

## High Risk Allogeneic HSCT: Myeloablative, GVHD, or TBI Pediatric Surveillance & Follow-up Guidelines

ATTACH PATIENT ID

	Months from end of therapy	Date	H&P	CBC, retics LDH	Chem	Chimerism	MRD*	Endo	LH, FSH, Test or Est	Immune	Viral screen*	Other labs	Urine tests	PFTs ##	GFR, ECHO	DEXA BMD	Physio & Dietician	Neuro-psych	Other	
Early Follow-Up Clinic	1		+	+	+	+	+				+									
	1.5		+	+	+						+									
	2		+	+	+						+			+						
	2.5		+	+	+						+									
	3		+	+	+	+	+			+	+	+	+	+			+			
	4		+	+	+															
	5		+	+	+															
	6		+	+	+	+	+	+	+	+	+			+	+	+				*1
	7		+	+	+															
	8		+	+	+															
	9		+	+	+			+			+									
	10		+	+	+															
	11		+	+	+															
12		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+ Ophtho + Dentistry + Audiology	
15		+	+	+																
18		+	+	+										+						
21		+	+	+																
	Notes				Lytes, Ca, Mg, PO4, Cr, urea, LFTs, glucose	Further chimerism testing >24mo if abN or clinical concerns	*if applicable	TSH, T4, Vit D, IGF-1, Non-fasting gluc & lipids	Baseline age 11 y if CED ≥4 or clinical concerns. Rpt Q1y	T&B cell panel, IgA, IgG, IgE, IgM	EBV, CMV, Adeno. HV6 only if haplo & CBT. EBV only after 3mo	RBC pit count, blood group, ferritin	U/A, urine Prot:Cr & Alb:Cr ratio	Spiro & MBW only. Refer to Resp if too young or sympt oms				Prior to school entry or if concerns	1. Attenuated vaccine at 6 mo if no active GVHD or ongoing immune suppression 2. sIL-2 at Dx of GVHD and 4-8wk later	

\* See alternate screening schedule if no Graft-vs-Host Disease  
# If patient on study, refer to study protocol for additional testing  
## Use "PED RESP Pulmonary Function Test module" CST powerplan.

<b>Further Surveillance</b>	
Dentistry	Annual
Gynecology	Annual from age 16 years or earlier if clinical concerns. Cervical cancer screening from age 21 y
Semen Analysis	From age 18y in males
Anti-Mullerian Hormone	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
Breast MRI and Mammogram	From later of age 25y or 8y after exposure if chest RT
Colonoscopy or stool testing	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. Wynn 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