

# PAEDIATRIC RENAL TRANSPLANT DOPPLER ULTRASOUND

## Paediatric Renal Transplant Doppler Ultrasound

**Objective** To ensure that all staff follow correct procedure of evaluation for Doppler ultrasound, in the assessment of the paediatric patient with renal transplant.

**Responsibility** All sonographers, trainee sonographers, registrars and sonologists performing renal transplant ultrasound examinations.

**Frequency** For all paediatric renal transplant Doppler ultrasound examinations.

**Procedure** The table below describes the process to follow.

Step	Action
1	Procedure Code: Post transplant – <b>UDKT</b>
2	<b>INDICATION:</b> <ul style="list-style-type: none"> <li>• To assess parenchymal changes of the Allograft</li> <li>• To assess the arterial perfusion of the Allograft</li> <li>• To assess the venous drainage of or presence of thrombus within the Allograft.</li> <li>• To assess for hydronephrosis or collection and stent/drain tube placement if present.</li> </ul>
3	Transducer frequency: C5-1 or C5-2
4	Technical: <ul style="list-style-type: none"> <li>• Select renal preset.</li> <li>• Minimal power output consistent with adequate tissue penetration.</li> <li>• Magnification to optimally demonstrate anatomy.</li> <li>• Focal zones(s) set to area of interest.</li> <li>• TGC and overall gain set to optimise tissue characteristics.</li> <li>• Harmonics and SonoCT must be used with reservation.</li> </ul>
5	No prep required for post-op Day 1 protocol scan. Full bladder preparation is preferable for follow up scans
6	If the patient has fresh surgical wounds with dressings it is best to keep these in place to reduce the chances of introducing infection. If the dressings have to be removed it is imperative to use a “Clean Technique” - sterile contact gel/probe cleaned with anti-septic, or tegaderm used over the wound.

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## Paediatric Renal Transplant Doppler Ultrasound continued

<b>Post-operative Transplant Evaluation</b>	
1	Long and short axis B mode images should be documented to assess parenchyma, hydronephrosis, presence of calculi, ureteric stent placement or collections around the allograft.
2	Longitudinal images should also include coned upper and lower pole images.
3	The perfusion of the transplant should be assessed qualitatively initially by placing the colour or power box over the length of the kidney.
4	Detailed colour imaging, power Doppler and range gated Doppler analysis of the arterial supply of the transplant is then undertaken.
5	Doppler waveforms should be obtained of the segmental and cortical (arcuate) branches at upper, mid and lower poles of the allograft with spectral analysis by measuring resistive indices (RI) of the arcuate arteries, and acceleration times (AT) of the segmental arteries.
6	Spectral analysis of the main renal artery/s (MRA) must be obtained with accurate angle correction including the peak systolic velocities (PSV).
7	Spectral analysis with PSV must be recorded of the External iliac artery proximal and distal to the arterial anastomosis.
8	<b>ADDITIONAL VIEWS:</b> Power Doppler images of the renal artery anastomosis may also be recorded.
9	Complete an appropriate vascular worksheet and scan to IMPAX as per protocol to combine with imaging.

### NOTE:

	It is worthwhile to read operation notes prior to procedure for presence of multiple renal artery or analogous surgical anatomy.
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