>Intra-abdominal hypertension (IAH):</b>	IAP greater than 12mmHg.			
<b>Abdominal compartment syndrome (ACS):</b>	IAP >20mmHg and the onset of organ failure.			
<b>Abdominal perfusion pressure (APP):</b>	APP = Mean Arterial Pressure (MAP) - IAP. In adults keeping this > 50-60mmHg significantly improves morbidity & mortality. The appropriate APP for children is unknown, but will be less than the adult level due to a lower MAP.			
<b>Bladder Pressure(mmHg):</b>	Pressure measured via indwelling urinary catheter reflects intra-abdominal pressure.			

**INTRODUCTION**

Abdominal compartment syndrome (ACS) and Intra-abdominal hypertension (IAH) occurs in association with major fluid resuscitation, severe gut oedema, intra-peritoneal or retroperitoneal bleeding, or after abdominal surgery, particularly after the repair of abdominal wall defects in neonates. It increases the risk for mortality in critically ill neonates due to reduced venous return, reduced cardiac output and altered respiratory function. An increase in IAP to >20mmHg may cause renal failure, respiratory failure, poor splanchnic perfusion and increased intracranial pressure. Intra-abdominal pressure can be measured indirectly through the infant's bladder.

**AIM**

To prevent Abdominal compartment syndrome by monitoring Intra-abdominal pressure via indwelling urinary catheter.

## INTRA-ABDOMINAL PRESSURE MONITORING IN NEONATES cont'd

### EQUIPMENT

Pressure transducer set – Transpac IV monitoring kit  
 Foley catheter FG6  
 Foley catheter adaptor  
 Multidirectional stopcock (3way tap)  
 Paediatric urine meter with luer lock catheter connection  
 50 ml syringe  
 Syringe driver  
 Syringe extension set  
 0.9% sodium chloride solution and infusion label

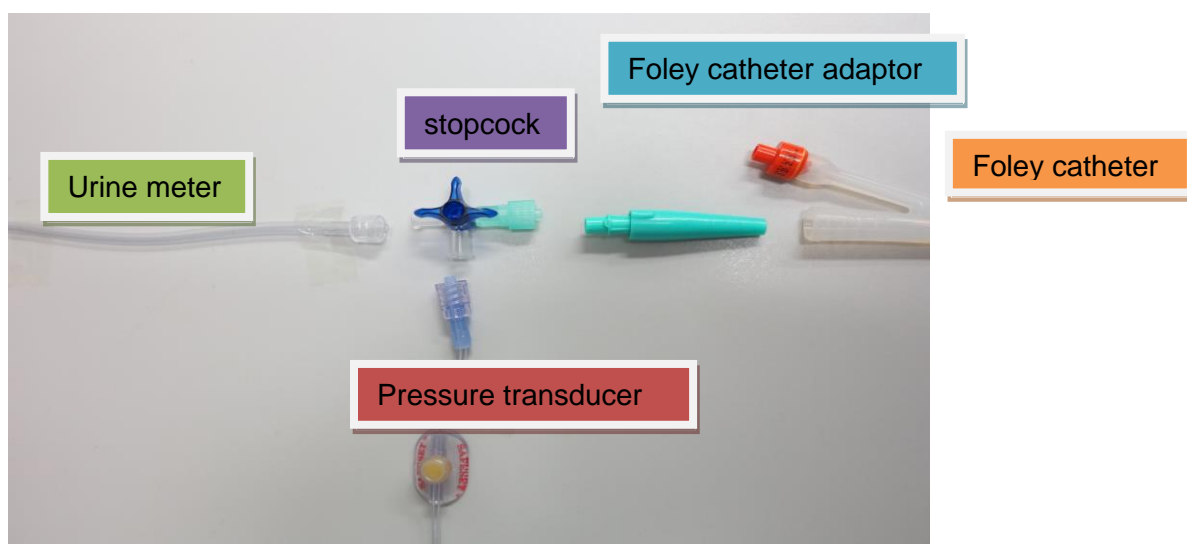
### PROCEDURE

#### SET UP

1. Using an aseptic non-touch technique, prime the transducer set and monitoring kit with 0.9% sodium chloride. Label the line.
2. Connect the FG6 transurethral Foley catheter to the multidirectional stopcock (3way tap) through the Foley catheter adaptor. (see picture below)
3. Connect the urine meter to the 3 way tap. **The flow of the urine is interrupted only during bladder pressure measurement.**
4. Connect the pressure transducer to the third port of the 3 way tap.
5. Connect the transducer to the monitoring device.
6. Align the transducer to the level of the symphysis pubis and zero for calibration.

#### MEASUREMENT

1. Ensure the transducer is aligned with the symphysis pubis of the neonate.
2. Turn on the syringe pump.
3. Turn stopcock **off** to the urine meter.
4. Slowly fill the bladder with 1 mL/kg of 0.9% sodium chloride via the syringe driver set at 20mL/hr.
5. Turn setting on syringe driver down to 0.5mL/hr.
6. Allow 1minute for the reading to stabilise.
7. Read the pressure displayed on the monitor in mmHg.
8. Turn **off** the syringe pump.
9. Turn stopcock **open** to the urine meter to allow free flow of the urine.



**ROYAL HOSPITAL FOR WOMEN**  
 LOCAL OPERATING PROCEDURES  
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Approved by  
 Quality & Patient Care Committee  
 Date: 16/11/17

**INTRA-ABDOMINAL PRESSURE MONITORING IN NEONATES cont'd**

**REMOVAL OF FOLEY CATHETER**

1. Verify medical order.
2. Inform parents.
3. Follow hand hygiene precautions.
4. Deflate the balloon if it's Foley catheter.
5. Gently withdraw the catheter.
6. STOP withdrawing if any resistance and inform the medical staff for further advice. Resistance indicates kinking, obstruction or knot formation of the catheter and forceful withdrawal may damage and tear the bladder/urethral mucosa.

**DOCUMENTATION**

1. Document the bladder pressure measurement and frequency as ordered on the observation chart.
2. Document the amount of 0.9% sodium chloride administered and deduct the amount from the measured urine output.

**EDUCATIONAL NOTES**

1. IAP should be measured at least 6 hourly or as requested by medical officer.
2. IAP should be kept <20mmHg in the postoperative period.
  - >20mmHg – need muscle relaxant and surgical consult.
  - 15-20mmHg – increase muscle relaxation and sedation.
  - <15mmHg – heavy sedation.
  - <10mmHg – cease pressure monitoring but keep sedation.
3. IAP monitoring is required for a short period of time and usually removed in 5 days post op.

**RISK RATING**

Low

**References**

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