

# Long-Term Follow-Up Guidelines

*for Survivors of Childhood,  
Adolescent, and Young Adult  
Cancers*

## Appendix I Materials for Clinical Applications

**Version 4.0  
October 2013**

**CHILDREN'S  
ONCOLOGY  
GROUP**

The world's childhood  
cancer experts

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## Abbreviations

Abbreviation	Definition
AAP-CIDP	American Academy of Pediatrics Committee on Infectious Disease Prevention
ABR	Brainstem auditory evoked responses
AFP	Alpha fetoprotein
ACS	American Cancer Society
AHA	American Heart Association
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
<i>ATM</i>	Ataxia telangiectasia cancer susceptibility gene located on chromosome 11
AVN	Avascular necrosis
BAER	Brainstem auditory evoked responses
BCNU	Carmustine
BMD	Bone mineral density
BMI	Body mass index
<i>BRCA1</i>	Breast cancer, early onset gene (cancer susceptibility gene located on chromosome 17)
<i>BRCA2</i>	Breast cancer 2, early onset gene (cancer susceptibility gene located on chromosome 13)
BUN	Blood urea nitrogen
Ca	Calcium
CBC	Complete blood count
CCG	Children's Cancer Group
CCNU	Lomustine
CD-4	Cluster of differentiation antigen associated with helper T lymphocyte
CDC	Centers for Disease Control
cGVHD	Chronic graft versus host disease
Cl	Chloride
CNS	Central nervous system
CO <sub>2</sub>	Carbon dioxide
COG	Children's Oncology Group
CSF	Cerebral spinal fluid
CT	Computed tomography
CXR	Chest radiograph
DES	Diethylstilbestrol
DEXA	Dual energy x-ray absorptiometry
DLCO	Diffusion capacity of carbon monoxide
DOE	Dyspnea on exertion
EBMT	European Group for Blood and Marrow Transplant
ECHO	Echocardiogram
EKG	Electrocardiogram
EIA	Enzyme immunoassay
FAP	Familial adenomatous polyposis
FNA	Fine needle aspirate
FSH	Follicle stimulating hormone
GH	Growth hormone
GVHD	Graft versus host disease

## Abbreviations (cont)

Abbreviation	Definition
Gy	Gray
HBcAb	Hepatitis B core antibody
HBsAg	Hepatitis B surface antigen
HCT	Hematopoietic cell transplant
HCV	Hepatitis C virus
HDL	High-density lipoproteins
HIB	Haemophilus influenza B
HIV	Human immunodeficiency virus
HNPCC	Hereditary nonpolyposis colorectal cancer
HPF	High power field
HPV	Human papilloma virus
HRT	Hormonal replacement therapy
Hz	Hertz
IBD	Inflammatory bowel disease
K	Potassium
I-131	Iodine 131 radioisotope
IQ	Intelligence quotient
IT	Intrathecal
IV	Intravenous
IVIG	Intravenous immunoglobulin
KUB	Kidneys, ureters, bladder radiograph
LH	Luteinizing hormone
MIBG	Iodine-131-meta-iodobenzylguanidine
Mg	Magnesium
MOPP	Mechlorethamine, Oncovin, Procarbazine, Prednisone
MRI	Magnetic resonance imaging
MUGA	Multiple Gated Acquisition scan
Na	Sodium
NCEP	National Cholesterol Education Program
NCHS	National Center for Health Statistics
<i>NF1</i>	Neurofibromin 1 (neurofibromatosis) cancer susceptibility gene located on chromosome 17
NSAIDs	Non-steroidal anti-inflammatory drugs
OAE	Otoacoustic emissions
OCP	Oral contraceptive pills
PAP	Papanicoulau
PCR	Polymerase chain reaction
PFT <sub>s</sub>	Pulmonary function tests
<i>p53</i>	Cancer susceptibility gene located on chromosome 17 associated with familial cancers
PO	By mouth
PO <sub>4</sub>	Phosphate
PRN	As needed
PSA	Prostate specific antigen
QCT	Quantitative computed tomography

## Abbreviations (cont)


Abbreviation	Definition
QTc	Corrected QT interval
<i>RB1</i>	Retinoblastoma gene – cancer susceptibility gene located on chromosome 13
RBC	Red blood cell
RDA	Recommended daily allowance
RUQ	Right upper quadrant
SCUBA	Self-contained underwater breathing apparatus
SD	Standard deviation
SOB	Shortness of breath
T <sub>4</sub>	Thyroxine
TBI	Total body irradiation
TPN	Total parenteral nutrition
TSH	Thyroid stimulating hormone
U/A	Urinalysis
USPSTF	United States Preventive Services Task Force
VOD	Veno-occlusive disease
VZIG	Varicella zoster immunoglobulin



## Chemotherapy Agents

Generic Name	Additional Name(s)	Classification
Asparaginase	Elspar® Erwinia asparaginase Kidrolase® L-asparaginase Oncaspar® PEG-asparaginase	Enzyme
Bleomycin	Blenoxane®	Anti-tumor antibiotic
Busulfan	Busulfex® Busulphan Myleran®	Alkylating agent
Carboplatin	CBDCA Paraplatin®	Heavy metal
Carmustine	BCNU BiCNU®	Alkylating agent
Chlorambucil	Leukeran®	Alkylating agent
Cisplatin	CDDP Cisplatinum Platinol®	Heavy metal
Cyclophosphamide	CPM Cytosan® Neosar® Procytox®	Alkylating agent
Cytarabine	Ara-C Cytosar® Cytosar-U® Cytosine arabinoside	Antimetabolite
Dacarbazine	DTIC DTIC-Dome®	Non-classical alkylator
Dactinomycin	Actinomycin-D Cosmegen®	Anti-tumor antibiotic
Daunorubicin	Cerubidine® Daunomycin DaunoXome®	Anthracycline antibiotic
Dexamethasone	Decadron®	Corticosteroid
Doxorubicin	Adriamycin® Doxil® Rubex®	Anthracycline antibiotic
Epirubicin	Ellence® Pharmorubicin PFS®	Anthracycline antibiotic
Etoposide	VePesid® VP-16	Epipodophyllotoxin
Idarubicin	Idamycin®	Anthracycline antibiotic
Ifosfamide	Ifex®	Alkylating agent
Lomustine	CeeNU® CCNU	Alkylating agent
Mechlorethamine	Mustargen® Nitrogen Mustard	Alkylating agent
Melphalan	Alkeran®	Alkylating agent

Generic Name	Additional Name(s)	Classification
Mercaptopurine	6-Mercaptopurine 6-MP Purinethol®	Antimetabolite
Methodexate	Amethopterin Folex® Mexate® Trexall®	Antimetabolite
Mitoxantrone	Novantrone®	Anthracycline antibiotic
Prednisone	Deltasone® Methylprednisolone Prednisolone	Corticosteroid
Procarbazine	Matulane® Natulan®	Alkylating agent
Temozolomide	Temodal® Temodar®	Non-classical alkylator
Teniposide	VM-26 Vumon®	Epipodophyllotoxin
Thioguanine	Lanvis® Tabloid® 6-Thioguanine 6-TG	Antimetabolite
Thiotepa	Thioplex®	Alkylating agent
Vinblastine	VBL Velban® Velbe®	Plant alkaloid
Vincristine	Oncovin® VCR Vincasar® Vincrex®	Plant alkaloid



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## Summary of Cancer Treatment

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# Summary of Cancer Treatment – Instructions

## Importance of a Comprehensive Cancer Treatment Summary

The *Children's Oncology Group Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers* are based on therapeutic exposures received during cancer treatment. Availability of a comprehensive treatment summary, including all therapeutic agents received by the survivor, is presumed. Patients who do not have a comprehensive treatment summary should be instructed to obtain one from the institution(s) where they received their treatment. Ideally, the comprehensive treatment summary should include the following information:

- Demographics (name, sex, date of birth, contact information)
- Diagnosis, including site/stage, date, and relapse(s) if any
- Pertinent secondary diagnoses (e.g., second malignancy, Down syndrome)
- Treatment protocol information, if applicable
- All chemotherapy agents received during treatment (including route of administration for all agents, cumulative doses for alkylators, bleomycin, and anthracyclines, and designation of “high dose” versus “standard dose” for methotrexate and cytarabine). Cumulative doses for all other agents should be provided if available. **Note:** “High dose” methotrexate/cytarabine is defined as any single dose  $\geq 1000$  mg/m<sup>2</sup>. “Standard dose” methotrexate/cytarabine is defined as all single doses  $< 1000$  mg/m<sup>2</sup>. See Section 33 (male) or 34 (female) of Guidelines for anthracycline isotoxic dose-equivalent conversion. For doses in mg/kg, multiply by 30 to obtain equivalent dosing in mg/m<sup>2</sup> (example: 2 mg/kg = 60 mg/m<sup>2</sup>).
- Radiation therapy summary, including field(s), laterality (if applicable), start/stop dates, number of fractions, dose per fraction, boost dose/location (if applicable), total dose (in Gy), and radiation type. **Note:** To convert cGy or rads to Gy, divide dose by 100 (example: 2400 cGy = 2400 rads = 24 Gy); for definition of radiation fields, see page 3 of the Radiation Reference Guide (Appendix 1)
- Hematopoietic cell transplant(s), including type(s), date(s), conditioning regimen(s), and GVHD prophylaxis and/or treatment
- Surgical procedures, including date, site, and laterality if applicable
- Other therapeutic modalities (e.g., biologicals, systemic radiation)
- Significant complications/late effects with dates of onset/resolution
- Adverse drug reactions/allergies

## Minimum Information Necessary to Generate Patient-Specific Guidelines:

In order to generate accurate exposure-based follow-up recommendations from these guidelines, the following information regarding the survivor's diagnosis and treatment is required, **at minimum**:

- Survivor's sex
- Survivor's date of birth
- Date of cancer diagnosis
- Date cancer therapy was completed
- Names of all chemotherapy agents received. **Note:** For a list of chemotherapy agents addressed by these guidelines (Sections 10–43), see the “Chemotherapy” portion of the Patient-Specific Guideline Identification Tool in Appendix 1. For generic and brand names of chemotherapy agents, see Chemotherapy Agents in Appendix 7.
- Cumulative dose of all anthracycline chemotherapy received (i.e., doxorubicin, daunorubicin, idarubicin, mitoxantrone and epirubicin), and age at first anthracycline dose (if unknown, age at first anthracycline dose is presumed to be age at diagnosis). **Note:** For anthracycline isotoxic dose-equivalent conversion, see Sections 33 (male) or 34 (female) of Guidelines. For doses in mg/kg, multiply by 30 to obtain equivalent dosing in mg/m<sup>2</sup> (example: 2 mg/kg = 60 mg/m<sup>2</sup>).
- For carboplatin:
  - Whether any dose was myeloablative (i.e., given as conditioning for HCT).
  - Whether survivor was  $<$  age 1 at time of diagnosis
- For cytarabine and methotrexate:
  - Route of administration (i.e., IV, IM, SQ, PO, IT, IO)
  - If IV: Designation of “high dose” (any single dose  $\geq 1000$  mg/m<sup>2</sup>) versus “standard dose” (all single doses  $< 1000$  mg/m<sup>2</sup>)

## Summary of Cancer Treatment – Instructions (cont)

- All radiation field(s) and total radiation dose (in Gy) to each field. For chest, thoracic spine, and abdominal radiation, include age at first dose; if unknown, age at first dose is presumed to be age at diagnosis. Note: Total radiation dose to each field should include boost dose, if given. To convert cGy or rads to Gy, divide dose by 100 (example: 2400 cGy = 2400 rads = 24 Gy). For list of radiation fields addressed by these guidelines (Sections 44–102), see “Radiation” portion of the Patient-Specific Guideline Identification Tool in Appendix 1; for definition of radiation fields, see page 3 of the Radiation Reference Guide (Appendix 1)
- Whether or not the survivor underwent a hematopoietic cell transplant (HCT), and if so, whether or not the survivor developed chronic graft-versus-host disease (cGVHD).
- Names of all relevant surgical procedures. **Note:** For list of surgical procedures addressed by these guidelines (Sections 120–152), see “Surgery” portion of the *Patient-Specific Guideline Identification Tool* in Appendix 1.
- Names of all other therapeutic modalities. **Note:** For list of other therapeutic modalities addressed by these guidelines (Sections 153–156), see “Other Therapeutic Modality” portion of the *Patient-Specific Guideline Identification Tool* in Appendix 1.

### Templates for Summary of Cancer Treatment

Two templates for summarizing cancer treatment are included in Appendix I (and also available in electronic format at [www.survivorshipguidelines.org](http://www.survivorshipguidelines.org)). These templates were originally developed by the COG Nursing Clinical Practice Subcommittee under the leadership of Lisa Bashore, MS, RN, CPNP, CPON<sup>®</sup> and Lori Boucher, RN, CRA. The templates were subsequently pilot tested and revised, then further refined based on feedback from the Late Effects Committee and a working group from the National Cancer Institute. The abbreviated form contains all data elements currently necessary for generation of patient-specific recommendations from the COG LTFU Guidelines, and meets the minimum data requirements for initial use of the “Passport for Care” web-based guideline interface. However, the COG Long-Term Follow-Up Guidelines Core Committee recognizes that as new evidence becomes available and these guidelines are updated, additional details regarding the childhood cancer survivor’s therapeutic exposures may be required in order to generate comprehensive recommendations. Therefore, we strongly advise that a **comprehensive** treatment summary be prepared for each childhood cancer survivor when feasible, including a record of **all** therapeutic exposures with applicable dates, details of administration, and cumulative doses of all agents, including those not currently addressed by these guidelines.

In addition to the treatment summary templates, a “key” for completing the comprehensive version of the treatment summary is also included in Appendix I. This “key” correlates to the drop-down menus that will be available in the web-based “Passport for Care” guideline interface.

## Summary of Cancer Treatment (Abbreviated)

Demographics		
Name:	Sex:	Date of Birth:
Cancer Diagnosis		
Diagnosis:	Date of Diagnosis:	Date Therapy Completed:
Chemotherapy: <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>		
Drug Name	Additional Information <sup>†</sup>	
<sup>†</sup> <b>Anthracyclines:</b> Include cumulative dose in mg/m <sup>2</sup> and age at first dose (see section 33 or 34 of Guidelines for isotoxic dose conversion); <b>Carboplatin:</b> Indicate if dose was myeloablative and if patient was diagnosed at less than 1 year of age; <b>Methotrexate and Cytarabine:</b> Indicate route of administration (i.e., IV, IM, SQ, PO, IT, IO); <b>IV Methotrexate and Cytarabine:</b> Indicate if "high dose" (any single dose ≥ 1000 mg/m <sup>2</sup> ) or "standard dose" (all single doses < 1000 mg/m <sup>2</sup> ) <b>Note:</b> Cumulative doses, if known, should be recorded for all agents, particularly for alkylators and bleomycin.		
Radiation: <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>		
Site/Field*	Total Dose** (Gy)***	
*For chest, thoracic spine, and upper abdominal radiation, include age at first dose **Total dose to each field should include boost dose, if given ***Note: To convert cGy or rads to Gy, divide dose by 100 (example: 2400 cGy = 2400 rads = 24 Gy)		
Hematopoietic Cell Transplant <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, answer question below</i>		
Was this patient ever diagnosed with chronic graft-versus-host disease (cGVHD)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Surgery <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>		
Procedure	Site (if applicable)	Laterality (if applicable)
Other Therapeutic Modalities <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, answer questions below</i>		
Did this patient receive radioiodine therapy (I-131 thyroid ablation)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Did this patient receive systemic MIBG (in therapeutic doses)? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Did this patient receive bioimmunotherapy? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Summary prepared by:		Date prepared:

## Summary of Cancer Treatment (Comprehensive)

Demographics			
Name: (last, first, middle)	Sex: <input type="checkbox"/> M <input type="checkbox"/> F	Date of Birth:	COG Reg #:
Address: (number, street, city, state/province, postal code, country)			
Phone:	SS#	Race/Ethnicity: (see list #1)	
Alternate contact:	Relationship:	Phone:	

Cancer Diagnosis			
Diagnosis: (see list #2)			
Date of diagnosis:	Age at diagnosis:	Date therapy completed:	
Sites involved/stage/diagnostic details:		Laterality: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> NA	
Hereditary/congenital history: (see list #3)			
Pertinent past medical history:			
Treatment center:		Medical record #:	
MD/APN contact information:			
Relapse(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide information below</i>			
Date:	Site(s):	Laterality: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> NA	Date therapy completed:
Subsequent malignant neoplasm(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide information below</i>			
Date:	Type: (see list #4)		
Stage/Site(s):		Date therapy completed:	

Cancer Treatment Summary				
Protocol(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide information below</i>				
Acronym/Number	Title/Description	Initiated	Completed	On-Study

Chemotherapy <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide information below</i>		
Drug Name	Route	Additional Information <sup>†</sup>
(see list # 5)	(see list #6)	(see list #7)

<sup>†</sup>**Anthracyclines:** Include cumulative dose in mg/m<sup>2</sup> and age at first dose (see section 28 of Guidelines for isotoxic dose conversion);  
**Carboplatin:** Indicate if dose was myeloablative and if patient was diagnosed at less than 1 year of age;  
**IV Methotrexate and Cytarabine:** Indicate if "high dose" (any single dose ≥ 1000 mg/m<sup>2</sup>) or "standard dose" (all single doses < 1000 mg/m<sup>2</sup>);  
**Note:** Cumulative doses, if known, should be recorded for all agents, particularly for alkylators and bleomycin.

## Summary of Cancer Treatment (Comprehensive) (cont)

Radiation <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>										
Site/Field	Laterality	Start Date	Stop Date	Fractions	Dose per Fraction (Gy)*	Initial Dose (Gy)*	Boost Site	Boost Dose (Gy)*	Total Dose (including boost) (Gy)*	Type
(see list #8)							(see list #9)			(see list #10)
Radiation oncologist:						Institution:				
*Note: To convert cGy or rads to Gy, divide dose by 100 (example: 2400 cGy = 2400 rads = 24 Gy)										

Hematopoietic Cell Transplant <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>				
Type	Source	Date of Infusion	Conditioning Regimen	Institution/Treating MD
(see list #11)	(see list #12)		(see list #13)	
Tandem? Yes No				
GVHD prophylaxis/treatment (For transplant patients only) <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>				
Type	First Dose	Last Dose		
(see list #14)				
Was this patient ever diagnosed with chronic graft-versus-host disease (cGVHD)? <input type="checkbox"/> Yes <input type="checkbox"/> No				

Surgery <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>				
Date	Procedure	Site (if applicable)	Laterality (if applicable)	Surgeon/Institution
	(see list #15)			

Other Therapeutic Modalities <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>		
Therapy	Route	Cumulative Dose (if known)
(see list # 16)	(see list #6)	(see list #7)

Complications/Late Effects <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>			
Problem	Date onset	Date resolved	Status
(see list #17)			<input type="checkbox"/> Active <input type="checkbox"/> Resolved
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved

Adverse Drug Reactions/Allergies <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, complete chart below</i>			
Drug	Reaction	Date	Status
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved
			<input type="checkbox"/> Active <input type="checkbox"/> Resolved

Additional Information/Comments <input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, provide information below</i>	

Summary prepared by: (name/title/institution)	Date prepared:
Summary updated by: (name/title/institution)	Date updated:

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version)

#1: Race/Ethnicity
Asian
Black/African American
Caucasian (non-Hispanic/non-Latino)
Hispanic or Latino
Native American/Alaskan Native
Native Hawaiian/Pacific Islander
Multi-racial/multi-ethnic
Other (specify):
#2: Cancer Diagnosis
Central Nervous System Tumor
Astrocytoma
Cerebellar astrocytoma
Supratentorial astrocytoma
Brainstem glioma
Choroid plexus neoplasm
Craniopharyngioma
Ependymoma
Germ cell tumor, intracranial
Optic glioma
Pineal tumor
PNET
Cerebellar (medulloblastoma)
Supratentorial PNET
Spinal cord tumor, intramedullary
CNS tumor, other, specify:
Endocrine tumor
Adrenal tumor (non-neuroblastoma)
Thyroid tumor
Parathyroid tumor
Gastroenteropancreatic tumor
Multiple endocrine neoplasia syndrome
Endocrine tumor, other, specify:
Germ cell tumor (extracranial)
Seminoma
Germinoma
Dysgerminoma
Non-seminomas
Yolk sac tumor
Embryonal carcinoma
Choriocarcinoma

#2: Cancer Diagnosis (cont)
Germ cell tumor (extracranial) (cont)
Teratoma
Mature
Immature
With malignant transformation
Germ cell tumor, other, specify:
Langerhans cell histiocytosis
Leukemia
Acute lymphoblastic leukemia
Acute myeloid leukemia
Chronic myeloid leukemia
Myelodysplastic syndrome
Myeloproliferative disorder
Leukemia, other, specify:
Liver tumor
Hepatoblastoma
Hepatocellular carcinoma
Liver tumor, other, specify:
Lymphoma
Hodgkin lymphoma
Non-Hodgkin lymphoma
Lymphoblastic lymphoma
Burkitt's lymphoma
Large cell lymphoma
Anaplastic large cell lymphoma
Diffuse large B-cell lymphoma
Lymphoma, other, specify:
Nasopharyngeal carcinoma
Neuroblastoma
Ganglioneuroblastoma
Renal tumor
Wilms tumor
Clear cell sarcoma
Renal cell carcinoma
Renal tumor, other:
Retinoblastoma
Sarcoma
Ewing's sarcoma/peripheral PNET
Osteogenic sarcoma
Rhabdomyosarcoma



## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#2: Cancer Diagnosis (cont)
<b>Sarcoma (cont)</b>
Soft tissue sarcoma (nonrhabdomyosarcomatous)
Alveolar soft part sarcoma
Fibrosarcoma
Leiomyosarcoma
Liposarcoma
Malignant fibrous histiocytoma
Malignant peripheral nerve sheath tumor
Neurofibrosarcoma
Synovial sarcoma
Undifferentiated sarcoma
Sarcoma, other, specify:
<b>Skin cancer</b>
Basal cell carcinoma
Malignant melanoma
Squamous cell carcinoma
Skin cancer, other, specify:
<b>Malignancy, other, specify:</b>
<b>Diagnosis, other, specify:</b>
<b>#3: Hereditary/Congenital History</b>
Congenital heart disease
Congenital disease, other, specify:
Hemihypertrophy
Neurofibromatosis, specify: Type I, Type II
Down syndrome
Syndrome, other, specify:
Hereditary condition, other, specify:
None
Unknown
<b>#4: Subsequent Malignancy Diagnosis</b>
<b>Bladder cancer</b>
<b>Breast cancer</b>
<b>Central nervous system tumor</b>
Malignant, specify type and location:
Meningioma, specify location:
Other CNS tumor, specify type:
<b>Cervical cancer</b>
<b>Gastrointestinal cancer</b>
Esophageal cancer
Stomach cancer
Colorectal cancer
Hepatocellular carcinoma

#4 Subsequent Malignancy Diagnosis (cont)
<b>Gastrointestinal cancer (cont)</b>
Pancreatic cancer
Other GI cancer, specify:
<b>Leukemia</b>
Acute lymphoblastic leukemia
Acute myeloid leukemia
Chronic myeloid leukemia
Myelodysplastic syndrome
Myeloproliferative disorder
Leukemia, other, specify:
<b>Lung cancer</b>
<b>Lymphoma</b>
Hodgkin lymphoma
Non-Hodgkin lymphoma
Lymphoblastic lymphoma
Burkitt's lymphoma
Large cell lymphoma
Post-transplant lymphoproliferative disorder (PTLD)
Lymphoma, other, specify:
<b>Peripheral nerve sheath tumor/Schwannoma/Acoustic neuroma</b>
<b>Renal cancer</b>
Renal cell carcinoma
Clear cell sarcoma
Other renal cancer, specify:
<b>Sarcoma</b>
Ewing's sarcoma/peripheral PNET
Osteogenic sarcoma
Rhabdomyosarcoma
Soft tissue sarcoma (nonrhabdomyosarcomatous)
Undifferentiated sarcoma
Other sarcoma, specify:
<b>Skin cancer</b>
Basal cell carcinoma
Malignant melanoma
Squamous cell carcinoma
<b>Thyroid cancer</b>
<b>Other malignancy, specify:</b>
<b>None</b>
<b>Unknown</b>

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#5: Chemotherapy
Asparaginase
Bleomycin
Busulfan
Carboplatin Myeloablative dose? <input type="checkbox"/> Yes <input type="checkbox"/> No Diagnosed at less than 1 year of age? <input type="checkbox"/> Yes <input type="checkbox"/> No
Carmustine (BCNU)
Chlorambucil
Cisplatin
Cladribine
Clofarabine
Cyclophosphamide
Cytarabine If IV: Any single dose $\geq 1000$ mg/m <sup>2</sup> ? <input type="checkbox"/> Yes <input type="checkbox"/> No
Dacarbazine (DTIC)
Dactinomycin
Daunorubicin
Dexamethasone
Docetaxel
Doxorubicin
Epirubicin
Etoposide (VP-16)
Fludarabine
Fluorouracil
Gemcitabine
Hydrocortisone
Hydroxyurea
Idarubicin
Ifosfamide
Imatinib Mesylate
Irinotecan
Lomustine (CCNU)
Mechlorethamine
Melphalan
Mercaptopurine
Methotrexate If IV: Any single dose $\geq 1000$ mg/m <sup>2</sup> ? <input type="checkbox"/> Yes <input type="checkbox"/> No
Mitoxantrone
Oxaliplatin
Paclitaxel
Prednisone
Procarbazine

#5: Chemotherapy (cont)
Temozolomide
Teniposide (VM-26)
Thioguanine (6-TG)
Thiotepa
Topotecan
Trimetrexate
Vinorelbine
Vinblastine
Vincristine
Other, specify:
None
Unknown
#6: Route
PO
IM
IV
SQ
IT
IO
Other, specify:
Unknown
#7: Cumulative Dose (Note: this is a required field for anthracyclines and optional but suggested for all others)
mg/m <sup>2</sup>
units/m <sup>2</sup>
mg/kg (Note: computer will multiply mg by 30 and display as mg/m <sup>2</sup> )
Not available
Not applicable
Other, specify:
Unknown
#8: Radiation Site/Field
Head/brain
Cranial
Orbital/eye, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Ear/infratemporal, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Nasopharyngeal
Oropharyngeal
Waldeyer's ring
Other head/brain radiation, specify:
Neck
Cervical (neck), specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Supraclavicular, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#8: Radiation Site/Field (cont)
<b>Spine</b>
Spine – cervical
Spine – thoracic
Spine – lumbar
Spine – sacral
Spine – whole
<b>Axilla, specify: Right, left, bilateral</b>
<b>Thorax</b>
Chest (thorax)
Whole lung, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Mediastinal
Chest, other, specify:
<b>Abdomen</b>
Hepatic
Renal, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Upper quadrant, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Spleen, specify: partial, entire
Paraaortic Flank/hemiabdomen, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left; specify: Extended below iliac crest: <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Pelvis</b>
Pelvic
Vaginal
Prostate
Bladder
Iliac
Inguinal
Femoral
<b>Testicular, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral</b>
<b>Extremity</b>
Upper, specify: Right, left, bilateral; specify: proximal, distal, entire
Lower, specify: Right, left, bilateral; specify: proximal, distal, entire
Total Body Irradiation (TBI)
Combination Fields:
Mantle
Mini-mantle
Extended mantle
Inverted Y
Whole abdomen
Total lymphoid irradiation (TLI)
Subtotal lymphoid irradiation (STLI)

#8: Radiation Site/Field (cont)
<b>Other, specify:</b>
<b>None</b>
<b>Unknown</b>
<b>Add comment:</b>
<b>#9: Radiation Boost</b>
Tumor bed, specify location:
Other location, specify:
None
Unknown
Add comment:
<b>#10: Radiation Type</b>
Brachytherapy
Conformal
External beam (conventional)
IMRT
Proton beam
Stereotactic
Other, specify:
None
Unknown
<b>#11: Hematopoietic Cell Transplant – Type</b>
Autologous
Matched related
Mismatched related
Haploidentical related
Syngeneic
Matched unrelated
Other, specify:
Unknown
<b>#12: Hematopoietic Cell Transplant – Source</b>
Bone marrow
Peripheral blood stem cells
Cord blood
Other, specify:
Unknown
<b>#13: Hematopoietic Cell Transplant – Conditioning Regimen</b>
ATG
Busulfan
Carmustine (BCNU)
Cyclophosphamide
Etoposide

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#13: Hematopoietic Cell Transplant – Conditioning Regimen (cont)
Fludarabine
Melphalan
Thiotepa
TBI
Other, specify:
Unknown
#14: GVHD Prophylaxis/Treatment
ATG
Cyclosporine
Methotrexate
MMF (mycophenolate mofetil)
Prednisone
PUVA
Sirolimus
Tacrolimus
Other, specify:
None
Unknown
#15: Surgery
Amputation, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral; specify site:
Central venous catheter
Cystectomy
Enucleation, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Hysterectomy
Laparotomy
Limb sparing procedure, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral; specify site:
Nephrectomy, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Neurosurgery – brain
Neurosurgery – spinal cord
Oophoropexy
Oophorectomy, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Orchiectomy, specify: <input type="checkbox"/> Right <input type="checkbox"/> Left <input type="checkbox"/> Bilateral
Pelvic surgery
Thoracic surgery*
Splenectomy
Thyroidectomy
Other, specify:
None
Unknown
Add comment:
*Thoracic surgery includes: thoracotomy, chest wall surgery, rib resection, pulmonary lobectomy, pulmonary metastasectomy, and pulmonary wedge resection

#16: Other Therapeutic Modalities
Systemic Radiation
Radioiodine therapy (I-131 thyroid ablation)
Systemic MIBG (in therapeutic doses)
Other, specify:
Bioimmunotherapy
Hematopoietic growth factors:
G-CSF
Erythropoietin
Thrombopoietin
Bioimmunotherapy (cont)
Interferon:
Alpha interferon
Gamma interferon
Interleukin:
IL-2
IL-11
Other, specify:
Monoclonal antibody, specify type:
Retinoic acid, specify type:
Other, specify:
Other therapeutic modality, specify:
None
Unknown
#17: Complications/Late Effects (by system)
Psychosocial
Behavioral problems/behavioral change
Educational problems
Under-/Unemployment
Dysfunctional marital relationship
Dependent living
Fatigue
Limitations in healthcare access and/or insurance
Psychosocial disability due to pain
Anxiety
Depression
Suicidal ideation
Post-traumatic stress
Psychosocial disability due to pain
Social withdrawal

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#17: Complications/Late Effects (by system) (cont)
<b>Psychosocial (cont)</b>
Risky behaviors
Tobacco use
Alcohol abuse
Substance abuse
Other, specify:
Psychosocial maladjustment
Impaired quality of life
Psychosocial complication, other, specify:
<b>Ocular</b>
Cataract
Enophthalmos
Orbital hypoplasia
Glaucoma
Keratitis
Xerophthalmia (keratoconjunctivitis sicca)
Lacrimal duct atrophy
Optic chiasm neuropathy
Retinopathy
Telangiectasia
Maculopathy
Papillopathy
Chronic painful eye
Visual impairment (uncorrectable)
Ocular nerve palsy
Gaze paresis
Nystagmus
Papilledema
Optic atrophy
Ocular complication, other, specify:
<b>Auditory</b>
Eustachian tube dysfunction
Hearing loss (requires hearing aids? <input type="checkbox"/> Yes <input type="checkbox"/> No
Specify type: <input type="checkbox"/> Sensorineural hearing loss <input type="checkbox"/> Conductive hearing loss
Otosclerosis
Tinnitus
Tympanosclerosis
Vertigo
Auditory complication, other, specify:

#17: Complications/Late Effects (by system) (cont)
<b>Dental</b>
Dental abnormalities
Enamel dysplasia
Root thinning/shortening
Tooth/root agenesis
Microdontia
Periodontal disease
Tooth decay
Malocclusion
Xerostomia (salivary gland dysfunction)
Osteoradionecrosis
Temporomandibular joint dysfunction
Dental complication, other, specify:
<b>Cardiovascular</b>
Arrhythmia
Atherosclerotic heart disease
Cardiomyopathy
Congestive heart failure
Myocardial infarction
Pericardial fibrosis
Pericarditis
Subclinical left ventricular dysfunction
Valvular disease
Carotid artery disease
Subclavian artery disease
Thrombosis/vascular insufficiency (related to central line)
Vasospastic attacks (Raynaud's phenomenon)
Cardiovascular complication, other, specify:
<b>Pulmonary</b>
Bronchiolitis obliterans
Interstitial pneumonitis
Pulmonary fibrosis
Pulmonary dysfunction
Acute respiratory distress syndrome (ARDS)
Obstructive lung disease
Restrictive lung disease
Chronic bronchitis
Bronchiectasis
Pulmonary complication, other, specify:
<b>Gastrointestinal/Hepatic</b>
Abdominal adhesions
Bowel obstruction

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#17: Complications/Late Effects (by system) (cont)
<b>Gastrointestinal/Hepatic (cont)</b>
Bowel strictures
Fecal incontinence
Cholelithiasis
Cholecystitis
Chronic enterocolitis
Esophageal stricture
Fistula
Malabsorption
Nutritional deficiency
Vitamin B12, folate or carotene deficiency
Cirrhosis
Hepatic fibrosis
Hepatic dysfunction
Chronic hepatitis (non-infectious)
Iron overload
Venocclusive disease (VOD) of the liver
Focal nodular hyperplasia
Gastrointestinal/hepatic complication, other, specify:
<b>Endocrine/Metabolic</b>
Hypothyroidism
Primary hypothyroidism (thyroid gland failure)
Secondary (central) hypothyroidism (TR/TSH deficiency)
Hyperthyroidism
Thyroid nodule
Precocious puberty
Gonadal dysfunction/failure
Gonadotropin deficiency (LH/FSH deficiency) [central gonadal failure]
Gonadal dysfunction – testicular: See Reproductive (male)
Gonadal dysfunction – ovarian: See Reproductive (female)
Metabolic syndrome
Overweight (Age 2–20 yrs: BMI for age $\geq 85$ – $<95$ %ile; Age $> 20$ yrs: BMI 25 to 29.9)
Obesity (Age 2–20 yrs: BMI for age $\geq 95$ %ile; Age $> 20$ yrs, BMI $\geq 30$ )
Underweight (FTT)
Insulin resistance
Impaired glucose tolerance
Diabetes mellitus
Type I
Type II
Gestational
Dyslipidemia

#17: Complications/Late Effects (by system) (cont)
<b>Endocrine/Metabolic (cont)</b>
Adrenal insufficiency
Primary adrenal insufficiency (adrenal gland failure)
Secondary (central) adrenal insufficiency (ACTH deficiency)
Hyperprolactinemia
Growth deceleration
Growth hormone deficiency
Short stature ( $< 5^{\text{th}}$ percentile)
Endocrine/metabolic complication, other, specify:
<b>Musculoskeletal</b>
Amputation, specify type and site:
Osteonecrosis (avascular necrosis – AVN), specify site:
Craniofacial abnormalities
Impaired cosmesis
Contractures
Functional and activity limitation, specify:
Hypoplasia, specify site:
Kyphosis
Limb length discrepancy
Limb salvage, specify type and site:
Phantom pain
Prosthesis, malfunction (poor fit, loosening, non-union, fracture)
Prosthesis, revision required due to growth
Reduced bone mineral density
Residual limb integrity problems
Fracture (radiation-induced)
Increased energy expenditure (related to amputation/limb salvage)
Fibrosis (musculoskeletal)
Scoliosis
Short stature
Shortened trunk height
Reduced/uneven growth
Musculoskeletal complication, other, specify:
<b>Central Nervous System (CNS)</b>
Clinical leukoencephalopathy
With imaging abnormalities
Without imaging abnormalities
Learning disorder/disability
Math
Reading
Other, specify:
Motor deficit



## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#17: Complications/Late Effects (by system) (cont)
<b>Central Nervous System (CNS) (cont)</b>
Neurocognitive deficit, specify:
Diminished IQ
Executive function (planning/organization)
Sustained attention
Memory
Processing speed
Visual-motor integration
Fine motor dexterity
Language
Moyamoya
Cavernomas
Ataxia
Movement disorder
Neurogenic bladder
Neurogenic bowel
Paralysis
Occlusive cerebral vasculopathy
Seizures
Stroke
CNS complication, other, specify:
<b>Peripheral Nervous System (PNS)</b>
Peripheral sensory neuropathy
Peripheral motor neuropathy
PNS complication, other, specify:
<b>Urinary</b>
Hydronephrosis, specify: Right, left, bilateral
Hypertension
Mononephric
Renal insufficiency
Renal glomerular disorder
Hyperfiltration
Renal tubular disorder
Hypophosphatemic rickets
Renal Fanconi syndrome
Renal tubular acidosis
Vesicoureteral reflux
Bladder fibrosis
Urinary incontinence
Reservoir calculi
Dysfunctional voiding
Hemorrhagic cystitis

#17: Complications/Late Effects (by system) (cont)
<b>Urinary (cont)</b>
Proteinuria
Chronic UTI
Asymptomatic bacteriuria
Neobladder perforation
Urinary tract obstruction (due to retroperitoneal fibrosis)
Stricture, urinary tract, specify:
Urinary complication, other, specify:
<b>Reproductive – Female</b>
Breast tissue hypoplasia
Uterine vascular insufficiency
Adverse pregnancy outcome
Pregnancy complications
Delivery complications
Fetal malposition
Low birthweight infant
Spontaneous abortion
Premature labor
Neonatal death
Gonadal dysfunction – ovarian
Primary ovarian failure
Delayed/arrested puberty
Premature menopause
Infertility
Inability to conceive (despite normal ovarian function)
Dyspareunia
Symptomatic ovarian cysts
Pelvic adhesions
Psychosexual dysfunction
Vaginal stenosis/fibrosis
<b>#17: Complications/Late Effects (by system) (cont)</b>
<b>Reproductive – Male</b>
Gonadal dysfunction – testicular
Germ cell failure
Azoospermia
Oligospermia
Infertility
Leydig cell failure
Hypogonadism (testosterone deficiency)
Delayed/arrested puberty

## Key for Completing Summary of Cancer Treatment Form (Comprehensive Version) (cont)

#17: Complications/Late Effects (by system) (cont)
<b>Reproductive – Male (cont)</b>
Psychosexual dysfunction – male
Erectile dysfunction
Anejaculation
Retrograde ejaculation
Hydrocele
<b>Dermatologic</b>
Alopecia (permanent)
Dysplastic nevi
Altered skin pigmentation
Skin fibrosis
Nail dysplasia
Scleroderma
Telangiectasia
Vitiligo
<b>Immune</b>
Asplenia
Functional asplenia
Surgical asplenia
History of life-threatening infection related to asplenia
Chronic sinusitis
Chronic graft versus host disease (GVHD)
Chronic Hepatitis B
Chronic Hepatitis C
Chronic infection, specify:
Human immunodeficiency virus (HIV) infection
Hypogammaglobulinemia
Secretory IgA deficiency
<b>Pain, chronic</b>
Musculoskeletal
Neuropathic
Other, specify:
Other, specify
No late effects identified
Unknown



# Long-Term Follow-Up Guidelines

*for Survivors of Childhood,  
Adolescent, and Young Adult  
Cancers*

## Patient-Specific Guideline Identification Tool

**Version 4.0  
October 2013**

**CHILDREN'S  
ONCOLOGY  
GROUP**

The world's childhood  
cancer experts

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# Instructions for Using the Patient-Specific Guideline Identification Tool

To determine Long-Term Follow-Up Guideline sections relevant to an individual patient:

1. Place a checkmark in the “Mark if Patient Received” or “Mark All that Apply” column for each chemotherapy agent, radiation field, surgery, or other therapeutic modality that the patient received.
2. Place a checkmark in the “Mark as Indicated” column for all cancer screening guidelines that are applicable to this patient based on age, gender, and indicated conditions.
3. Compile a list of all section numbers generated during steps 1 and 2. Include the following sections as applicable:
  - Sections 1–6                      Applicable to all patients
  - Section 7                         Patients diagnosed before 1972
  - Section 8                         Patients diagnosed before 1993
  - Section 9                         Patients diagnosed between 1977 and 1985
  - Section 10                        All patients who received chemotherapy
  - Sections 103–110                All patients who underwent hematopoietic cell transplant
    - Section 103 is for patients with autologous transplant only
    - Section 104 is for males only
    - Section 105 is for females only
  - Sections 111–119                Patients with history of chronic graft-vs-host (cGVHD) disease\*
    - \*Section 116 is for patients with active cGVHD only
    - \*Section 118 is for females only
  - Section 166                        Applicable to all patients

You now have a list of all guideline sections potentially applicable to this patient.

4. For patients who received radiation for which a minimum dose specification is indicated, follow the instructions for “Determining Applicability of Radiation Sections for Specific Patients Based on Exposure” (see page 56 of Guidelines or page 36 of the Radiation Reference Guide within Appendix I). Delete from your list those radiation section(s) for which this patient did not receive the minimum radiation exposure at which the section(s) become applicable.
5. You now have a finalized list of all guideline sections applicable to this patient.

# Patient-Specific Guideline Identification Tool (version 4.0)

(Applicable Guideline Sections indicated in Bold/Red; M=Male; F=Female)

Name: _____		Sex: <input type="checkbox"/> M <input type="checkbox"/> F	Date of Birth: _____
<b>Cancer Diagnosis:</b> _____ <input type="checkbox"/> <b>Sections 1–6 applicable to all patients</b>		<b>Date of Diagnosis:</b> _____ Prior to 1972: <input type="checkbox"/> <b>Section 7</b> Prior to 1993: <input type="checkbox"/> <b>Section 8</b> 1977–1985: <input type="checkbox"/> <b>Section 9</b>	<b>End Therapy Date:</b> _____ <b>LTFU guidelines are applicable to patients who are ≥ 2 years following completion of cancer therapy.</b>
<b>CHEMOTHERAPY:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No      If yes: <input checked="" type="checkbox"/> <b>Section 10</b> and applicable guidelines for specific chemotherapy agents below			
<b>Chemotherapy Agent</b> (mark if patient received)		<b>Applicable guideline sections</b>	
Asparaginase		<b>Section 40</b>	
Bleomycin		<b>Section 35</b>	
Busulfan		<b>Sections 11(M), 12(M), 13(F), 14, 15, 16</b>	
Carboplatin – all doses		<b>Sections 11(M), 12(M), 13(F), 14, 21, 22</b>	
– myeloablative dose or age < 1 year at diagnosis		<b>See also: Section 20</b> <b>Note:</b> Myeloablative dose = conditioning for HCT	
Carmustine		<b>Sections 11(M), 12(M), 13(F), 14, 15</b>	
Chlorambucil		<b>Sections 11(M), 12(M), 13(F), 14</b>	
Cisplatin		<b>Sections 11(M), 12(M), 13(F), 14, 20, 21, 22</b>	
Cyclophosphamide		<b>Sections 11(M), 12(M), 13(F), 14, 17, 18</b>	
Cytarabine: SQ, IT, IO, low-dose IV		<b>Section 25</b> <b>Note:</b> Low-dose IV = all single doses < 1000 mg/m <sup>2</sup>	
Cytarabine: High-dose IV		<b>Sections 23, 24</b> <b>Note:</b> High-dose IV = any single dose ≥ 1000 mg/m <sup>2</sup>	
Dacarbazine		<b>Sections 11(M), 12(M), 13(F), 14</b>	
Dactinomycin		<b>Section 36</b>	
Daunorubicin* Cumulative dose: _____ mg/m <sup>2</sup> Age at first dose: _____		<b>Sections 32, 33(M), 34(F)</b> Cumulative dose × 1 = _____ mg/m <sup>2</sup> = doxorubicin isotoxic dose	
Dexamethasone		<b>Sections 37, 38, 39</b>	
Doxorubicin* Cumulative dose: _____ mg/m <sup>2</sup> Age at first dose: _____		<b>Sections 32, 33(M), 34(F)</b> Cumulative dose × 1 = _____ mg/m <sup>2</sup> = doxorubicin isotoxic dose	
Epirubicin* Cumulative dose: _____ mg/m <sup>2</sup> Age at first dose: _____		<b>Sections 32, 33(M), 34(F)</b> Cumulative dose × 0.67 = _____ mg/m <sup>2</sup> = doxorubicin isotoxic dose	
Etoposide (VP-16)		<b>Section 43</b>	
Idarubicin* Cumulative dose: _____ mg/m <sup>2</sup> Age at first dose: _____		<b>Sections 32, 33(M), 34(F)</b> Cumulative dose × 5 = _____ mg/m <sup>2</sup> = doxorubicin isotoxic dose	
Ifosfamide		<b>Sections 11(M), 12(M), 13(F), 14, 17, 19</b>	
Lomustine		<b>Sections 11(M), 12(M), 13(F), 14, 15</b>	
Mechlorethamine		<b>Sections 11(M), 12(M), 13(F), 14</b>	
Melphalan		<b>Sections 11(M), 12(M), 13(F), 14</b>	
Mercaptopurine (6-MP)		<b>Section 26</b>	

\*Use formulas below to convert to doxorubicin isotoxic equivalents prior to calculating total cumulative anthracycline dose:

**Doxorubicin** – multiply total dose × 1

**Daunorubicin** – multiply total dose × 1

**Epirubicin** – multiply total dose × 0.67

**Idarubicin** – multiply total dose × 5

**Mitoxantrone** – multiply total dose × 4

**Note:** There is a paucity of literature to support isotoxic dose conversion; however, the above conversion factors may be used for convenience in order to gauge screening frequency. Clinical judgment should ultimately be used to determine indicated screening for individual patients.

Chemotherapy Agent (cont) (mark if patient received)	Applicable guideline sections
Methotrexate: PO, IM, low and high-dose IV	<b>Sections 27, 28, 29</b>
Methotrexate: High-dose IV, IT, IO	<b>Sections 30, 31</b> <b>Note:</b> High-dose IV = any single dose $\geq$ 1000 mg/m <sup>2</sup>
Mitoxantrone* (see footnote on previous page) Cumulative dose: _____ mg/m <sup>2</sup> Age at first dose: _____	<b>Sections 32, 33(M), 34(F)</b> Cumulative dose $\times$ 4 = _____ mg/m <sup>2</sup> = doxorubicin isotoxic dose
Prednisone	<b>Sections 37, 38, 39</b>
Procarbazine	<b>Sections 11(M), 12(M), 13(F), 14</b>
Temozolomide	<b>Sections 11(M), 12(M), 13(F), 14</b>
Teniposide (VM-26)	<b>Section 43</b>
Thioguanine (6-TG)	<b>Section 26</b>
Thiotepa	<b>Sections 11(M), 12(M), 13(F), 14</b>
Vinblastine	<b>Sections 41, 42</b>
Vincristine	<b>Sections 41, 42</b>

**RADIATION:**  Yes  No      If yes, include applicable guidelines based on exposure to specific radiation field(s) (see instructions<sup>§</sup>)

**INSTRUCTIONS FOR RADIATION SECTIONS:**

***Determining Applicability of Guideline Section Based on Minimum Radiation Dose Specifications:***

Sections with minimum dose specifications are applicable to a patient only if:

1. Patient received radiation to any field(s) relevant to the particular guideline section at  $\geq$  the specified minimum dose<sup>†</sup>

**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is  $\geq$  the specified minimum dose<sup>§</sup>

<sup>†</sup>Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

<sup>‡</sup>Use the **largest** dose of radiation delivered to the spinal field(s) specified in the guideline section

<sup>§</sup>Whole lung radiation, if given, should be included in minimum dose calculations for Sections 75, 76, 77(F), 83, and 102.

**See Appendix I—“Radiation Reference Guide”—for examples.**

***Selecting Applicable Guideline Radiation Sections Based on Radiation Exposure:***

- Select all sections listed under “any dose” for each applicable radiation exposure
- Refer to the “Radiation Reference Guide” in Appendix I to determine which, if any, of the sections with minimum dose specifications are applicable to each particular patient based on their exposures
- For examples of radiation dose calculations, see pages 39–41 of the “Radiation Reference Guide”

Radiation by field <sup>§</sup> (mark all that apply)	Applicable guideline sections
<b>All Radiation Fields</b>	
All radiation fields including TBI	Any dose <b>Sections 44, 45</b>
All radiation fields <b>except</b> TBI	Any dose <b>Sections 46, 47</b>
<b>Total Body Irradiation (TBI)</b>	
Total body irradiation (TBI)	Any dose <b>Sections 44, 45, 48, 49, 50, 55, 64, 69, 71, 72, 73, 77(F)<sup>‡</sup>, 78(F), 79, 80(M), 81(F), 84, 85, 90<sup>‡</sup>, 91, 95(F), 96(F), 98(M), 100</b> <sup>‡</sup> Screening may be indicated; refer to Info Link in this section

<sup>§</sup>See instructions above



Radiation by field <sup>§</sup> (mark all that apply)		Applicable guideline sections
<b>Head/Brain</b>		
Cranial [Any field involving the cranium/ head, brain, and/or face]	Any dose	<b>Sections 48, 49, 50, 52, 53, 54, 55, 56(M), 57(F), 64, 68, 69, 71, 72, 73</b>
	<i>Minimum dose specifications apply</i>	See Pages 45–47 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 51, 58(M), 59(F), 60, 61(M), 62(F), 63, 65, 66, 67, 70, 74, 75</b>
Orbital/Eye	Any dose	<b>Sections 48, 52, 53, 54, 55, 56(M), 57(F), 64</b>
	<i>Minimum dose specifications apply</i>	See Page 45 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 51, 58(M), 59(F), 60, 61(M), 62(F), 63, 65</b>
Ear/Infratemporal	Any dose	<b>Sections 48, 49, 50, 52, 53, 54, 55, 56(M), 57(F)</b>
	<i>Minimum dose specifications apply</i>	See Page 45 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 51, 58(M), 59(F), 60, 61(M), 62(F), 63, 66, 67</b>
Nasopharyngeal	Any dose	<b>Sections 48, 52, 53, 54, 55, 56(M), 57(F), 68, 69, 71, 72, 73</b>
	<i>Minimum dose specifications apply</i>	See Pages 45–47 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 51, 58(M), 59(F), 60, 61(M), 62(F), 63, 66, 67, 70, 74, 75</b>
Oropharyngeal	Any dose	<b>Sections 68, 69, 71, 72, 73</b>
	<i>Minimum dose specifications apply</i>	See Pages 46, 47 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75</b>
Waldeyer's ring (Nasopharyngeal + Oropharyngeal)	Any dose	<b>Sections 48, 52, 53, 54, 55, 56(M), 57(F), 68, 69, 71, 72, 73</b>
	<i>Minimum dose specifications apply</i>	See Pages 45–47 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 51, 58(M), 59(F), 60, 61(M), 62(F), 63, 66, 67, 70, 74, 75</b>
<b>Spine</b>		
Spine (cervical) [Including some or all of the cervical spine (C1–C7)]	Any dose	<b>Sections 68, 69, 71, 72, 73, 100</b>
	<i>Minimum dose specifications apply</i>	See Pages 46, 47, 52, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 83, 102</b>
Spine (thoracic) Age at time of XRT: _____ [Including some or all of the thoracic spine (T1–12)]	Any dose	<b>Sections 80(M), 81(F), 100, 101</b>
	<i>Minimum dose specifications apply</i>	See Pages 50, 52, 54, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 83, 88, 89, 90, 102</b>
Spine (lumbar) [Including some or all of the lumbar spine (L1–L5)]	Any dose	<b>Sections 95(F), 96(F), 100</b>
	<i>Minimum dose specifications apply</i>	See Pages 54, 57, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 88, 89, 90, 102</b>
Spine (sacral) [Including some or all of the sacral spine (S1–S5)]	Any dose	<b>Sections 94, 95(F), 96(F), 100</b>
	<i>Minimum dose specifications apply</i>	See Pages 54, 56, 57, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 88, 89, 90, 92, 93, 102</b>
Spine (whole) [Includes cervical, thoracic, lumbar and sacral spine]	Any dose	<b>Sections 68, 69, 71, 72, 73, 80(M), 81(F), 94, 95(F), 96(F), 100, 101</b>
	<i>Minimum dose specifications apply</i>	See Pages 46, 47, 50, 52, 54, 56, 57, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 83, 88, 89, 90, 92, 93, 102</b>

<sup>§</sup>See instructions on page 26

Radiation by field <sup>§</sup> (mark all that apply)		Applicable guideline sections	
<b>Neck</b>			
Cervical (neck) Supraclavicular	Any dose	<b>Sections 68, 69, 71, 72, 73, 100</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46, 47, 52, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 83, 102</b>	
Mini-Mantle [Includes cervical (neck), supraclavicular, axillary] <b>Excludes</b> mediastinal and lung	Any dose	<b>Sections 68, 69, 71, 72, 73, 78(F), 79, 100</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46–49, 52, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 77(F), 83, 102</b>	
Mantle [Includes bilateral cervical (neck), supraclavicular, mediastinal, hilar, axillary] Age at time of XRT: _____	Any dose	<b>Sections 68, 69, 71, 72, 73, 78(F), 79, 80(M), 81(F), 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46–50, 52, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 77(F), 83, 102</b>	
Extended Mantle [Includes mantle + paraaortic] Age at time of XRT: _____	Any dose	<b>Sections 68, 69, 71, 72, 73, 78(F), 79, 80(M), 81(F), 84, 91, 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46–50, 52–55, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 77(F), 83, 86, 87, 88, 89, 90, 102</b>	
Subtotal Lymphoid (STLI) [Includes mantle + paraaortic + spleen] Age at time of XRT: _____	Any dose	<b>Sections 68, 69, 71, 72, 73, 78(F), 79, 80(M), 81(F), 84, 91, 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46–55, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 77(F), 82, 83, 86, 87, 88, 89, 90, 102</b>	
Total Lymphoid (TLI) [Includes mantle + inverted Y + spleen] Age at time of XRT: _____	Any dose	<b>Sections 68, 69, 71, 72, 73, 78(F), 79, 80(M), 81(F), 84, 91, 94, 95(F), 96(F), 97(F), 98(M), 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 46–60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 70, 74, 75, 76, 77(F), 82, 83, 86, 87, 88, 89, 90, 92, 93, 99(M), 102</b>	
<b>Axilla</b>			
Axilla Age at time of XRT: _____	Any dose	<b>Sections 78(F), 79, 100</b>	
	<i>Minimum dose specifications apply</i>	See Pages 48, 49, 59 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 77(F), 102</b>	
Mini-Mantle	See “Neck”	<b>See “Neck” (above)</b>	
Mantle	See “Neck”	<b>See “Neck” (above)</b>	
Extended Mantle	See “Neck”	<b>See “Neck” (above)</b>	
Subtotal Lymphoid (STLI)	See “Neck”	<b>See “Neck” (above)</b>	
Total Lymphoid (TLI)	See “Neck”	<b>See “Neck” (above)</b>	
<b>Thorax</b>			
Chest (thorax): Age at time of XRT: _____ [May include any of the following: mediastinal, hilar, whole lung, chest wall]	Any dose	<b>Sections 78(F), 79, 80(M), 81(F), 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 47–50, 52, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 75, 76, 77(F), 83, 102</b>	
Whole lung	Any dose	<b>Sections 78(F), 79, 80(M), 81(F), 100, 101</b>	
Mediastinal Age at time of XRT: _____ [Includes mediastinum plus bilateral hilar]	Any dose	<b>Sections 71, 72, 73, 78(F), 79, 80(M), 81(F), 100, 101</b>	
	<i>Minimum dose specifications apply</i>	See Pages 47–50, 52, 59, 60 of the Radiation Reference Guide within Appendix I to determine the applicability of the following sections for this patient: <b>Sections 74, 75, 76, 77(F), 83, 102</b>	
Mini-Mantle	See “Neck”	<b>See “Neck” (above)</b>	

<sup>§</sup>See instructions on page 26



Surgery: <input type="checkbox"/> Yes <input type="checkbox"/> No		If yes, include applicable guideline sections below:	
Surgical procedure (mark if patient received)		Applicable guideline sections	
Amputation		Section 120	
Central venous catheter		Section 121	
Cystectomy		Sections 122, 145, 146, 147(M), 148(F)	
Enucleation		Section 123	
Hysterectomy		Section 124(F) [see also oophorectomy, if applicable, section 141(F) or 142(F)]	
Laparotomy		Section 125	
Limb sparing procedure		Section 126	
Nephrectomy		Section 127(M), 128(F)	
Neurosurgery – brain		Sections 129, 130, 131, 132, 133*, 134* (*If surgery involved the HPA axis)	
Neurosurgery – spinal cord		Sections 135, 136, 137(M), 138(F), 139	
Oophoropexy		Section 140(F)	
Oophorectomy – unilateral		Section 141(F)	
Oophorectomy – bilateral		Section 142(F)	
Orchiectomy – unilateral		Section 143(M)	
Orchiectomy – bilateral		Section 144(M)	
Pelvic surgery		Sections 145, 146, 147(M), 148(F)	
Splenectomy		Section 149	
Thoracic surgery		Sections 150, 151	
Thyroidectomy		Section 152	

Other Therapeutic Modalities: <input type="checkbox"/> Yes <input type="checkbox"/> No		If yes, include applicable guideline sections below:	
Other Therapeutic Modality (mark if patient received)		Applicable guideline sections	
Radioiodine therapy (I-131 thyroid ablation)		Sections 153, 154	
Systemic MIBG (in therapeutic doses)		Section 155	
Bioimmunotherapy		Section 156	

Cancer Screening Guidelines			
Patient type	Cancer type	Age at first screening	Applicable guideline sections (mark as indicated)
All patients	Colorectal	Standard risk: Age 50 years Highest risk: XRT: Age 35 or 10 years after XRT (whichever occurs last) HNPPC: Puberty FAP: Age 21 years IBD: 8 years after diagnosis	Section 159
	Lung	Highest risk: At entry into LTFU	Section 161
	Oral	Highest risk: At entry into LTFU	Section 162
	Skin	Highest risk: At entry into LTFU	Section 164
Females	Breast	Standard risk: Age 40 years Highest risk: At puberty	Section 157(F)
	Cervical	All females: Age 21 years	Section 158(F)
	Endometrial	Highest risk: Age 35 years	Section 160(F)
Males	Prostate	Males ≥ 45 years (see guideline)	Section 163(M)
	Testicular	N/A (see guideline)	Section 165(M)

General Health Screening	
All patients	<input checked="" type="checkbox"/> Section 166





# Long-Term Follow-Up Guidelines

*for Survivors of Childhood,  
Adolescent, and Young Adult  
Cancers*

## Section Number Comparison – COG LTFU Guidelines Version 3.0 vs 4.0

**Version 4.0**  
**October 2013**

**CHILDREN'S  
ONCOLOGY  
GROUP**

The world's childhood  
cancer experts

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## Section Number Comparison — COG LTFU Guidelines Version 3.0 vs 4.0

Version 3	Version 4	Page	Gender	Potential Late Effect
1	1	2		<b>Adverse psychosocial/QoL effects</b>
1	2	4		<b>Mental health disorders</b>
1	3	5		<b>Risky behaviors</b>
1	4	6		<b>Psychosocial disability due to pain</b>
1	5	7		<b>Fatigue</b>
2	6	8		<b>Limitations in healthcare and insurance access</b>
3	7	9		<b>Chronic hepatitis B</b>
4	8	10		<b>Chronic hepatitis C</b>
5	9	11		<b>HIV infection</b>
6	10	12		<b>Dental abnormalities</b>
7 (male)	11	13	Male	<b>Gonadal dysfunction (testicular): Reduced fertility</b>
7 (male)	12	14	Male	<b>Gonadal dysfunction (testicular): Testosterone deficiency</b>
7 (female)	13	15	Female	<b>Gonadal dysfunction (ovarian)</b>
8	14	17		<b>Acute myeloid leukemia; myelodysplasia</b>
9	15	18		<b>Pulmonary fibrosis</b>
10	16	19		<b>Cataracts</b>
11	17	20		<b>Urinary tract toxicity</b>
12	18	21		<b>Bladder malignancy</b>
13	19	22		<b>Renal toxicity</b>
14	20	23		<b>Ototoxicity</b>
15	21	25		<b>Peripheral sensory neuropathy</b>
16	22	26		<b>Renal toxicity</b>
17	(n/a)			[Removed from v4: Dyslipidemia]
18	23	27		<b>Neurocognitive deficits</b>
19	24	29		<b>Clinical leukoencephalopathy</b>
20	25	31		<b>No known late effects</b>
21	26	32		<b>Hepatic dysfunction; veno-occlusive disease (VOD)</b>
22	27	33		<b>Reduced bone mineral density (BMD)</b>

Version 3	Version 4	Page	Gender	Potential Late Effect
23	28	35		<b>Renal toxicity: glomerular injury; hypertension</b>
24	29	36		<b>Hepatic dysfunction</b>
25	30	37		<b>Neurocognitive deficits</b>
26	31	39		<b>Clinical leukoencephalopathy</b>
27	32	40		<b>Acute myeloid leukemia</b>
28 (male)	33	41	Male	<b>Cardiac toxicity</b>
28 (female)	34	43	Female	<b>Cardiac toxicity</b>
29	35	45		<b>Pulmonary toxicity</b>
30	36	47		<b>No known late effects</b>
31	37	48		<b>Reduced bone mineral density (BMD)</b>
32	38	50		<b>Osteonecrosis (avascular necrosis)</b>
33	39	51		<b>Cataracts</b>
34	40	52		<b>No known late effects</b>
35	41	53		<b>Peripheral sensory or motor neuropathy</b>
36	42	54		<b>Vasospastic attacks (Raynaud's phenomenon)</b>
37	43	55		<b>Acute myeloid leukemia</b>
38	44	58		<b>Secondary benign or malignant neoplasm</b>
39	45	59		<b>Dysplastic nevi; skin cancer</b>
40	46	60		<b>Dermatologic changes</b>
41	47	61		<b>Bone malignancies</b>
42	48	62		<b>Brain tumor (benign or malignant)</b>
43	49	63		<b>Neurocognitive deficits</b>
44	50	65		<b>Clinical leukoencephalopathy</b>
45	51	67		<b>Cerebrovascular complications</b>
46	52	68		<b>Craniofacial abnormalities</b>
47	53	69		<b>Chronic sinusitis</b>
48	54	70		<b>Overweight; obesity</b>
49	(n/a)			[Removed from v4: Metabolic syndrome]

## Section Number Comparison — COG LTFU Guidelines Version 3.0 vs 4.0 (cont)

Version 3	Version 4	Page	Gender	Potential Late Effect
50	55	72		<b>Growth hormone deficiency</b>
51 (male)	56	74	Male	<b>Precocious puberty</b>
51 (female)	57	75	Female	<b>Precocious puberty</b>
52 (male)	58	76	Male	<b>Hyperprolactinemia</b>
52 (female)	59	77	Female	<b>Hyperprolactinemia</b>
53	60	78		<b>Central hypothyroidism</b>
54 (male)	61	79	Male	<b>Gonadotropin deficiency</b>
54 (female)	62	80	Female	<b>Gonadotropin deficiency</b>
55	63	81		<b>Central adrenal insufficiency</b>
56	64	82		<b>Cataracts</b>
57	65	83		<b>Ocular toxicity</b>
58	66	84		<b>Ototoxicity (conductive hearing loss)</b>
58	67	85		<b>Ototoxicity (sensorineural hearing loss)</b>
59	68	86		<b>Xerostomia; salivary gland dysfunction</b>
60	69	87		<b>Dental abnormalities</b>
61	70	88		<b>Osteoradionecrosis</b>
62	71	89		<b>Thyroid nodules</b>
63	72	90		<b>Thyroid cancer</b>
64	73	91		<b>Hypothyroidism</b>
65	74	92		<b>Hyperthyroidism</b>
66	75	93		<b>Carotid artery disease</b>
67	76	94		<b>Subclavian artery disease</b>
68 (female)	77	95	Female	<b>Breast cancer</b>
69 (female)	78	97	Female	<b>Breast tissue hypoplasia</b>
70	79	98		<b>Pulmonary toxicity</b>
71 (male)	80	99	Male	<b>Cardiac toxicity</b>
71 (female)	81	101	Female	<b>Cardiac toxicity</b>
72	82	103		<b>Functional asplenia</b>
73	83	105		<b>Esophageal stricture</b>
(new)	84	106		<b>Impaired glucose metabolism/diabetes mellitus</b>
(new)	85	107		<b>Dyslipidemia</b>
74	86	108		<b>Hepatic fibrosis; cirrhosis; focal nodular hyperplasia</b>

Version 3	Version 4	Page	Gender	Potential Late Effect
75	87	109		<b>Cholelithiasis</b>
76	88	110		<b>Bowel obstruction</b>
77	89	111		<b>Chronic enterocolitis; fistula, strictures</b>
78	90	112		<b>Colorectal cancer</b>
79	91	114		<b>Renal toxicity; renal insufficiency; hypertension</b>
80	92	115		<b>Hemorrhagic cystitis</b>
81	93	116		<b>Urinary tract toxicity</b>
82	94	117		<b>Bladder malignancy</b>
83 (female)	95	118	Female	<b>Uterine vascular insufficiency</b>
84 (female)	96	119	Female	<b>Gonadal dysfunction (ovarian)</b>
85 (female)	97	121	Female	<b>Vaginal fibrosis/stenosis</b>
86 (male)	98	122	Male	<b>Gonadal dysfunction (testicular): Reduced fertility</b>
87 (male)	99	124	Male	<b>Gonadal dysfunction (testicular): Testosterone deficiency/insufficiency</b>
88	100	125		<b>Musculoskeletal growth problems</b>
89	101	126		<b>Scoliosis/kyphosis</b>
90	(n/a)			[Removed from v4: Kyphosis]
91	102	127		<b>Radiation-induced fracture</b>
92	103	130		<b>Myelodysplasia; acute myeloid leukemia</b>
93 (male)	104	131	Male	<b>Solid tumors</b>
93 (female)	105	132	Female	<b>Solid tumors</b>
94	106	133		<b>Lymphoma</b>
95	107	134		<b>Hepatic toxicity</b>
96	108	135		<b>Osteonecrosis (avascular necrosis)</b>
97	109	136		<b>Reduced bone mineral density (BMD)</b>
(new)	110	138		<b>Renal toxicity</b>
98	111	139		<b>Dermatologic toxicity</b>
99	112	140		<b>Xerophthalmia (keratoconjunctivitis sicca)</b>




## Section Number Comparison — COG LTFU Guidelines Version 3.0 vs 4.0 (cont)

Version 3	Version 4	Page	Gender	Potential Late Effect
100	113	141		<b>Xerostomia; salivary gland dysfunction; dental caries; periodontal disease; oral cancer (squamous cell carcinoma)</b>
101	114	142		<b>Pulmonary toxicity; bronchiolitis obliterans; chronic bronchitis; bronchiectasis</b>
102	115	144		<b>Immunologic complications</b>
103	116	145		<b>Functional asplenia</b>
104	117	147		<b>Esophageal stricture</b>
105 (female)	118	148	Female	<b>Vaginal fibrosis/stenosis</b>
106	119	149		<b>Joint contractures</b>
107	120	150		<b>Amputation-related complications</b>
108	121	151		<b>Thrombosis; vascular insufficiency; infection of retained cuff or line tract</b>
109	122	152		<b>Cystectomy-related complications</b>
110	123	153		<b>Impaired cosmesis; poor prosthetic fit; orbital hypoplasia</b>
111 (female)	124	154	Female	<b>Pelvic floor dysfunction; urinary incontinence; sexual dysfunction</b>
112	125	155		<b>Adhesions; bowel obstruction</b>
113	126	156		<b>Complications related to limb sparing procedure</b>
114 (male)	127	158	Male	<b>Hydrocele; renal toxicity</b>
114 (female)	128	159	Female	<b>Renal toxicity</b>
115	129	160		<b>Neurocognitive deficits</b>
116	130	161		<b>Motor and/or sensory deficits</b>
117	131	162		<b>Seizures</b>
118	132	163		<b>Hydrocephalus; shunt malfunction</b>
(new)	133	164		<b>Overweight/obesity</b>
(new)	134	165		<b>Diabetes insipidus</b>

Version 3	Version 4	Page	Gender	Potential Late Effect
119	135	166		<b>Neurogenic bladder; urinary incontinence</b>
120	136	167		<b>Neurogenic bowel; fecal incontinence</b>
121 (male)	137	168	Male	<b>Psychosexual dysfunction (male)</b>
121 (female)	138	169	Female	<b>Psychosexual dysfunction (female)</b>
(new)	139	170		<b>Scoliosis/Kyphosis</b>
122 (female)	140	171	Female	<b>Oophorectomy-related complications</b>
123 (female)	141	172	Female	<b>Premature menopause</b>
124 (female)	142	173	Female	<b>Hypogonadism; infertility</b>
125 (male)	143	174	Male	<b>Gonadal dysfunction (testicular): reduced fertility; testosterone insufficiency</b>
125 (male)	144	175	Male	<b>Gonadal dysfunction (testicular): infertility; testosterone deficiency</b>
126	145	176		<b>Urinary incontinence; urinary tract obstruction</b>
127	146	177		<b>Fecal incontinence</b>
128 (male)	147	178	Male	<b>Sexual dysfunction (male)</b>
128 (female)	148	179	Female	<b>Sexual dysfunction (female)</b>
129 (male)	(n/a)			[Removed from v4: Hydrocele]
131	149	180		<b>Asplenia</b>
130	150	182		<b>Pulmonary dysfunction</b>
(new)	151	183		<b>Scoliosis/Kyphosis</b>
132	152	184		<b>Hypothyroidism</b>
133	153	185		<b>Lacrimal duct atrophy</b>
134	154	186		<b>Hypothyroidism</b>
135	155	187		<b>Hypothyroidism</b>
136	156	188		<b>Insufficient information currently available regarding late effects of biological agents</b>
137 (female)	157	189	Female	<b>Breast cancer</b>
138 (female)	158	191	Female	<b>Cervical cancer</b>
139	159	192		<b>Colorectal cancer</b>
140 (female)	160	194	Female	<b>Endometrial cancer</b>

## Section Number Comparison — COG LTFU Guidelines Version 3.0 vs 4.0 (cont)

Version 3	Version 4	Page	Gender	Potential Late Effect
141	161	195		<b><i>Lung cancer</i></b>
142	162	196		<b><i>Oral cancer</i></b>
143 (male)	163	197	Male	<b><i>Prostate cancer</i></b>
144	164	198		<b><i>Skin cancer</i></b>
145 (male)	165	199	Male	<b><i>Testicular cancer</i></b>
146	166	200		<b><i>General Health Screening</i></b> (USPSTF link)



# Long-Term Follow-Up Guidelines

*for Survivors of Childhood,  
Adolescent, and Young Adult  
Cancers*

## Radiation Reference Guide

**Version 4.0  
October 2013**

**CHILDREN'S  
ONCOLOGY  
GROUP**

The world's childhood  
cancer experts

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# Determining Applicability of Radiation Sections for Specific Patients Based on Exposure

## General Considerations

- The radiation sections of the *COG Long-Term Follow-Up Guidelines* (Sections 44–102) are organized by anatomic region from the head downward. For specifics regarding relevant exposures to each anatomic region and radiation field, refer to the applicable pages of this Radiation Reference Guide and to the Figures in this introductory section.
- To determine specific screening guidelines by section number for an individual patient, use the “Patient-Specific Guideline Identification Tool” in Appendix I together with this Radiation Reference Guide.

## Radiation Dose Calculations

Some sections of the COG Long-Term Follow-Up Guidelines relevant to radiation exposure include dose specifications. These specifications indicate the minimum dose of radiation that is believed (based on available evidence and the recommendations of the expert panel) to place patients sufficiently at risk of the referenced late effect to recommend screening. For guideline sections that have a minimum specified dose, the following considerations apply in determining the applicability of the section for a patient based on his/her radiation exposure.

Sections with minimum dose specifications are applicable to a patient only if:

1. Patient received radiation to any field(s) relevant to the particular guideline section at  $\geq$  the specified minimum dose<sup>†</sup>  
**OR**
2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is  $\geq$  the specified minimum dose<sup>§</sup>

<sup>†</sup>Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), the field that received the largest radiation dose should be used in making the determination as to the applicability of the indicated guideline section(s). **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

<sup>‡</sup>Use the *largest* dose of radiation delivered to the spinal field(s) specified in the guideline section

<sup>§</sup>Whole lung radiation, if given, should be included in minimum dose calculations for Sections 75, 76, 77, 83, and 102.

## Examples

Examples of radiation dose calculations are provided on the following page.

# Radiation Dose Calculation Examples

## Example 1

Guideline section	Minimum dose specification for screening	Relevant radiation fields	Clinical example	Step 1	Step 2
Section 77 (female); potential late effect = breast cancer	Radiation ≥ 20 Gy	Chest (thorax) Whole lung Mediastinal Axilla Mini-Mantle Mantle Extended Mantle TLI STLI TBI	Patient received the following radiation doses to these relevant fields: <ul style="list-style-type: none"> <li>• Axillary: 12 Gy</li> <li>• Mediastinum: 18 Gy</li> <li>• TBI: 10 Gy</li> </ul>	If radiation was given to more than one field relevant to the guideline section, select the <b>largest</b> dose received: = 18 Gy (Mediastinum)	Add TBI dose, if received:  18 Gy + TBI <u>10 Gy</u> 28 Gy

This patient received a total dose of 28 Gy of radiation potentially impacting the breast. Therefore, Guideline Section 77 regarding screening for breast cancer, which is indicated for radiation doses ≥ 20 Gy, is applicable.

**Note:** See Info Link in Section 77 for patients who received TBI alone or who received 10–19 Gy radiation potentially impacting the breast, as screening may also be indicated for these patients based on clinical considerations, and after the clinician discusses the potential benefits and risks/harms of screening with the patient.

## Example 2

Guideline section	Minimum dose specification for screening	Relevant radiation fields	Clinical example	Step 1	Step 2	Step 3
Section 83; potential late effect = esophageal stricture	Radiation ≥ 30 Gy	Spine (cervical, thoracic, whole) Cervical (neck) Supraclavicular Chest (thorax) Whole lung Mediastinal Mini-Mantle Mantle Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y TLI STL	Patient received the following radiation doses to these relevant fields: <ul style="list-style-type: none"> <li>• Chest (thorax): 25 Gy</li> <li>• Hepatic: 20 Gy</li> <li>• Thoracic spine: 18 Gy</li> <li>• Lumbar spine: 24 Gy</li> <li>• TBI: 12 Gy</li> </ul>	If radiation was given to more than one field relevant to the guideline section, select the largest dose received: = 25 Gy (Chest [thorax])	Add the largest relevant* spinal dose to highest non-spinal dose Thoracic spine 18 Gy + Chest (thorax) <u>25 Gy</u> 43 Gy  *Largest dose of radiation delivered to the spinal field(s) specified in the guideline section.	Add TBI dose, if received:  43 Gy + TBI <u>12 Gy</u> 55 Gy

This patient received a total dose of 55 Gy of radiation potentially impacting the esophagus. Therefore, Guideline Section 83 regarding screening for esophageal stricture, which is indicated for radiation doses ≥ 30 Gy, is applicable.

### Example 3

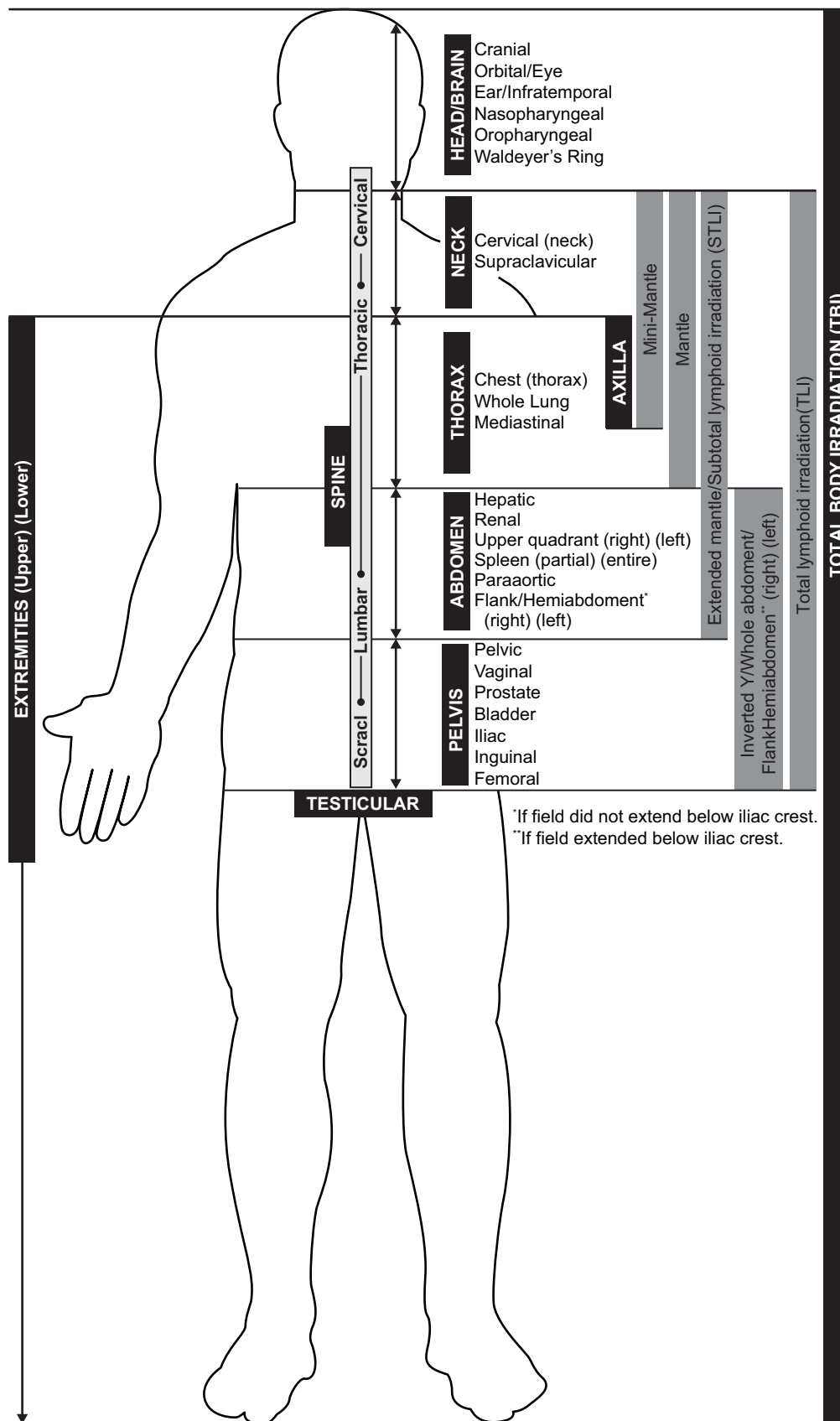
Guideline section	Minimum dose specification for screening	Relevant radiation fields	Clinical example	Step 1	Step 2
Section 63; potential late effect = central adrenal insufficiency	Radiation $\geq$ 30 Gy	Cranial Orbital/eye Ear/infratemporal Nasopharyngeal Waldeyer's ring	Patient received 24 Gy cranial radiation at time of diagnosis. Five years later patient relapsed and was given an additional course of 24 Gy cranial radiation.	If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.  24 Gy (Cranial radiation at diagnosis) + 24 Gy (Cranial radiation at relapse) 48 Gy	Add TBI dose, if received:  48 Gy + TBI 0 Gy 48 Gy
This patient received a total dose of 48 Gy of radiation potentially impacting the brain/neuroendocrine axis. Therefore, Guideline Section 63 regarding screening for central adrenal insufficiency, which is indicated for radiation doses $\geq$ 30 Gy, is applicable.					

## Radiation Fields Defined

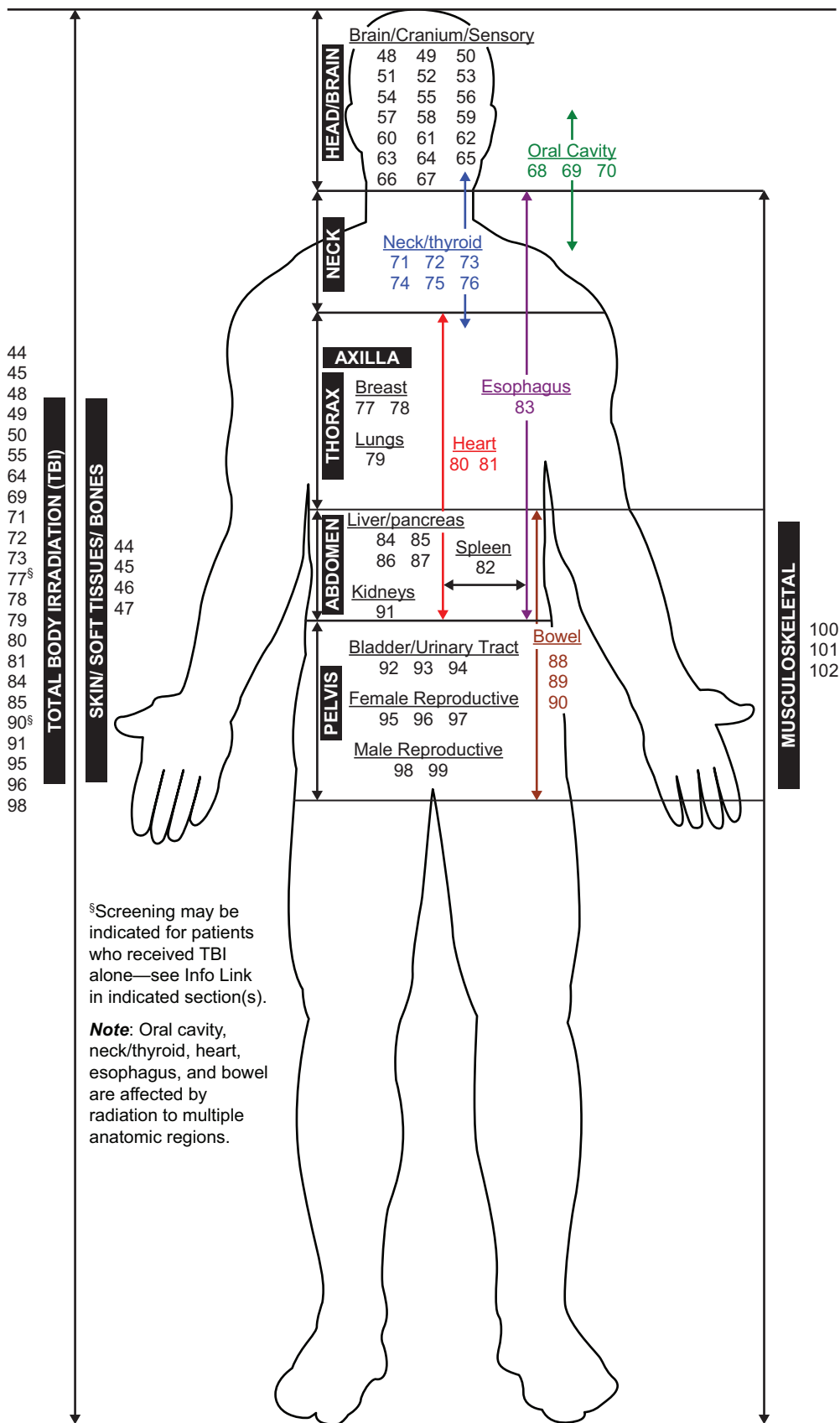
Field	Definition
Total body irradiation (TBI)	Entire body; encompassing all radiation fields
Cranial	Any field involving the cranium, head, brain and/or face
Waldeyer's ring	Nasopharyngeal and oropharyngeal (tonsils and adenoids)
Spine—cervical	Including some or all of the cervical spine (C1–C7)
Spine—thoracic	Including some or all of the thoracic spine (T1–T12)
Spine—lumbar	Including some or all of the lumbar spine (L1–L5)
Spine—sacral	Including some or all of the sacral spine (S–S5)
Spine—whole	Including the cervical, thoracic, lumbar and sacral spine
Mini-mantle	Bilateral cervical (neck), supraclavicular and axillary fields (excludes mediastinal and lung)
Mantle	Bilateral cervical (neck), supraclavicular, mediastinal, hilar, and axillary fields
Extended mantle	Mantle and paraaortic fields
Subtotal lymphoid (STLI)	Mantle + paraaortic + splenic
Inverted Y	Paraaortic + pelvic $\pm$ splenic
Total lymphoid (TLI)	Mantle + inverted Y (paraaortic/pelvic) + splenic
Chest (thorax)	May include any of the following: Mediastinal, hilar, whole lung, chest wall
Mediastinal	Mediastinum and bilateral hilar fields
Abdomen (also commonly referred to as "upper abdomen")	Top of diaphragm to iliac crests (bilaterally), including the following fields: <ul style="list-style-type: none"> <li>• Hepatic</li> <li>• Upper quadrant (right, left)</li> <li>• Renal/renal bed</li> <li>• Paraaortic</li> <li>• Spleen (partial, entire)</li> <li>• Flank/hemiabdomen (right, left)</li> </ul>
Paraaortic	Paraaortic lymph nodes (generally from T10 to L4 cephalad-caudad, and the transverse processes laterally) $\pm$ splenic
Renal	Renal bed
Flank/hemiabdomen	Top of diaphragm to iliac crest (unilateral; medial border along contralateral vertebral bodies)  <b>Note:</b> Most hemiabdominal fields do not extend beyond the iliac crest; however, in some cases, depending on tumor location, the hemiabdominal field may have extended into the pelvis. If the hemiabdominal field extended below the iliac crest, exposure to pelvic fields should be considered in assessing risk for late sequelae.
Whole abdomen	Includes all abdominal and pelvic fields
Pelvis	Iliac crest to 3 cm below ischium, including the following fields: <ul style="list-style-type: none"> <li>• Pelvic</li> <li>• Iliac</li> <li>• Vaginal</li> <li>• Inguinal</li> <li>• Prostate</li> <li>• Femoral</li> <li>• Bladder</li> </ul>



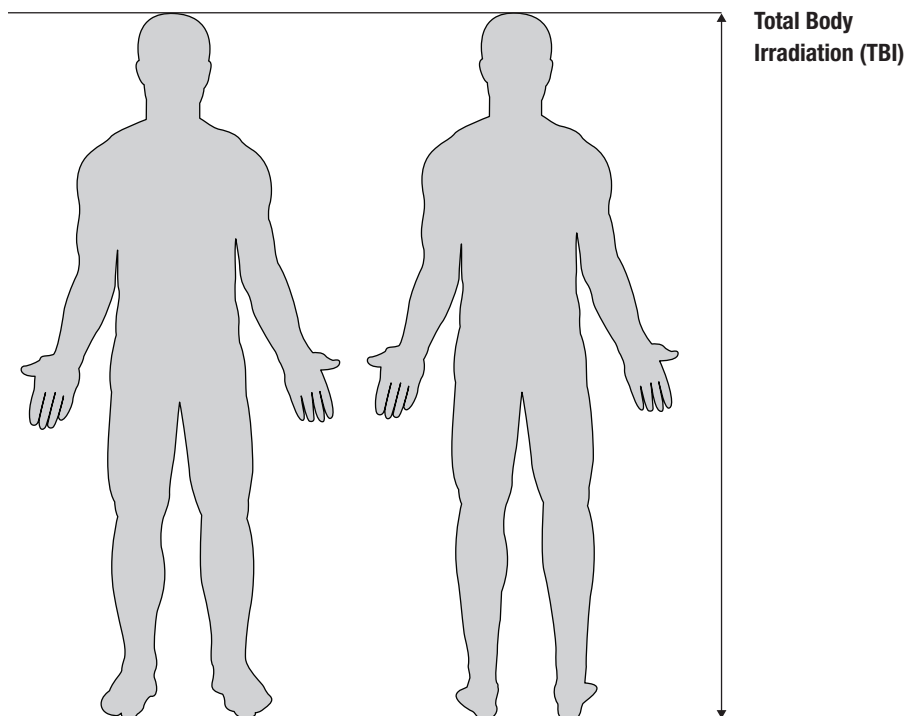
# Radiation Fields by Anatomic Region



# Guideline Radiation Section Numbers by Anatomic Region



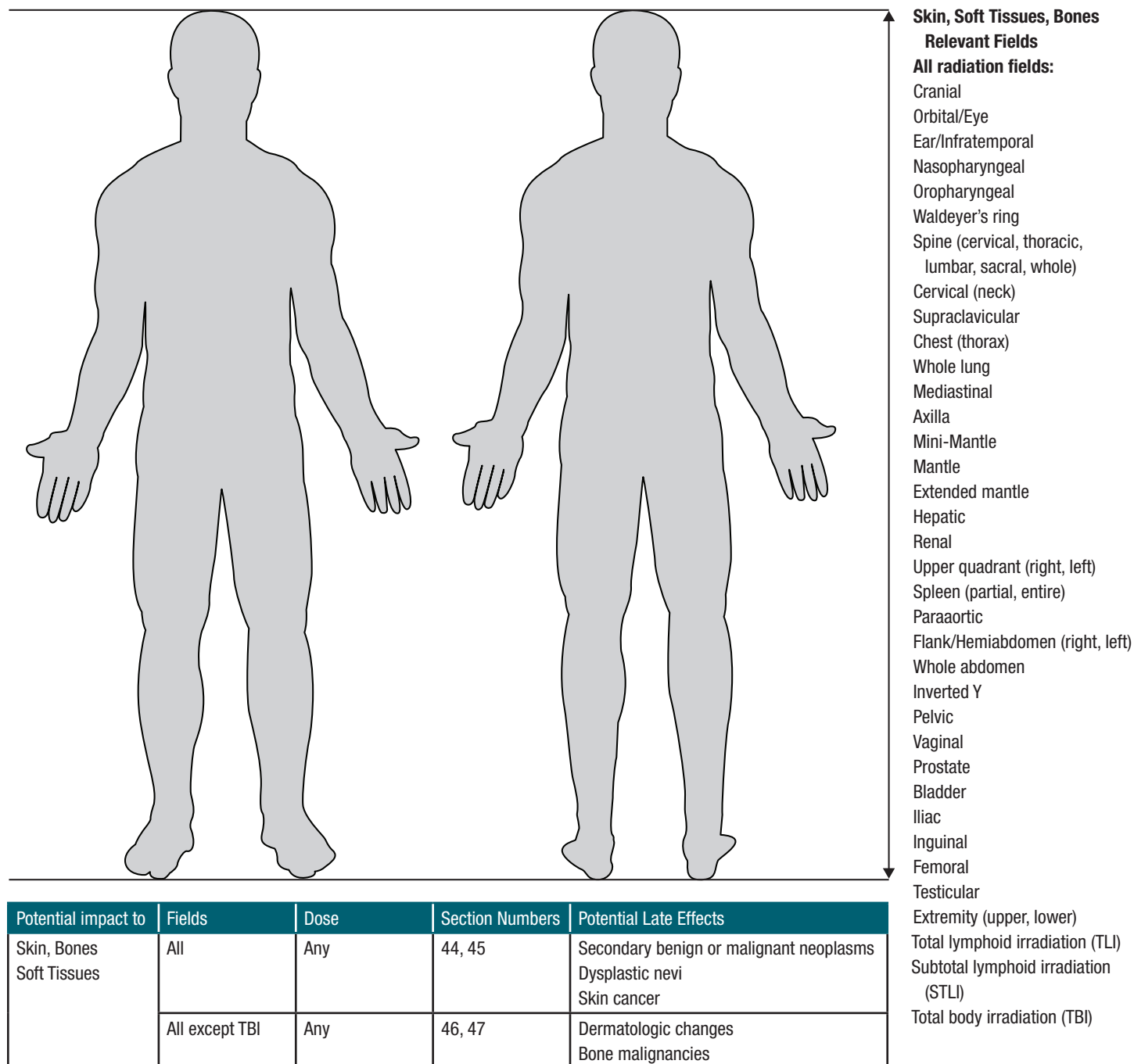
## Relevant Guideline Radiation Sections for Patients Who Received Total Body Irradiation



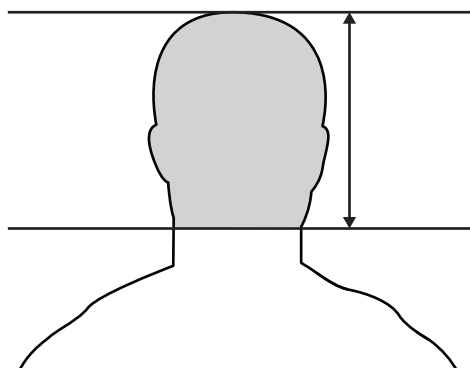
Fields	Dose	Section Numbers	Potential Late Effects
TBI	Any	44	Secondary benign or malignant neoplasms
		45	Dysplastic nevi/skin cancer
		48	Brain tumor
		49	Neurocognitive deficits
		50	Clinical leukoencephalopathy
		55	Growth hormone deficiency
		64	Cataracts
		69	Dental abnormalities
		71	Thyroid nodules
		72	Thyroid cancer
		73	Hypothyroidism
		77 <sup>§</sup>	Breast cancer
		78	Breast tissue hypoplasia
		79	Pulmonary toxicity
		80	Cardiac toxicity (male)
		81	Cardiac toxicity (female)
		84	Impaired glucose metabolism/diabetes mellitus
		85	Dyslipidemia
		90 <sup>§</sup>	Colorectal cancer
		91	Renal toxicity
95	Uterine vascular insufficiency		
96	Gonadal dysfunction (ovarian)		
98	Gonadal dysfunction (testicular)		
100	Musculoskeletal growth problems		

<sup>§</sup>Screening may be indicated for patients who received TBI alone—see Info Link in this section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Skin, Bones, Soft Tissues



## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Brain/Neuroendocrine Axis, Cranium, Face, Ear



### Brain/Cranium/Sensory Relevant Fields:

Cranial  
Orbital/Eye  
Ear/infratemporal  
Nasopharyngeal  
Waldeyer's ring  
TBI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Brain Neuroendocrine axis Cranium Face	Cranial Orbital/eye Ear/infratemporal Nasopharyngeal Waldeyer's ring TBI	Any	48, 52*, 53*, 54*, 55, 56*, 57*	Brain tumor Craniofacial abnormalities* Chronic sinusitis* Overweight/obesity* Growth hormone deficiency Precocious puberty*
		≥ 18 Gy***	51**	Cerebrovascular complications
		≥ 30 Gy***	61, ** 62, ** 63**	Gonadotropin deficiency Central adrenal insufficiency
		≥ 40 Gy***	58, ** 59, ** 60, **	Hyperprolactinemia Central hypothyroidism
Brain	Cranial Ear/infratemporal TBI	Any	49, 50	Neurocognitive deficit Clinical leukoencephalopathy
Eye	Cranial Orbital/eye TBI	Any	64	Cataracts
		≥ 30 Gy***	65**	Ocular toxicity
Ear	Cranial Ear/infratemporal Nasopharyngeal Waldeyer's ring TBI	≥ 30 Gy***	66, ** 67**	Ototoxicity (conductive hearing loss) Ototoxicity (sensorineural hearing loss)

\*TBI not associated with these sections

\*\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*\*This/these section(s) applicable to patient only if:

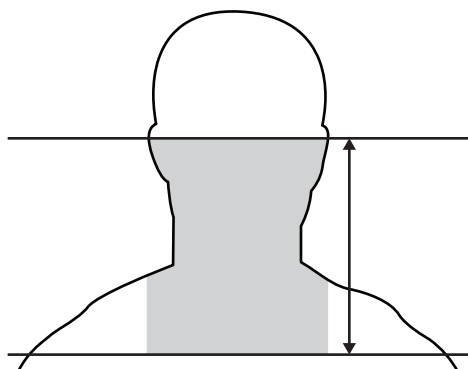
1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

2. Patient received a combination of radiation to any relevant field(s) and TBI, the sum of which is ≥ the specified minimum dose<sup>†</sup>

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Oral Cavity



### Oral Cavity Relevant Fields:

Cranial  
Nasopharyngeal  
Oropharyngeal  
Waldeyer's ring  
Spine (cervical, whole)  
Cervical (neck)  
Supraclavicular  
Mini-mantle  
Mantle  
Extended mantle  
TLI  
STLI  
TBI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Oral cavity	Cranial Nasopharyngeal Oropharyngeal Waldeyer's ring	Any	68*, 69	Xerostomia Salivary gland dysfunction Dental abnormalities
	Spine (cervical, whole) Cervical (neck) Supraclavicular Mini-mantle Mantle Extended mantle TLI STLI TBI	≥ 40 Gy***	70**	Osteoradionecrosis

\*TBI not associated with these sections

\*\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*\*This/these section(s) applicable to patient only if:

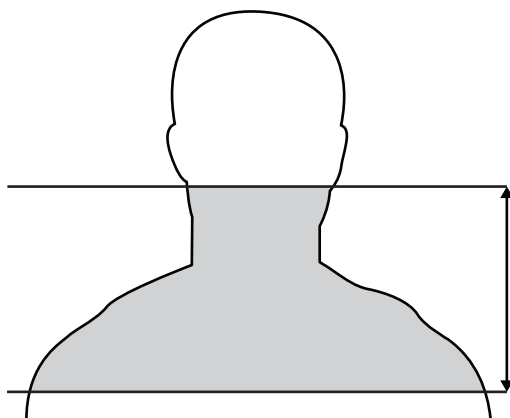
1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> plus relevant spinal radiation<sup>‡</sup> and/or TBI, the sum of which is ≥ the specified minimum dose<sup>†</sup>

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Neck/Thyroid



### Neck/thyroid Relevant Fields:

Cranial	Mediastinal
Nasopharyngeal	Mini-mantle
Oropharyngeal	Mantle
Waldeyer's ring	Extended mantle
Spine (cervical, whole)	TLI
Cervical (neck)	STLI
Supraclavicular	TBI
Chest (thorax)	
Whole lung	

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Thyroid Carotid artery	Cranial Nasopharyngeal Oropharyngeal Waldeyer's ring	Any	71, <sup>§</sup> 72, <sup>§</sup> 73 <sup>§</sup>	Thyroid nodules Thyroid cancer Hypothyroidism
	Spine (cervical, whole) Cervical (neck) Supraclavicular Chest (thorax) Whole lung	≥ 40 Gy <sup>***</sup>	74* <sup>§</sup> %	Hyperthyroidism
	Mediastinal Mini-mantle Mantle Extended mantle TLI, STLI, TBI		75*	Carotid artery disease
Subclavian artery	Spine (cervical, whole) Cervical (neck) Supraclavicular Chest (thorax) Whole lung Mediastinal Mini-mantle Mantle Extended mantle TLI, STLI, TBI	≥ 40 Gy <sup>***</sup>	76*	Subclavian artery disease

<sup>§</sup>Chest (thorax) and whole lung radiation are not applicable to this section

<sup>%</sup>Cranial and nasopharyngeal radiation are not applicable to this section

\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

<sup>\*\*\*</sup>This/these section(s) applicable to patient only if:

1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

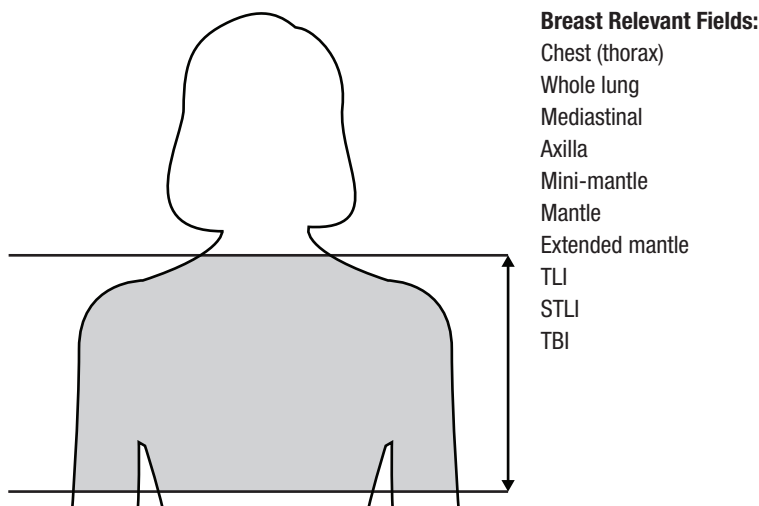
**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is ≥ the specified minimum dose<sup>†</sup>

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.



## Relevant Guideline Radiation Sections for Females Who Received Radiation With Potential Impact to: Breast



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Breast	Chest (thorax)	Any	78	Breast hypoplasia
	Whole lung Mediastinal Axilla Mini-mantle Mantle Extended mantle TLI STLI TBI	≥ 10 Gy***	77 <sup>§</sup>	Breast cancer

<sup>§</sup>Screening may be indicated for patients who received TBI alone or for patients who received doses of 10-19 Gy. Screening is indicated for patients who received ≥ 20 Gy—see Info Links in Section 77 for details

\*\*\*This/these section(s) applicable to patient only if:

1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

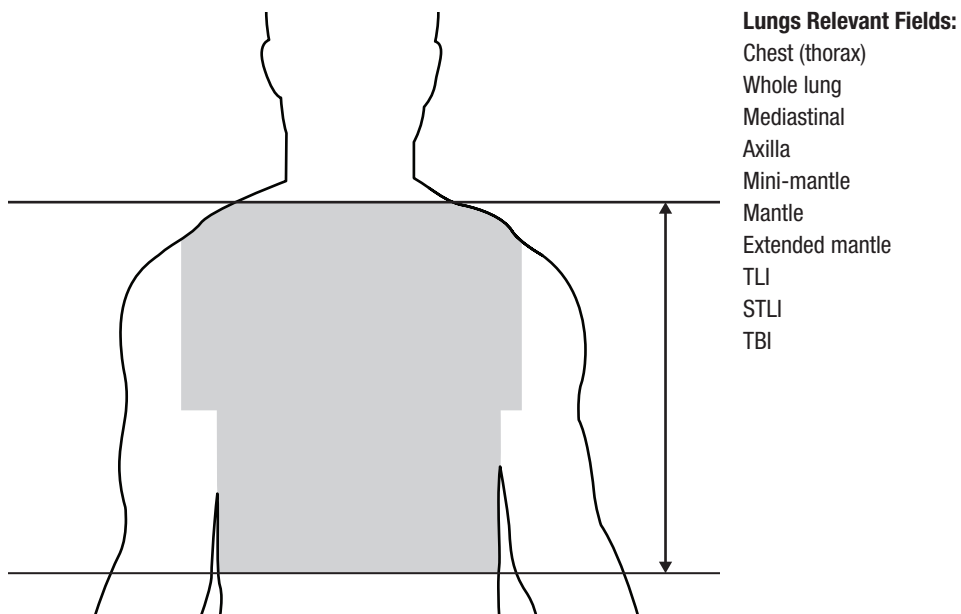
2. Patient received a combination of radiation to any relevant field(s), the sum of which is ≥ the specified minimum dose<sup>†</sup>

**OR**

3. Received TBI alone

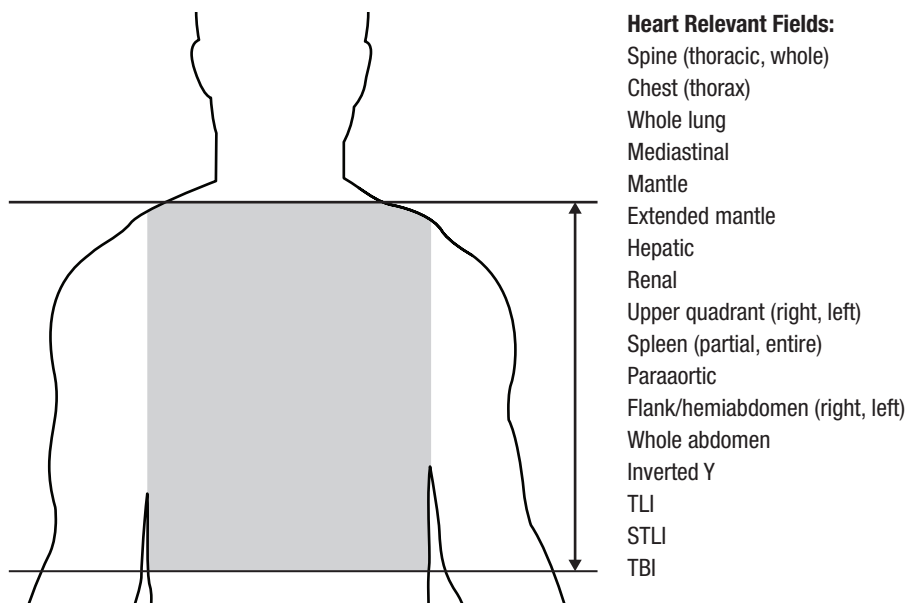
<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Lungs



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Lungs	Chest (thorax) Whole lung Mediastinal Axilla Mini-mantle Mantle Extended mantle TLI STLI TBI	Any	79	Pulmonary toxicity

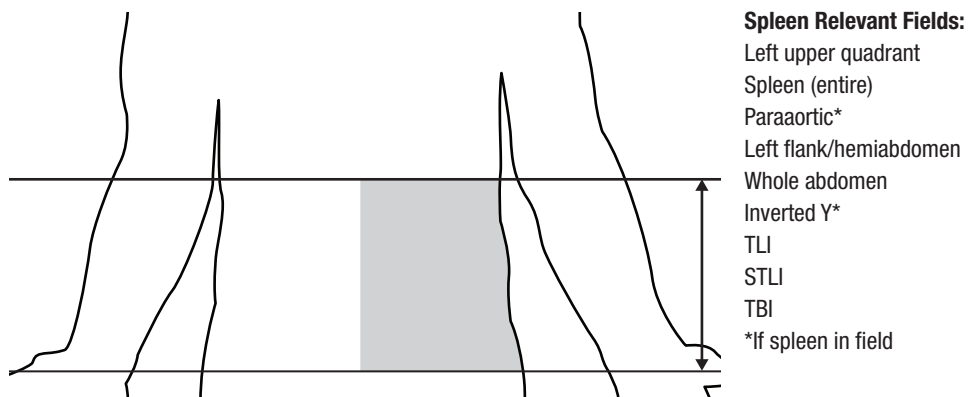
## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Heart



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Heart	Spine (thoracic, whole) Chest (thorax) Whole lung Mediastinal Mantle Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y TLI STLI TBI	Any*	80 (male) 81 (female)	Cardiac toxicity

**\*Note:** Frequency of screening is determined by dose and age at exposure.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Spleen



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Spleen	Left upper quadrant Spleen (entire) Paraaortic* Left flank/ hemiabdomen Whole abdomen Inverted Y* TLI STLI TBI	≥ 40 Gy***	82**	Functional asplenia

\*If spleen in field

\*\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*\*This section applicable to patient only if:

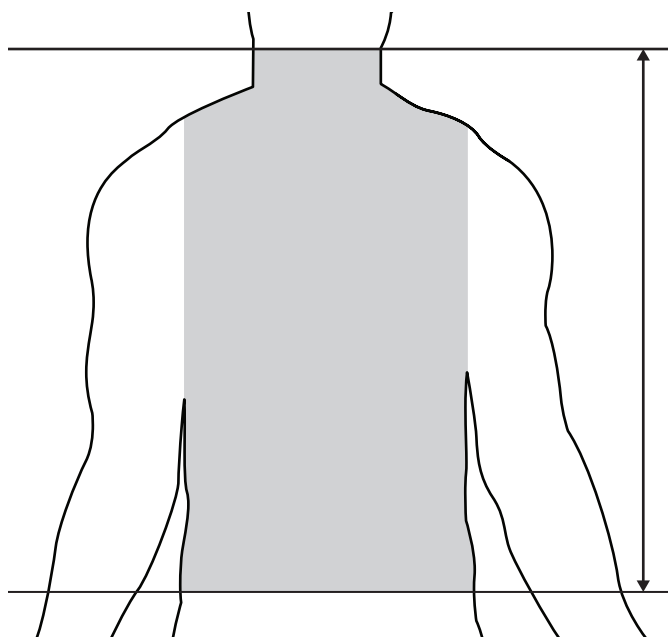
1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **and** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis **AND** at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Esophagus



**Esophagus Relevant Fields:**  
 Spine (cervical, thoracic, whole)  
 Cervical (neck)  
 Supraclavicular  
 Chest (thorax)  
 Whole lung  
 Mediastinal  
 Mini-mantle  
 Mantle  
 Extended mantle  
 Hepatic  
 Renal  
 Upper quadrant (right, left)  
 Spleen (partial, entire)  
 Paraaortic  
 Flank/hemiabdomen (right, left)  
 Whole abdomen  
 Inverted Y  
 TLI  
 STLI  
 TBI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Esophagus	Spine (cervical, thoracic, whole) Cervical (neck) Supraclavicular Chest (thorax) Whole lung Mediastinal Mini-mantle Mantle Extended mantle Hepatic Renal Upper quadrants (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y TLI, STLI, TBI	≥ 30 Gy**	83*	Esophageal stricture

\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*This section applicable to patient only if:

1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

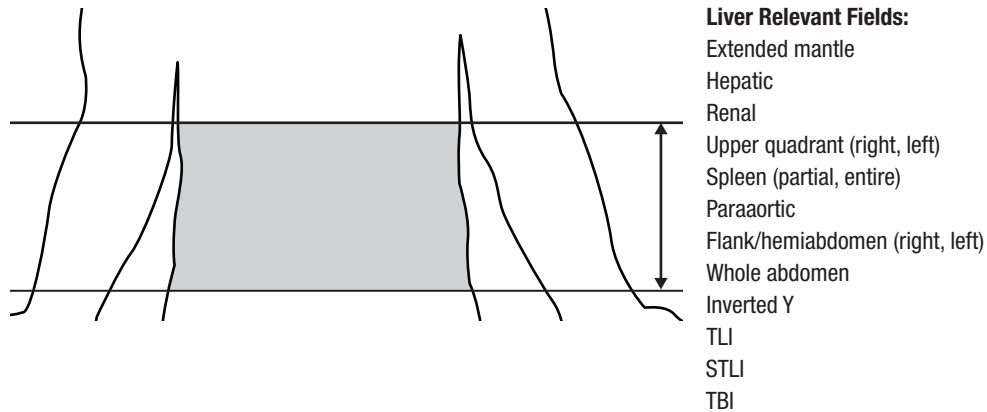
**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

<sup>‡</sup>Use the **largest** dose of radiation delivered to the spinal field(s) specified in the guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Liver



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Liver	Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left)	≥ 30 Gy**	86*	Hepatic fibrosis Cirrhosis Focal nodular hyperplasia
	Whole abdomen Inverted Y TLI STLI TBI		87*	Cholelithiasis

\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*This section applicable to patient only if:

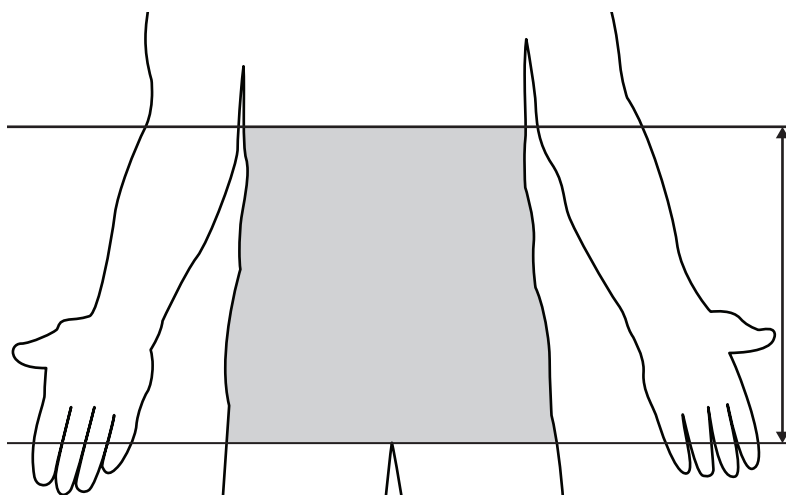
1. Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

2. Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **and** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), **the field that received the largest radiation dose should be used** in making the determination as to the applicability of the indicated guideline section(s). **Exception:** If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Bowel



**Bowel Relevant Fields:**

- Spine (thoracic, lumbar, sacral, whole)
- Extended mantle
- Hepatic
- Renal
- Upper quadrant (right, left)
- Spleen (partial, entire)
- Paraaortic
- Flank/hemiabdomen (right, left)
- Whole abdomen
- Inverted Y
- Pelvic
- Vaginal
- Prostate
- Bladder
- Iliac
- Inguinal
- Femoral
- TLI
- STLI
- TBI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Bowel	Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y	≥ 30 Gy**	88*	Bowel obstruction
	TLI STLI TBI		89*	Chronic enterocolitis Fistula Strictures
			90§	Colorectal cancer

§Screening for colorectal cancer may be indicated for patients who received TBI alone—see Info Link in Section 90

\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*This section applicable to patient only if:

- 1) Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

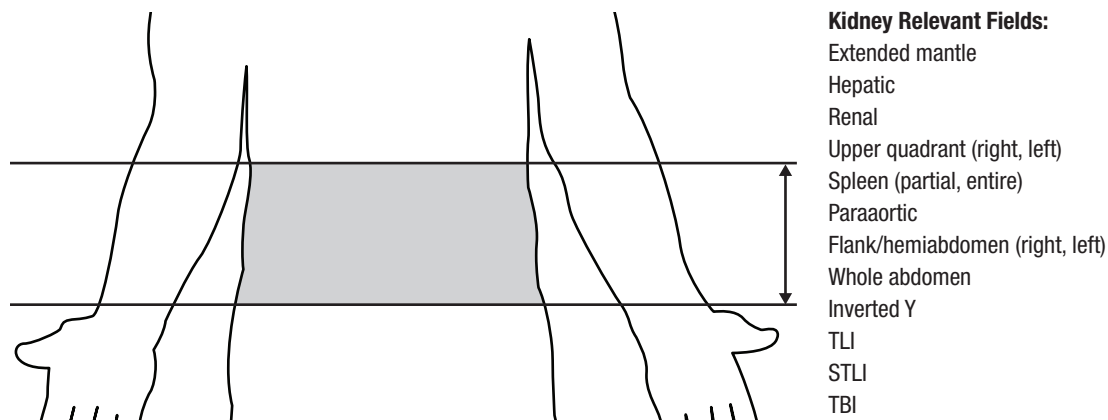
- 2) Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), *the field that received the largest radiation dose should be used* in making the determination as to the applicability of the indicated guideline section(s). **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

<sup>‡</sup>Use the *largest* dose of radiation delivered to the spinal field(s) specified in the guideline section

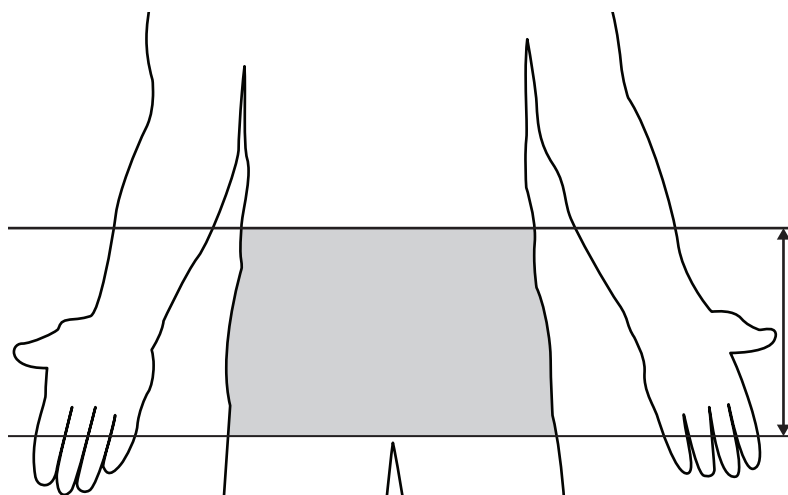


## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Kidneys



Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Kidney	Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y TLI STLI TBI	Any	91	Renal toxicity

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Bladder/Urinary Tract



**Bladder/Urinary Tract Relevant Fields:**

- Spine (sacral, whole)
  - Flank/hemiabdomen (right, left)\*
  - Whole abdomen
  - Inverted Y
  - Pelvic
  - Vaginal
  - Prostate
  - Bladder
  - Iliac
  - Inguinal
  - TLI/TBI
- \*Only if field extended below iliac crest

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Bladder Urinary tract	Spine (sacral, whole) Flank/hemiabdomen (right, left)* Whole abdomen Inverted Y	Any	94§	Bladder malignancy
	Pelvic Vaginal Prostate Bladder Iliac Inguinal	≥ 30 Gy***	92**	Hemorrhagic cystitis
	TLI TBI		93**	Urinary tract toxicity

§TBI not applicable to this section

\*Only if field extended below iliac crest

\*\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*\*This section applicable to patient only if:

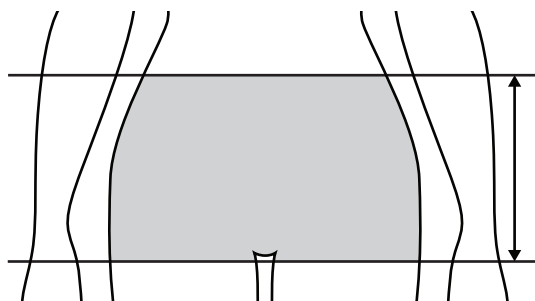
- 1) Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose†

**OR**

- 2) Patient received a combination of radiation to any relevant field(s)† **plus** relevant spinal radiation‡ **and/or** TBI, the sum of which is ≥ the specified minimum dose

†**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding spinal radiation and TBI), *the field that received the largest radiation dose should be used in making the determination as to the applicability of the indicated guideline section(s).* **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

## Relevant Guideline Radiation Sections for Females Who Received Radiation With Potential Impact to: Female Reproductive System



**Female Reproductive System Relevant Fields:**

- Spine (lumbar, sacral, whole)<sup>†</sup>
- Flank/hemiabdomen (right, left)<sup>\*</sup>
- Whole abdomen
- Inverted Y
- Pelvic
- Vaginal
- Bladder
- Iliac<sup>‡</sup>
- TLI
- TBI<sup>†</sup>

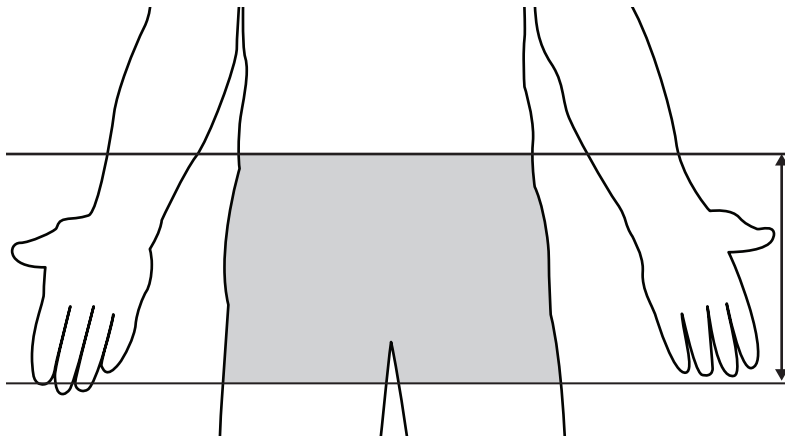
<sup>\*</sup>Only if field extended below iliac crest

<sup>†</sup>Sections 95 and 96 only

<sup>‡</sup>Sections 96 and 97 only

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Female reproductive system	Spine (lumbar, sacral, whole) <sup>†</sup> Flank/hemiabdomen (right, left) <sup>*</sup> Whole abdomen Inverted Y Pelvic Vaginal Bladder Iliac <sup>‡</sup> TLI TBI <sup>†</sup>	Any	95	Uterine vascular insufficiency
			96	Gonadal dysfunction (ovarian)
			97	Vaginal fibrosis/stenosis
	<sup>*</sup> Only if field extended below iliac crest <sup>†</sup> Sections 95 and 96 only <sup>‡</sup> Sections 96 and 97 only			

## Relevant Guideline Radiation Sections for Males Who Received Radiation With Potential Impact to: Male Reproductive System



**Male Reproductive System Relevant Fields:**

- Flank/hemiabdomen (right, left)\*
- Whole abdomen
- Inverted Y
- Pelvic
- Prostate
- Bladder
- Iliac
- Inguinal
- Femoral
- Testicular
- TLI
- TBI

\*Only if field extended below iliac crest

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Male reproductive system	Flank/hemiabdomen (right, left)* Whole abdomen Inverted Y Pelvic Prostate Bladder Iliac	Any	98	Gonadal dysfunction (testicular): Germ cell failure
	Inguinal Femoral Testicular TLI TBI	≥ 20 Gy***	99**	Gonadal dysfunction (testicular): Leydig cell failure

\*Only if field extended below iliac crest

\*\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*\*This section is applicable to patient only if:

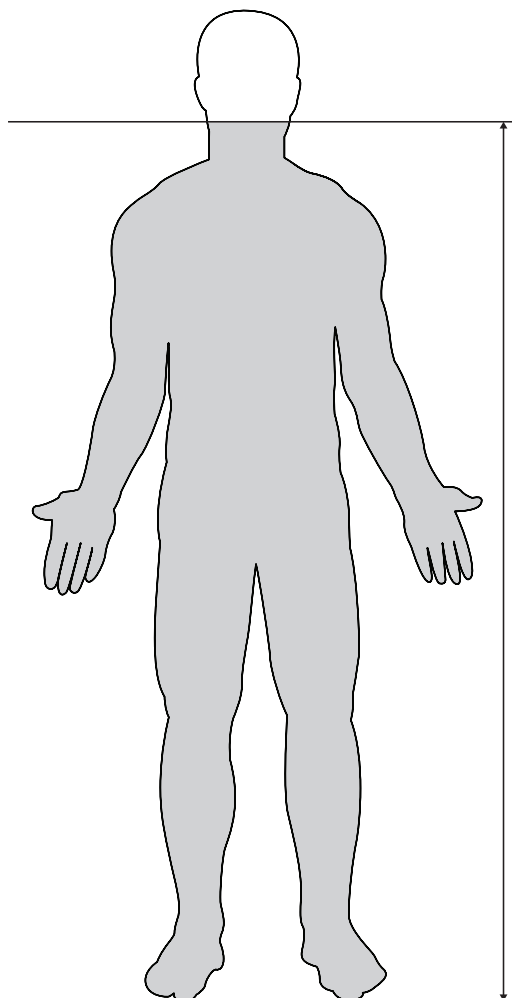
- 1) Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

**OR**

- 2) Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **and** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding TBI), *the field that received the largest radiation dose should be used* in making the determination as to the applicability of the indicated guideline section(s). **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Musculoskeletal System (Growth Problems, Radiation-Induced Fracture)



### Musculoskeletal System Relevant Fields:

- All fields from neck downward
- Spine (cervical, thoracic, lumbar, sacral, whole)
- Cervical (neck)
- Supraclavicular
- Chest (thorax)
- Whole lung
- Mediastinal
- Axilla
- Mini-mantle
- Mantle
- Extended mantle
- Hepatic
- Renal
- Upper quadrant (right, left)
- Spleen (partial, entire)
- Paraaortic
- Flank/hemiabdomen (right, left)
- Whole abdomen
- Inverted Y
- Pelvic
- Vaginal
- Prostate
- Bladder
- Iliac
- Inguinal
- Femoral
- Extremity (upper, lower)
- TLI
- STLI
- TBI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Musculoskeletal system	All fields from neck downward except testicular (see list above)	Any	100	Musculoskeletal growth problems
		≥ 40 Gy***	102*	Radiation-induced fracture

\*TBI included for dose calculation purposes only; this section not applicable to patients who received TBI alone

\*\*This section is applicable to patient only if:

- 1) Patient received radiation to any field(s) relevant to the particular guideline section at ≥ the specified minimum dose<sup>†</sup>

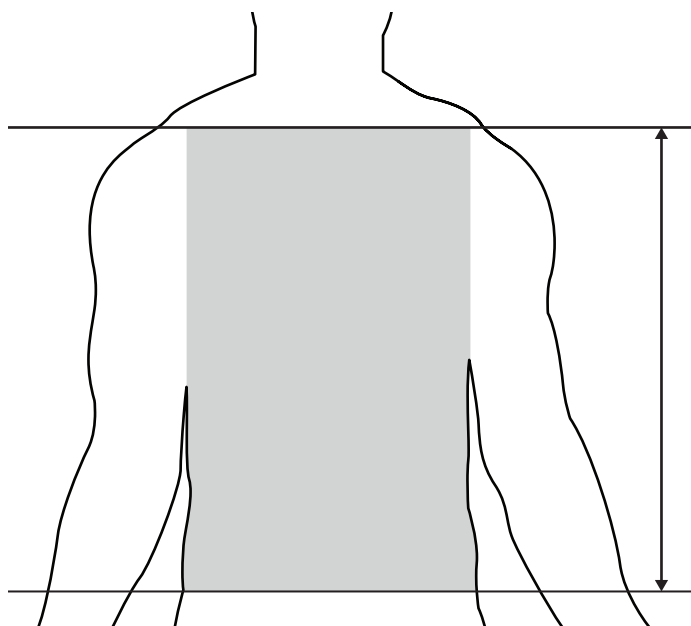
**OR**

- 2) Patient received a combination of radiation to any relevant field(s)<sup>†</sup> **plus** relevant spinal radiation<sup>‡</sup> **and/or** TBI, the sum of which is ≥ the specified minimum dose

<sup>†</sup>**Notes:** Total dose to each field should include boost dose, if given. If patient received radiation to more than one field relevant to a particular guideline section during a single planned course of radiation treatment (excluding TBI), *the field that received the largest radiation dose should be used* in making the determination as to the applicability of the indicated guideline section(s). **Exception:** *If patient received radiation to the same field at different times (e.g., at time of diagnosis AND at relapse), these doses should be added together when considering the applicability of the indicated guideline section.*

<sup>‡</sup>Use the largest dose of radiation delivered to the spinal field(s) specified in the guideline section

## Relevant Guideline Radiation Sections for Patients Who Received Radiation With Potential Impact to: Musculoskeletal System (Scoliosis/Kyphosis)



**Musculoskeletal System Relevant Fields:**

- Spine (thoracic, whole)
- Chest (thorax)
- Whole lung
- Mediastinal
- Mantle
- Extended mantle
- Hepatic
- Renal
- Upper quadrant (right, left)
- Spleen (partial, entire)
- Paraaortic
- Flank/hemiabdomen (right, left)
- Whole abdomen
- Inverted Y
- TLI
- STLI

Potential impact to	Fields	Dose	Section Numbers	Potential Late Effects
Musculoskeletal system	Spine (thoracic, whole) Chest (thorax) Whole lung Mediastinal Mantle Extended mantle Hepatic Renal Upper quadrant (right, left) Spleen (partial, entire) Paraaortic Flank/hemiabdomen (right, left) Whole abdomen Inverted Y TLI STLI	Any	101	Scoliosis/kyphosis