Royal Hospital for Women (RHW) NEONATAL BUSINESS RULE COVER SHEET



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EXECUTIVE	Sally Wise, Nursing Co- Director Neonatal Services		
SPONSOR	Srinivas Bolisetty, Medical Co- Director Neonatal Services		
AUTHOR	P Mishra (Neonatologist)		
SUMMARY	To provide appropriate follow up and management of neonates with antenatally diagnosed renal pyelectasis		
Key Words	urinary tract dilation (UTD), renal pyelectasis, neonate, kidneys		



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Within this document we will use the term woman, this is not to exclude those who give birth and do not identify as female. It is crucial to use the preferred language and terminology as described and guided by each individual person when providing care.

1 BACKGROUND

Antenatal urinary tract dilation (UTD), commonly known as renal pylectasis (RP), is a common abnormality detected on prenatal ultrasound. Early diagnosis and management may improve long-term outcomes.

The aim of this CBR is to provide appropriate management and follow up of neonates with antenatally diagnosed renal pyelectasis. The original guidelines were based on the consensus achieved among the neonatologists at the Royal Hospital for Women (RHW) and Paediatric Nephrologists and Urologists at Sydney Children's Hospital (SCHN).

Definition of renal pelvic dilation is when the renal pelvic diameter is >5 mm at \leq 32 weeks of gestation (GA) and >7 mm at > 32 weeks of GA.

2 **RESPONSIBILITIES**

2.1 Staff

- 2.1.1 Medical identify neonates with renal or urinary tract abnormalities, investigate and refer neonate early with renal collecting system dilation, prescribe medication and procedures in consultation with paediatric nephrologist and urologist teams, initiate parents education, discuss and provide written information to parents on symptoms of urinary tract infection in neonates, organise follow up after discharge.
- 2.1.2 Nursing administer prescribed medication, monitor and document urinary output.

3 PROCEDURE

3.1 Clinical Practice

3.1.1 Assessment

3.1.1.1. Antenatal

Assess for:

• Antero- posterior Renal Pelvic Diameter (ARPD) and the gestational age reported on antenatal ultrasound. Look for persisting or worsening ARPD on consequent scans and document the worst ARPD (Table 1).



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- Presence of any calyceal dilation, ureteric dilation, cortical thinning, reduced corticomedullary differentiation or abnormal bladder
- Any oligo/polyhydramnios
- Single kidney or other renal tract abnormalities

3.1.1.2. Postnatal

Assess neonate for:

- Presence of poor urinary stream (a normal urinary stream does not exclude bladder outlet obstruction)
- Has not passed urine within first 24 hours of life
- Palpable bladder
- Palpable kidney
- Urinary tract infection

3.1.2 Categorise the neonate into the appropriate category of renal pyelectasis

Table 1Severity assessment

Degree of PD	Anterior Posterior Diameter (APD) of the renal pelvis measured at the maximum diameter of the intrarenal pelvis			
Degree of KP	Second Trimester 16-32 weeks of GA	Third Trimester ≥32 weeks of GA	Postnatal	
Normal <u><</u> 5 mm		<u><</u> 7 mm	<u><</u> 5 mm	
Mild 5.1 – 7 mm		7.1 – 10 mm	5.1 – 10 mm	
Moderate 7.1 – 10 mm		10.1 – 15 mm	10.1 – 15 mm	
Severe >10 mm		>15 mm	>15 mm	

NOTE:

For any male neonate with bilateral dilation suspect posterior urethral valves and investigate appropriately.

3.1.3 Investigations

- Update SCHN urology/renal team about the neonate's arrival.
 - Renal Registrar pager 47263
 - Clinic appointment extension number 21646
 - Paediatric urology fellow (mobile through SCHN switch)
 - Isolated, unilateral or bilateral ARPD ≤10 mm (Appendix 1)
 - Arrange for postnatal renal ultrasound (US) 7-14 days of age.
 - Arrange for a follow-up check with the results at RHW well baby clinic around 2-4 weeks of life:
 - If postnatal US normal with no **dilation**: Suggestive of benign or transient pyelectasis that is likely to resolve spontaneously. Arrange for a further follow-up at 3 months with a repeat renal US to confirm that complete resolution happened.
 - If postnatal US shows dilation ≥10mm: Discuss need for prophylactic antibiotics with parent/carers and arrange for Micturating Cysto Urethrogram (MCU). Consider MAG3 diuretic renogram (Nuclear Medicine Department ext:



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22200) and refer to Sydney Children's Hospital urology or nephrology team for further follow-up and management.

- Moderate-severe unilateral ARPD >10 mm (Appendix 2)
 - Arrange for postnatal renal ultrasound by day 1-3 before neonate gets discharged home.
 - If postnatal US shows ARPD of >10 mm or associated with other renal pathology:
 - o Order serum urea, creatinine, and electrolytes blood tests
 - Discuss need for antibiotic prophylaxis with urology/renal team/s
 - o Arrange for MCU
 - Consider MAG3 scan to rule out obstruction if no Vesicoureteral reflux (VUR)
 - Page the SCH urology/renal team for a review before the neonate gets discharged home.
 - If postnatal US shows mild dilation (>7 mm ≤10 mm):
 - Arrange for a repeat renal US on day 7-14 of life to ensure adequate hydration
 - Do NOT commence prophylactic antibiotics
 - Refer to SCHN renal team for follow up
- Severe ARPD >15 mm or bilateral when at least one side is >10 mm
 - Immediate review within 1-2 days after birth:
 - Order serum urea, creatinine, and electrolytes blood tests
 - Discuss need for antibiotic prophylaxis with urology/renal team/s
 - Arrange for MCU
 - Consider MAG3 scan to rule out obstruction if no VUR
 - Page the SCH urology/renal team for a review before the baby gets discharged home

3.2 Documentation

- eRIC
- eMR

3.3 Abbreviations

UTD	Urinary Tract Dilation	RP	Renal Pylectasis
SCHN	Sydney Children's Hospital	GA	Gestation
	Network		
ARPD	Antero- posterior Renal Pelvic	APD	Anterior Posterior Diameter
	Diameter		
US	Ultrasound	MCU	Micturating Cysto Urethrogram
VUR	Vesicoureteral reflux		

3.4 Education Notes

• Antenatal pyelectasis is diagnosed in 1-5% of all pregnancies.



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- Isolated mild pyelectasis (APD of <10-12 mm) is usually a self-limited condition and may resolve, stabilize or improve during follow-up in vast majority of patients (80-98%) and needs minimal investigation.
- Moderate to severe pyelectasis (APD >10-12 mm) is associated with variable outcomes and warrants further investigations to rule out associated pathologies such as pelvi-ureteric junction obstruction, vesico-ureteric reflux, posterior urethral valve.
- MCU and MAG3 scan are performed to investigate for pelviureteric junction obstruction, vesicoureteric reflux and other renal tract anomalies.
- Definition and grading of Antenatal Renal Pyelectasis
 - Foetal renal pelvis size increases with gestational age in an almost linear fashion, with the 50th percentile being at approximately 4 mm at 20 weeks and 7 mm at term.⁵
 - Based on the nomogram developed by Obido et al⁵, we have defined antenatal pyelectasis as renal pelvic dilation – >5 mm ≤32 weeks and >7 mm >32 weeks.
- Causes of neonatal hydronephrosis⁶
 - Transient or physiologic hydronephrosis
 - Pelviureteric junction obstruction
 - o Vesicoureteric reflux
 - o Ureterovesical junction obstruction (Megaureter)
 - Posterior urethral valves
 - o Ureterocele
 - o Dilation of one moiety of a duplex kidney due to either obstruction or reflux
- Associated pathologies
 - The majority of mild foetal pyelectasis are idiopathic, benign and/or transient with no other associated renal pathology. A meta-analysis of 7 studies of isolated antenatal hydronephrosis showed that 98% of patients with anterior-posterior pelvic diameter <12 mm resolved, stabilised, or improved during follow-up.²
 - Moderate-severe pyelectasis can be associated with other renal pathology. The two most common are pelviureteric junction obstruction followed by vesicoureteric reflux.

Prophylactic antibiotics

- Children with antenatally diagnosed pyelectasis secondary to VUR have a more benign course with a higher resolution rate of VUR as compared with children discovered to have VUR after a febrile infection. The decision to place a child with APD on prophylactic antibiotics remains controversial.
- Preferred antibiotics:
 - o Neonatal Period: Cephalexin
 - Post-Neonatal Period: Trimethoprim with sulfamethoxazole
 - $\circ~$ At the time of MCU: Full treatment dose on the day and 2 days after MCU.

3.5 Related Policies/procedures

- Australasian Neonatal Medicines Formulary
- SESLHD Guideline Antimicrobial guidelines Newborn Care



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3.6 References

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4 ABORIGINAL HEALTH IMPACT STATEMENT DOCUMENTATION

 Considerations for culturally safe and appropriate care provision have been made in the development of this Business Rule and will be accounted for in its implementation.



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• When clinical risks are identified for an Aboriginal and/or Torres Strait Islander woman or family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services

5 CULTURAL SUPPORT

- For a Culturally and Linguistically Diverse CALD woman, notify the nominated crosscultural health worker during Monday to Friday business hours
- If the woman is from a non-English speaking background, call the interpreter service: <u>NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard</u> <u>Procedures for Working with Health Care Interpreters.</u>

6 NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 2 Partnering with Consumers
- Standard 3 Preventing and Controlling Infections
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety

7 REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
Nov 2010	1	S Bolisetty (Staff Specialist), S Kennedy (Renal Physician, SCH)
21/8/2018	2	P Mishra (Staff Specialist)
11/11/2024	3	P Mishra (Staff Specialist) Endorsed by NCC CBR committee 23.1.25
17/3/2025	3	BRGC



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Appendix 1 Mild Pyelectasis

Isolated Unilateral or Bilateral Antenatal Pelvic Renal Dilation ≤10 mm. Neonates who

develop a documented UTI anytime need careful review and follow-up.





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Appendix 2 Moderate to severe pyelectasis

Unilateral or bilateral Antenatal Pelvic Renal Dilation >10 mm. Any other renal pathology (eg. single kidney, oligohydramnios, abnormal echogenicity) prompts discussion with SCH urology/nephrology team.

