Royal Hospital for Women (RHW)
NEONATAL BUSINESS RULE

Intra-Abdominal Pressure Monitoring in Neonates — RHW CLIN040

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

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1. BACKGROUND

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 Intra-Abdominal Pressure 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.

2. RESPONSIBILITIES

Medical and Nursing Staff

3. PROCEDURE

3.1 Equipment

- Pressure transducer set
- Foley catheter (appropriate size for the neonate)
- Foley catheter adaptor
- 3-way tap (multidirectional stopcock)
- Paediatric urine meter with luer lock catheter connection
- 50 mL syringe
- Syringe driver
- Syringe extension set
- 0.9% sodium chloride solution
- Infusion label

3.2 Clinical Practice

Set up

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

Intra-Abdominal Pressure Monitoring in Neonates

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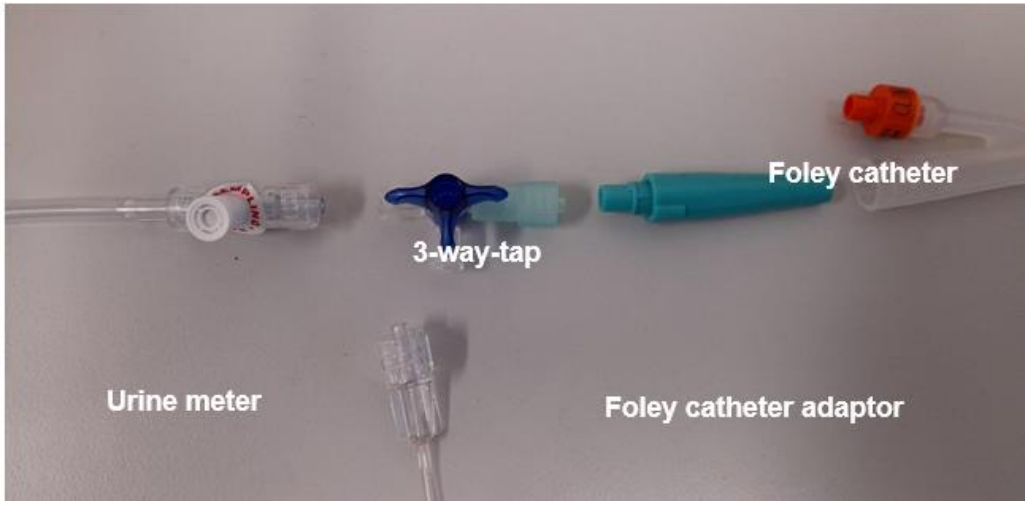
Picture 1



Picture 2

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 1mL/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 1 minute 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.
10. Document the bladder pressure measurement and frequency.

11. Document the amount of 0.9% sodium chloride administered and deduct the amount from the measured urine output.

3.3 Educational Notes

- IAP should be measured at least 6 hourly or as requested by medical officer.
- 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.
- IAP monitoring is required for a short period of time and usually removed in 5 days post op.

3.4 Abbreviations

ACS	Abdominal compartment syndrome	IAH	Intra-abdominal hypertension
IAP	Intra-Abdominal Pressure		

3.5 References

1. World Society of the Abdominal Compartment Syndrome Intra-abdominal hypertension and the abdominal compartment syndrome: updated consensus definitions and clinical practice guidelines. Intensive Care Medicine, 2013, 39, 1190-1206.
2. Newcombe, J., Mathur, M., Ejike, J.C. Abdominal Compartment Syndrome in Children. Critical Care Nurse, 2012, 32, 6, 51-60.
3. Ejike, J.C.,Mathur, M. Abdominal Decompression in Children. Critical Care Research and Practice, 2012.
4. Olesevich M, Alexander F, Khan M, Cotman K. Gastroschisis revisited: role of intraoperative measurement of abdominal pressure. Journal of pediatric surgery. 2005; 40(5):789-92.
5. Suominen PK, Pakarinen MP, Rautiainen P, Mattila I, Sairanen H. Comparison of direct and intravesical measurement of intraabdominal pressure in children. Journal of pediatric surgery. 2006; 41(8):1381-5.
6. Prodhan, Parthak MD; Mathur, Mudit MD. Intra-Abdominal Pressure Monitoring in Neonates*. Pediatric Critical Care Medicine. 2016, 17(2): p 172-173.
7. Defontaine A, Tirel O, Costet N at al. Transvesical Intra-Abdominal Pressure Measurement in Newborn: What Is the Optimal Saline Volume Instillation? Pediatr Crit Care Med. 2016;17(2):144-9.

4. RELATED BUSINESS RULES AND POLICY DOCUMENTS

- RHW NCC Nursing - Deteriorating Neonate
- RHW NCC Medical - Surgery at the bedside - Perioperative Guidelines

5. CULTURAL SUPPORT

- When clinical risks are identified for an Aboriginal family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services.
- For a Culturally and Linguistically Diverse CALD family, notify the nominated cross-cultural health worker during Monday to Friday business hours.

- If the family is from a non-English speaking background, call the interpreter service: NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard Procedures for Working with Health Care Interpreters.

6. IMPLEMENTATION PLAN

This revised CBR will be distributed to all medical, nursing and midwifery staff via @health email. The CBR will be discussed at ward meetings, education and patient quality and safety meetings. Education will occur through in-services, open forum and local ward implementation strategies to address changes to practice. The staff are asked to respond to an email or sign an audit sheet in their clinical area to acknowledge they have read and understood the revised CBR. The CBR will be uploaded to the CBR tab on the intranet and staff are informed how to access.

7. RISK RATING

- Low

8. NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 3 Preventing and Controlling Infections
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety
- Standard 8 Recognising and Responding to Acute Deterioration

9. REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
6/11/2017	1	E Jozsa (CNE), Newborn Care Centre Quality Committee
1/4/2024	2	E Jozsa (CNS), RHW NCC CBR Committee Endorsed BRGC 6 May 2024