



London and South East
Sarcoma Network

Follow-up Guidelines for Bone and Soft Tissue Sarcomas

File name	LSESN Follow-up Guidelines	Page	Page 1 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

1. Follow-up Guidelines for Soft Tissue Tumours[†]

Stage of disease		Disease monitoring			
1. Localised extremity post-surgery ± radiotherapy					
Benign tumours/atypical lipomatous tumours					
Year 1		- post-operative visit in first 6 weeks - supported discharge			
Low grade					
Year 1		- post-operative visit in first 6 weeks - 3 month clinical examination (to check function, if necessary) - 6 monthly clinical examination ¹ , CXR			
Year 2		- 6 monthly clinical examination, CXR			
Years 3+		- annual clinical examination, CXR			
Discharge at 10 years after surgery					
Intermediate and high grade					
Year 1		- post-operative visit in first 6 weeks - 3 - 4 monthly clinical examination, CXR - image prosthesis at 6 months and 1 year			
Year 2		- 3 - 4 monthly clinical examination, CXR - image prosthesis annually			
Years 3 – 4		- 6 monthly clinical examination, CXR - image prosthesis annually			
Years 5 – 10		- annual clinical examination, CXR - image prosthesis annually			
Discharge at 10 years after surgery unless:					
- Patient has had radiotherapy with toxicity that requires long term follow-up					
- Patient has a prosthesis <i>in situ</i> (follow-up evaluation by orthopaedic team)					
- Teenage and young adult patients (<25 years at diagnosis) - will require long term follow-up in a late effects service					
- Clinical trial patients on active follow-up					
2. Abdominal/retroperitoneal/gynaecological sarcomas post-surgery (excluding GIST)		<i>Comment:</i> Because of the uncertainty about the timing and benefits of intervention for recurrent disease, surgical or otherwise, in this group of sarcomas follow up can take two forms: radiologically directed follow-up, or clinically directed follow-up. The choice of follow-up protocol is a clinical decision between clinician and patient, taking into account biological factors of the particular histological sub-type.			
Radiologically directed follow-up					
Low grade					
Year 1		- post-operative visit in first 6 weeks - 3 - 6 monthly clinical examination - baseline CT chest/abdo/pelvis ² post surgery, then at 6 and 12 months			
Year 2		- 6 monthly clinical examination			
File name	LSESN Follow-up Guidelines	Page	Page 2 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

					- CT scan chest/abdo/pelvis ² at 18 and 24 months
Year 3+					- annual clinical examination - annual CT chest/abdo/pelvis ² to 10 years
Discharge at 10 years after surgery					
Intermediate and high grade**					
Year 1					- post-operative visit in first 6 weeks - 3 monthly clinical examination, CXR - baseline CT chest/abdo/pelvis ² post surgery, then at 6 and 12 months
Year 2					- 3 monthly clinical examination, CXR - CT scan chest/abdo/pelvis ² at 18 and 24 months
Years 3 – 4					- 6 monthly clinical examination and CXR - annual CT chest/abdo/pelvis ²
Years 5 – 10					- annual clinical examination and CXR - annual CT chest/abdo/pelvis ² year 5, then stop
Discharge at 10 years after surgery					
Clinically directed follow-up					
Follow up intervals as above, with evaluation for new abdominal symptoms and clinical examination. Scanning (CT chest/abdo/pelvis ²) is instituted for clinical suspicion of recurrence. Chest surveillance is performed at each visit by CXR.					
3. Head and neck sarcomas					
Year 1					- post-operative visit in first 6 weeks - 3 monthly clinical examination and CXR - post-treatment MRI of primary site at 3 months after completing treatment - surveillance MRI of primary site at 9 months
Year 2					- 3 monthly clinical examination and CXR - surveillance MRI of primary site at 15 and 21 months
Years 3 – 4					- 6 monthly clinical examination and CXR - surveillance MRI of primary site at 27 months - thereafter annual MRI of primary site
Years 5 – 10					- annual clinical examination and CXR
Discharge at 10 years after surgery					
4. Post pulmonary metastasectomy					
Year 1					- post-operative visit in first 6 weeks - 3 monthly clinical examination, CXR - baseline CT scan and CXR post surgery (within 3 months) - thereafter 6 monthly CT scans
Year 2					- 3 monthly clinical examination, CXR - CT scans at 18 and 24 months
Years 3 – 4					- 6 monthly clinical examination and CXR - continue CT scans at clinician's discretion if felt to be at high risk or recurrence
File name	LSESN Follow-up Guidelines	Page	Page 3 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

Years 5 – 10	- annual clinical examination and CXR
Discharge at 10 years after surgery	
5. Locally advanced or metastatic disease	
Year 1+	- 3 monthly clinical examination and CXR (or more frequently as clinically indicated) - imaging of disease sites as clinically appropriate at clinician's discretion (usually 3 monthly CT scan)

† **Patients treated within clinical trials should be followed up according to the trial protocol.**

¹ Routine imaging of primary site at clinician's discretion, if clinical detection of recurrence is anticipated to be difficult, e.g. deep tumours; large tumours; post-radiotherapy.

² Alternatives to CT chest abdomen and pelvis include:

- CT abdomen and pelvis, CXR
- MRI abdomen and pelvis, CXR
- Abdominal ultrasound scan, transvaginal ultrasound scan, CXR (for gynae sarcomas)

File name	LSESN Follow-up Guidelines	Page	Page 4 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

2. Follow-up guidelines for benign bone tumours (aneurysmal bone cyst, giant cell tumour), 'low' grade bone sarcomas (grade 1 - 3 chondrosarcoma, periosteal and parosteal osteosarcoma, chordoma

Stage of disease	Disease/late toxicity monitoring
1. Aneurysmal bone cyst, giant cell tumour	
Year 1	- post-operative visit in first 6 weeks - 3 - 6 monthly clinical examination, plain films of primary site
Years 2 - 3	- 6 monthly clinical examination, plain films of primary site
Discharge 3 years after surgery	
2. Grade 1 chondrosarcoma	
<i>Localised post primary treatment – curettage +/- cementation</i>	
Year 1	- post-operative visit in first 6 weeks - 3 - 6 monthly clinical examination, plain films of primary site ¹
Years 2 - 5	- 6 monthly clinical examination, plain films of primary site ¹
Discharge at 5 years from surgery	
<i>Localised post primary treatment – on observation only</i>	
Years 1 - 2	- interval MRI scans at 6 months and 18 months. If no change, and patient does not want curettage, discharge.
3. Grade 2 – 3 chondrosarcoma, periosteal and parosteal osteosarcoma	
<i>Localised post-resection</i>	
Years 1 - 2	- post-operative visit in first 6 weeks - 3 monthly clinical examination, plain films of primary site ¹ , CXR
Years 3 – 5	- 6 monthly clinical examination, plain films of primary site ¹ , CXR
Years 6 - 10	- annual clinical examination, plain films of primary site ¹ , CXR
Discharge at 10 years from surgery	
4. Chordoma	
<i>Localised post-resection +/- radiotherapy</i>	
Years 1 - 2	- post-operative visit in first 6 weeks - 3 – 6 monthly clinical examination, CXR - MRI of primary site at 6 months, 1 year, 2 years
Years 3 - 5	- 6 monthly clinical examination, CXR - MRI of primary site annually

File name	LSESN Follow-up Guidelines	Page	Page 5 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

Years 6 - 10	- annual clinical examination, CXR, MRI of primary site
Discharge at 10 years from surgery	

¹ Plain films not required after amputation

File name	LSESN Follow-up Guidelines	Page	Page 6 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

2. Follow-up Guidelines for high grade osteosarcoma/spindle cell sarcoma of bone/dedifferentiated chondrosarcoma[†]

Stage of disease		Disease/late toxicity monitoring			
1. Localised post primary treatment					
Year 1		<ul style="list-style-type: none"> - post-operative visit in first 6 weeks (if primary surgery) - 2 monthly clinical examination, CXR, plain films of primary site¹ - annual blood biochemistry (U&E, LFT, Ca, PO₄, Mg, HCO₃)² - end of year 1 - gonadal function (males: testosoterone, LH, FSH; females: oestradiol, LH, FSH)² 			
Year 2 - 3		<ul style="list-style-type: none"> - 3 monthly clinical examination and CXR, plain films of primary site¹ - annual blood biochemistry (U&E, LFT, Ca, PO₄, Mg, HCO₃)² - end of year 2 - MUGA or ECHO² 			
Year 4		<ul style="list-style-type: none"> - 6 monthly clinical examination and CXR, plain films of primary site¹ - annual blood biochemistry (U&E, LFT, Ca, PO₄, Mg, HCO₃)² - end of year 4 - MUGA or ECHO² 			
Year 5		<ul style="list-style-type: none"> - 6 monthly clinical examination and CXR, plain films of primary site¹ - annual blood biochemistry (U&E, LFT, Ca, PO₄, Mg, HCO₃)² 			
Years 6 - 10		<ul style="list-style-type: none"> - annual clinical examination and CXR, plain films of primary site¹ - annual blood biochemistry (U&E, LFT, Ca, PO₄, Mg, HCO₃)² - end of year 6 - MUGA or ECHO² 			
Discharge at 10 years after surgery, unless: <ul style="list-style-type: none"> - Patient has had radiotherapy with toxicity that requires long term follow-up - Patient has a prosthesis <i>in situ</i> (follow-up evaluation by orthopaedic team) - Teenage and young adult patients (<25 years at diagnosis) - will require long term follow-up in a late effects service - Clinical trial patients on active follow-up 					
2. Post pulmonary metastatectomy					
Year 1		<ul style="list-style-type: none"> - post-operative visit in first 6 weeks - 3 monthly clinical examination, CXR, plain films of primary site - baseline CT scan post surgery, thereafter 6 monthly 			
Year 2		<ul style="list-style-type: none"> - 3 monthly clinical examination, CXR, plain films of primary site - 6 monthly CT scan 			
Years 3 – 4		<ul style="list-style-type: none"> - 6 monthly clinical examination, CXR, plain films of primary site 			
Years 5 – 10		<ul style="list-style-type: none"> - annual clinical examination, CXR, plain films of primary site 			
File name	LSESN Follow-up Guidelines	Page	Page 7 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

Discharge at 10 years after surgery	
3. Relapsed metastatic disease	
Year 1+	- 2 - 3 monthly clinical examination and CXR - imaging of disease sites as clinically appropriate

† **Patients treated within clinical trials should be followed up according to the trial protocol.**

¹ Plain films not required after amputation

² Investigations to be carried out post-chemotherapy only

File name	LSESN Follow-up Guidelines	Page	Page 8 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

3. Follow-up Guidelines for Ewing's sarcoma/Rhabdomyosarcoma[†]

Stage of disease	Disease/late toxicity monitoring
1. Localised post primary treatment	
Year 1	<ul style="list-style-type: none"> - 2 monthly clinical examination, CXR, plain films of primary bony site¹ - soft tissue tumours – baseline end of treatment MRI/CT primary site, thereafter at clinician's discretion² - radiotherapy as definitive local treatment - baseline end of treatment MRI/CT of primary site, then at 6 and 12 months - end of year 1 - gonadal function (males: testosterone, LH, FSH; females: oestradiol, LH, FSH); renal function (Cr, Na, K, Ca, PO₄, HCO₃, tubular phosphate resorption)
Year 2 - 3	<ul style="list-style-type: none"> - 3 monthly clinical examination, CXR, plain films of bony primary site¹ - MRI of soft tissue primary site at clinician's discretion² - radiotherapy as definitive local treatment - MRI/CT of primary site at 18 and 24 months - MUGA/ECHO 2 years post diagnosis³ - Annual renal function (Cr, Na, K, Ca, PO₄, HCO₃, tubular phosphate resorption)
Year 4	<ul style="list-style-type: none"> - 6 monthly clinical examination, CXR, plain films of primary site¹ - MRI of soft tissue primary site at clinician's discretion² - MUGA/ECHO 4 years post diagnosis³ - Annual renal function (Cr, Na, K, Ca, PO₄, HCO₃, tubular phosphate resorption)
Year 5	<ul style="list-style-type: none"> - 6 monthly clinical examination, CXR, plain films of primary site¹ - Annual renal function (Cr, Na, K, Ca, PO₄, HCO₃, tubular phosphate resorption)
Years 6 - 10	<ul style="list-style-type: none"> - annual clinical examination, CXR, plain films of primary site¹ - MUGA/ECHO 6 years post diagnosis² - Annual renal function (Cr, Na, K, Ca, PO₄, HCO₃, tubular phosphate resorption)
Discharge at 10 years after surgery, unless: <ul style="list-style-type: none"> - Patient has had radiotherapy with toxicity that requires long term follow-up - Patient has a prosthesis <i>in situ</i> (follow-up evaluation by orthopaedic team) - Teenage and young adult patients (<25 years at diagnosis) - will require long term follow-up in a late effects service - Clinical trial patients on active follow-up 	
2. Relapsed metastatic disease	
Year 1+	<ul style="list-style-type: none"> - 2 - 3 monthly clinical examination and CXR - imaging of disease sites as clinically appropriate

File name	LSESN Follow-up Guidelines	Page	Page 9 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

† **Patients treated within clinical trials should be followed up according to the trial protocol.**

¹ Plain films of primary site not required after amputation

² If clinical detection of recurrence is anticipated to be difficult

³ Perform only for patients who have received doxorubicin

File name	LSESN Follow-up Guidelines	Page	Page 10 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG

4. Follow-up Guidelines for Gastrointestinal Stromal Tumours[†]

Stage of disease	Disease monitoring
1. Post-resection of localised disease	
Very low risk¹	
No follow-up required – discharge to primary care.	
Low risk¹	
Year 1	- CT abdo/pelvis ² +/- CXR ³ at 12 months post-surgery. Then discharge.
Intermediate risk¹	
Year 1	- baseline CT abdo/pelvis ² +/- CXR ³ post-surgery and 6 months later
Years 2 - 5	- annual CT abdo/pelvis ² +/- CXR ³
Discharge after 5 years after surgery	
High risk¹	
Years 1 - 2	- 3 monthly clinical examination and CT abdo/pelvis ² +/- CXR ³
Years 3 - 4	- 6 monthly clinical examination and CT abdo/pelvis ² +/- CXR ³
Years 5 -10	- annual clinical examination - annual CT abdo/pelvis ² +/- CXR ³ year 5, then stop
Discharge at 10 years after surgery	
Adjuvant imatinib	
Years 1 - 5	- 6 monthly clinical examination and CT abdo/pelvis ² +/- CXR ³
Years 6 - 10	- annual clinical examination and CT abdo/pelvis ² +/- CXR ³
Discharge at 10 years after surgery	
2. Post-resection of localised disease following neo-adjuvant imatinib	As for high risk resected patients (above)
Discharge at 10 years	
3. Metastatic disease	
Years 1 - 3	- 3 monthly clinic review and CT chest/abdo/pelvis ^{2,3,4}
Year 4 onwards	- 3 monthly clinic review - 6 monthly CT chest/abdo/pelvis ^{2,3,4}

[†] **Patients treated within clinical trials should be followed up according to the trial protocol.**

¹ Risk grouping as defined in: Miettinen M, Lasota J. Semin Diagn Pathol. 2006 May;23(2):70-83

² CT may be replaced by MRI at clinician's discretion

³ CXR may be replaced by CT chest for syndromic and paediatric GIST

⁴ CT chest may be replaced by CXR at clinician's discretion

File name	LSESN Follow-up Guidelines	Page	Page 11 of 11	Date	08.06.16
Version	2.0	Author	Beatrice Seddon	Authorised by	LSESN SAG