

## Standard and High Risk Renal Tumour\* Pediatric Surveillance & Follow-up Guidelines

ATTACH PATIENT ID

	Years from end of therapy	Date	Location	H&P	CBC	Chem	Abdo US	Urine tests	GFR	ECHO#	TSH, T4^	Thyroid US^	PFTs	DEXA	Metab	LH, FSH, Test or Est	Additional screening	Other	
Late Effects Clinic	6			+															
	7			+															
	8			+															
	9			+															
	10			+															
	11			+															
	12			+															
	13			+															
	14			+															
	15			+															
	16			+															
	17			+															
18			+																
Notes					PRN	Lytes, Ca, Mg, PO4, Cr, urea, +/- LFTs.	Q1y to 10y if stage V	U/A, urine Prot:Cr & Alb:Cr ratio. Rpt Q1y if abN	Rpt Q2y if abN	#Insert frequency based on cardiac guideline. ECG if clinical concerns	^If chest RT only. Q1y	^If chest RT only. Q2y	If lung RT or surgery. Repeat Q2y if abN	Baseline if abdo RT	Non-fasting glc and lipids if abdo RT. Rpt Q2y	Baseline age 11 y if CED ≥4 or clinical concerns. Rpt Q1y	Based on site of metastases, surgery or RT		

\*Includes Wilms tumour stage I and II with unfavourable histology; Wilms tumour stages III-IV any histology; and clear cell sarcoma of the kidney

^CED: Cyclophosphamide Equivalence Dose (see over)

### **Further Surveillance**

Beckwith-Wiedemann Syndrome  
Nephroblastomatosis  
Semen Analysis  
Anti-Mullerian Hormone

Breast MRI and Mammogram  
Colonoscopy

Abdo US and AFP Q3mo to age 8y  
Alternate abdo MRI and US Q6mo until complete 5 years of testing or until age 8y  
From age 18y in males if moderate or high risk  
From age 12y in females if CED ≥ 6 g/m<sup>2</sup> or pelvic RT; or earlier if clinical concerns. Rpt Q2-3y if normal. Refer to Pediatric Gynecology if abnormal  
From later of age 25y or 8y after exposure if chest RT  
From later of age 30y or 5y after exposure to abdominal RT

### Cardiac Surveillance Guidelines (BC)

Anthracycline Dose*	Radiation Dose**	Recommended Frequency of Echo***
<100 mg/m <sup>2</sup>	< 15 Gy	No screening
<100 mg/m <sup>2</sup>	15 Gy to < 30 Gy	Every 5 years
≥ 100 mg/m <sup>2</sup> to <250 mg/m <sup>2</sup>	<15 gy	Every 5 years
≥ 100 mg/m <sup>2</sup> to <250 mg/m <sup>2</sup>	>15 Gy	Every 2 years
Any	> 30 Gy	Every 2 years
≥250 mg/m <sup>2</sup>	Any	Every 2 years

\*Based on total doses of doxorubicin or the equivalent doses of other anthracyclines

\*\*Based on radiation dose with potential impact to heart (radiation to chest, abdomen, spine [thoracic, whole], total body [TBI]) COG LTFU Guidelines version 6.0 (Oct 2023)

\*\*\*Consider increased frequency if known high risk genetic variant for anthracycline toxicity

### Anthracycline Equivalent Dose

Agent	Correction factor
Doxorubicin	1.0
Daunorubicin	0.5
Epirubicin	0.67
Mitoxantrone	10.0
Idarubicin	5.0

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### Risk of Prolonged Oligospermia or Azoospermia

Agent	Possible Risk	High Risk
Cyclophosphamide	> 4g/m <sup>2</sup>	> 7.5 g/m <sup>2</sup>
Busulphan		> 600 mg/m <sup>2</sup>
Melphalan		> 140 mg/m <sup>2</sup>
Ifosfamide	> 42 g/m <sup>2</sup>	> 60 g/m <sup>2</sup>
Procarbazine	> 3 g/m <sup>2</sup>	> 4 g/m <sup>2</sup>
Chlorambucil		> 1.4 g/m <sup>2</sup>
BCNU	> 300 mg/m <sup>2</sup>	> 1 g/m <sup>2</sup>
CCNU		> 500 mg/m <sup>2</sup>
Cisplatin	> 300 mg/m <sup>2</sup>	> 600 mg/m <sup>2</sup>
Testicular RT dose	> 200 cGy	> 1200 cGy

\*Lower doses are still possible risk

1. Green J Clin Oncol 2010;28:332-9
2. Meistrich Pediatr Blood Cancer 2009;53:261-6
3. Wyns Human Reprod Update 2010;16(3):312-328

### Risk of Premature Ovarian Insufficiency or Infertility

Agent	Possible Risk	High Risk	Ref
CED	> 4 g/m <sup>2</sup>	> 8 g/m <sup>2</sup>	1
Procarbazine	> 2 g/m <sup>2</sup>	> 4 g/m <sup>2</sup>	2
Cisplatin	> 300 mg/m <sup>2</sup>		3
Dactinomycin	>12.2 mg/m <sup>2</sup>		4
Ovarian RT dose*	> 100 cGy	> 1000 cGy	5

\*Age dependent (see nomogram<sup>5</sup>)

^Bevacizumab can cause ovarian failure; possibly acute and transient only<sup>6</sup>

1. Green Pediatr Blood Cancer 2014;61(1):53-67
2. Van der Kaaij J Clin Oncol 2012;30(3):291-299
3. Solheim Gyne Oncol 2015;136(2):224-229
4. Van Den Berg Hum Reprod 2018; 33(8):1474-1488
5. Wallace Int J Radiat Oncol;62(3):738-744
6. Imai Molec Clin Oncol 2017;6:807-810

### Cyclophosphamide Equivalent Dose (CED)

Agent	Correction factor
Cyclophosphamide	1.0
Ifosfamide	0.244
Procarbazine	0.857
Chlorambucil	14.286
BCNU	15
CCNU	16
Melphalan	40
Thiotepa	50
Nitrogen Mustard	100
Busulphan	8.823

Green Pediatr Blood Ca 2014;61:53-67