

# NEONATAL RENAL ULTRASOUND PROTOCOL (URETRC)

## PATIENT PREP: NO PREP

**\*\*FOR RULE OUT HYDRONEPHROSIS:** If ordered within the first 48 hours of life, radiologists and providers should discuss whether waiting until after 48 hours is preferred. Dehydration in the first days of life can cause an abnormal renal pelvis to appear normal.

**\*\*Exams are usually done in the NICU, where there are strict disinfection guidelines. All personnel entering the NICU must use good hand washing technique along with use of disinfecting gel.**

**\*\*Upon arrival to the neonatal unit, you must wash your hands and arms up to your elbow. At UW Montlake, the hand washing station is located in the hall to the left of the elevators. ALSO BE SURE TO SIGN THE STAFF/VISITOR LOG that is hanging near the hand washing station.**

**\*\*Always read the sign on the patient door. If the patient is in isolation, follow the instructions. If there is a sign that says "72," that means that they baby is in its first 72 hours of life, and you need to contact the RN before going in.**

**\*\*If the patient is in isolation, then the sonographer should wear a blue plastic gown. Please let the RN know that you are coming up or that you have arrived before starting the exam.**

**\*\*Thoroughly clean the transducer and machine with Oxivir wipes between each patient.**

**\*\*Individual gel packs must be used to minimize any spread of infection.**

## IMAGES TO OBTAIN

**TRANSDUCER SELECTION:** Scanning is to be performed with dedicated neonatal probes - mC12, C8-5, L12 or L18 Linear transducers.

### **RIGHT KIDNEY:**

- Sagittal image of right kidney in medial, middle, and lateral views.
- Sagittal measurement of right kidney.
- Sagittal image of right with color for perfusion.
- Transverse images of superior/mid/inferior right kidney.
- Demonstrate hydronephrosis or pelviectasis with a color image of the renal pelvis if present.

### **RIGHT ADRENAL GLAND:**

- Sagittal image of right adrenal gland
- Transverse image of right adrenal gland

## **LEFT KIDNEY:**

- Sagittal image of left kidney in medial, middle, and lateral views.
- Sagittal measurement of left kidney.
- Sagittal image of left kidney with color for perfusion.
- Transverse images of superior/mid/inferior left kidney.
- Demonstrate hydronephrosis or pelviectasis with a color image of the renal pelvis if present.

## **LEFT ADRENAL GLAND:**

- Sagittal image of left adrenal gland
- Transverse image of left adrenal gland

## **BLADDER:**

- Urinary bladder in sagittal and transverse planes.
- If bladder stones/debris is seen, demonstrate mobility by rolling patient if possible.
- Demonstrate ureteral jets within bladder if hydronephrosis or dilated ureter is seen. (Observe for up to 5 mins).

## **IF RENAL STONES ARE PRESENT:**

- Measure renal stones in one largest dimension.
- Demonstrate acoustic shadowing if possible.
- Image with color to look for twinkle (can still be a stone if no twinkle shows).

## **NOTES:**

- Take cine clips only if there is hydronephrosis or if an abnormality is seen.
- Say "Not well seen" if structure is not well seen.
- Any masses or cysts should be measured in three dimensions and have a 2D and a color image documented.

## **URINARY TRACT DILATION:**

USE THE POSTNATAL UTD CLASSIFICATION SYSTEM WHEN NEEDED,  
SEE CHART AND IMAGES BELOW:

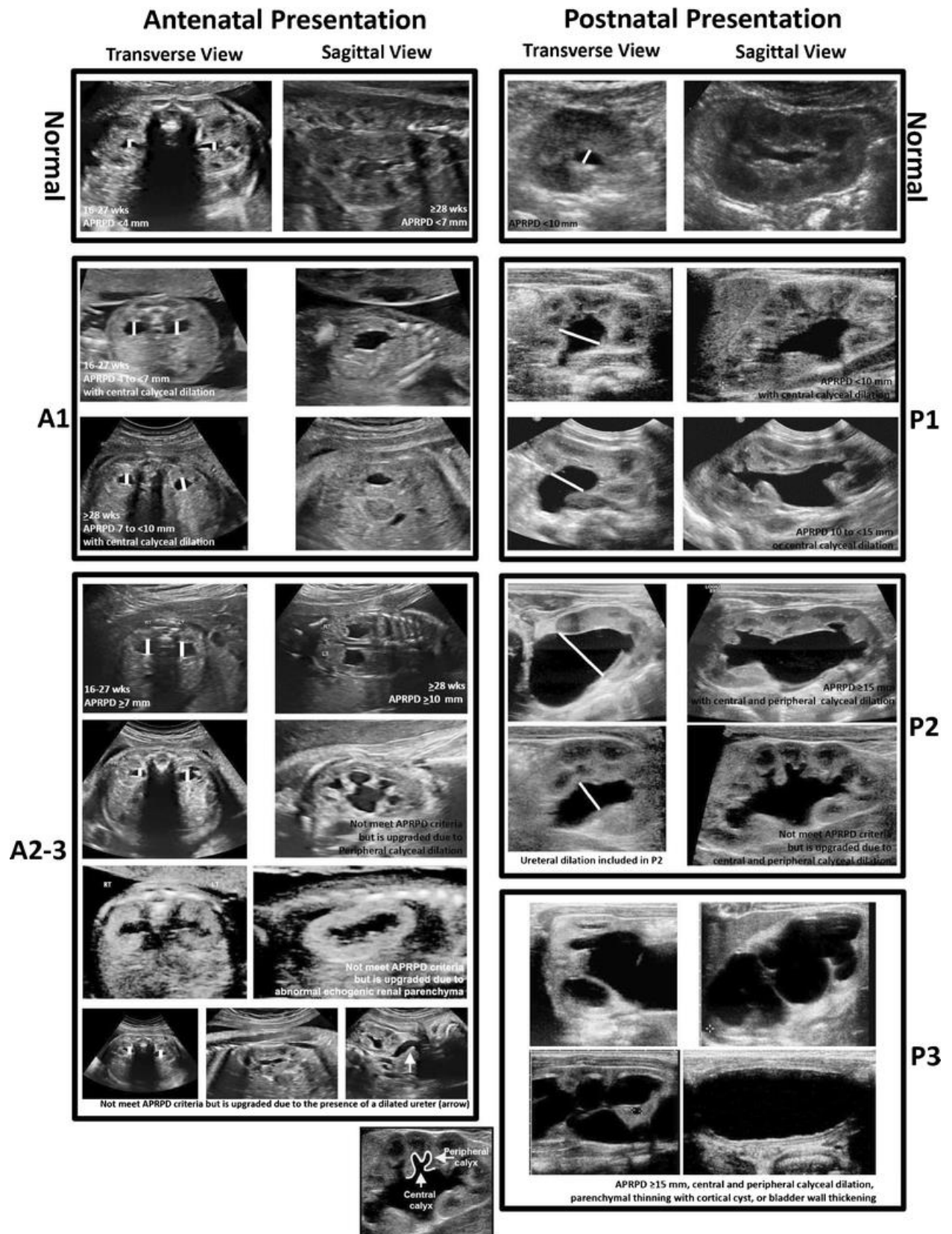
**NORMAL :** APRDP <10mm

**P1:** APRDP <10mm with central calyceal dilation  
APRDP 10 to <15mm or central calyceal dilation

**P2:** APRDP  $\geq$ 15mm with central and peripheral calyceal dilation  
Does not meet APRDP criteria but is upgraded to P2 due to central and peripheral calyceal dilation  
Ureteral dilation included in P2

**P3:** APRDP  $\geq$ 15mm with central and peripheral calyceal dilation, parenchymal thinning with cortical cyst, with bladder wall thickening.

# UTD Classification System



## NEONATAL RENAL ULTRASOUND IMAGE LIST

IMAGE	MODE
Right Kidney Sag Mid	2D
Right Kidney Sag Mid w/ measurement	2D +
Right Kidney Sag w/ color	Color
Right Kidney Sag Med	2D
Right Kidney Sag Lat	2D
Right Kidney Trans Sup	2D
Right Kidney Trans Mid	2D
Right Kidney Trans Inf	2D
Right Adrenal Gland Sag	2D
Right Adrenal Gland Trans	2D
Left Kidney Sag Mid	2D
Left Kidney Sag Mid w/ measurement	2D +
Left Kidney Sag w/ color	Color
Left Kidney Sag Med	2D
Left Kidney Sag Lat	2D
Left Kidney Trans Sup	2D
Left Kidney Trans Mid	2D
Left Kidney Trans Inf	2D
Left Adrenal Gland Sag	2D
Left Adrenal Gland Trans	2D
Bladder Sag	2D
Bladder Trans	2D
<i>Bladder jets if hydro</i>	<i>Color</i>

## NEONATAL RENAL ULTRASOUND PROTOCOL HISTORY

	Date	Changes made	By whom
Created	07/8/22	Separate Neonatal renal protocol created from main renal ultrasound protocol	Renee Betit Fitzgerald
Reviewed	02/24/23	No changes	