



Getting Specific About Site-Specific Factors

Part I Section II

CS version 0203
Education and Training Team

Overview

- CSv0202 to CSv0203 changes
- What are Site-Specific Factors?
- Types of Site-Specific Factors
 - Examples
- Code structures



5-1-2011

CSv0203 Changes

- Based on post-publication changes in AJCC Cancer Staging Manual, seventh edition
- Continued work to make CAP Protocols compatible with registrar abstracting needs
- Thorough, independent review of codes and format by Data Validation Team



5-1-2011

Coding of Lab Test Interpretation

- **Priority of information**
 - Code clinician's interpretation
 - If no MD interpretation, registrar may interpret from reference range listed on lab report
 - If no MD interpretation and no reference range listed, code as 999
 - Use common sense and code 010 rather than 999 if lab result is extremely abnormal



5-1-2011

What Are Site-Specific Factors?

- Part of CS data set
- Data fields with different meanings depending on schema
- Additional information serving many purposes
- Not all site-specific factors are required



5-1-2011

Site-Specific Factors, cont'd

- **SSF data sets**
 - Breast – 24
 - Eyelid, lacrimal gland – 15 to 16
 - Testis – 13
 - Prostate – 12
 - Ocular adnexal lymphoma – 12
 - Head & Neck sites (carcinoma, melanoma) – 9 to 11
 - Colon and Rectum – 10
 - CNS – 8
- Standards setters determine which SSFs are required
 - www.cancerstaging.org/cstage/manuals/index.html



5-1-2011

Types of Site-Specific Factors

- Needed for TNM mapping
- Prognostic/predictive
- Tumor markers and lab values
- Future research/special interest
- Associated diseases and conditions
- Schema discriminators



5-1-2011

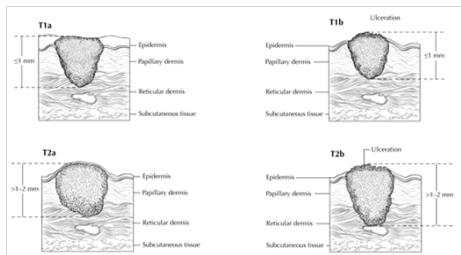
SSFs Needed for TNM Mapping

- Supplementary information
 - Difficult to quantify in core data field
 - May be non-anatomic
- Usually required by COC and SEER
- Examples
 - Number of positive axillary nodes (breast)
 - Gleason score (prostate)
 - Systemic symptoms at diagnosis (lymphoma)



5-1-2011

Cutaneous Melanoma SSF1 – Thickness/Depth of Invasion SSF2 – Ulceration



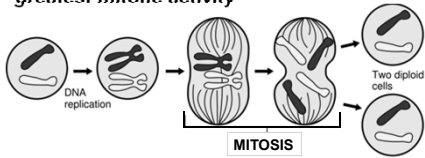
From: Melanoma of the Skin. In: Greene, F.L., Compton, C.C., Fritz, A.G., et al., editors. AJCC Cancer Staging Atlas. New York: Springer, 2006: 207-216. ©American Joint Committee on Cancer.



5-1-2011

GIST – Mitotic Count

- **Mitotic count: number of cells actively dividing**
 - <5 mitoses/high power field – low mitotic rate
 - >5 mitoses/high power field – high mitotic rate
- **Source: pathology report/protocol**
 - Pathologist instructions: scan slide for area of greatest mitotic activity



Source: www.ncbi.nlm.nih.gov/About/primer/genetics_cell.html. In the public domain.

5-1-2011

GIST – Mitotic Count

- **Usually documented as mitoses per 50 high power fields (HPF)**
 - Standard magnification is 40X
 - Also described as 'per 5 mm²' (square millimeters)
- **Site-specific factor code**
 - Implied decimal between 2nd and 3rd digit
 - .8 mitoses/50HPF 008
 - 5 mitoses/50HPF 050



5-1-2011

GIST – Mitotic Count

- **Criteria for Stage Grouping**
 - Tumor size cut points: 2, 5, 10 cm
 - Mitotic activity cut point: 5 mitoses/50 HPFs

ANATOMICAL/PROGNOSTIC STAGE GROUPS

Example: Stomach	Mitotic Rate			
Stage IA	T1-2	N0	M0	Low
Stage IB	T3	N0	M0	Low
Stage II	T4	N0	M0	Low
	T1-2	N0	M0	High
Stage IIIA	T3	N0	M0	High
	IIIB	T4	N0	M0
Stage IV	Any T	N1	M0	Any
	Any T	Any N	M1	Any



5-1-2011

Prognostic/Predictive SSFs

- Enhance clinical relevance of TNM and cancer registry data base
- Prognostic – helps estimate outcomes
- Predictive – helps determine whether patient will respond to certain types of therapy
- Examples
 - Estrogen and progesterone receptors (breast)
 - HER2 (breast)
 - Gleason tertiary pattern (prostate)
 - IPI, FLIPI, IPS (lymphoma)



5-1-2011

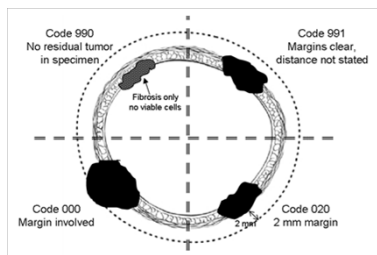
Colon/Rectum SSF 6 Circumferential Resection Margin

- Required by COC, SEER, Canada
- Radial or mesenteric margin
 - Width of surgical margin at deepest part of tumor in area without serosa
 - Distance in millimeters between leading edge of tumor and margin of resection
 - Not the same as proximal and distal margins
- Most important predictor of local recurrence in rectum



5-1-2011

Colon/Rectum SSF 6 Circumferential Resection Margin



AJCC Cancer Staging Atlas (2008), Springer Science and Business Media, LLC. Used with permission



5-1-2011

**Colon/Rectum SSF 6
Circumferential Resection Margin**

- **Codes**
 - 000 Margin involved
 - 001-009 0.1-0.9 mm
 - 010-980 Exact size in mm
 - 988 Not applicable: Information not collected
 - 990 No residual tumor
 - 991 Margins clear/negative, distance not stated
 - 991-996 Nonspecific codes "< xx", "> yy", "between xx and yy"
 - 998 No surgery; no histologic confirmation
 - 999 Unknown; CRM not mentioned



5-1-2011

Colon/Rectum SSF 9 – KRAS

- **Required by COC, SEER**
- **Oncogene that predicts response to cetuximab or panitumumab**
 - Primarily tested on Stage IV patients
- **Codes**
 - 010 Abnormal (mutated); Positive for mutations
 - 020 Normal (wild type); Negative for mutations
 - 988 Not applicable: Information not collected
 - 997 Test ordered, results not in chart
 - 998 Test not done (not ordered and not performed)
 - 999 Unknown; Not documented in patient record



5-1-2011

CNS schemas SSF1 – WHO Grade

- **Required by COC, SEER**
- **Code Description**

010	Grade I
020	Grade II
030	Grade III
040	Grade IV
999	Clinically diagnosed/grade unknown*; Not documented in medical record
- * Code 999 also includes tumors that are not WHO graded.



5-1-2011

Brain/Other CNS SSF 4 Methylation of MGMT

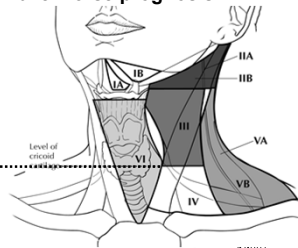
- Required by COC, SEER
- MGMT—enzyme that repairs DNA
 - Methylated MGMT repairs less DNA → may prolong survival
- Codes
 - 010 Yes – Methylated; Hypermethylated; High levels
 - 020 No – Unmethylated; Low levels
 - 988 Not applicable: information not collected
 - 998 No histologic examination of primary site
 - 999 Unknown; Not documented in patient record



5-1-2011

Head and Neck SSF7 Upper/Lower Cervical Node Levels

- Documents whether involved nodes are above or below level of cricoid cartilage
 - Lower cervical nodes have worse prognosis



Level of cricoid cartilage

Image source: CSv2 User Documentation, Part I Section 2

Head and Neck SSF7 Upper/Lower Cervical Node Levels

- Codes
 - 000 No lymph nodes involved
 - 010 Upper level lymph nodes involved
Levels I, II, III, VA, "Other groups"
 - 020 Lower level lymph nodes involved
Levels IV, VB, VII
 - 030 Upper and lower level lymph nodes involved
 - 040 Unknown level lymph nodes involved
Code "mid neck" and levels V, VI here if not specified as upper or lower
 - 999 Unknown, not stated
- If not obvious, refer to list in Part I, Section 2 of CS User Documentation



5-1-2011

**Part I Section 2 Table I-2-3 Example
Lymph Nodes of the Head and Neck Showing Level
and Site-Specific Factor Positions**

Name	Level	SSF7 Code	SSF3-6	Position
Anterior compartment	VI	Note 1	5	1
Anterior deep cervical	VI	Note 1	5	1
Buccinator (buccal)	F	10	5	3
Central compartment	VI	Note 1	5	1
Cervical, NOS	--	40	--	--
Deep cervical, NOS	--	40	--	--
Delphian	VI	20	5	1
Facial (NOS)	F	10	5	3
Infra-auricular	PA	10	6	2
Internal jugular, NOS	--	40	--	--
Intraparotid	PA	10	6	2
Jugulodigastric	II	10	3	2

Note 1. Look for a statement of upper or lower cervical nodes or that the involved nodes are above or below the lower border of the cricoid cartilage and code appropriately. If no further information, use code 40 in SSF 4.



5-1-2011

Tumor Markers and Lab Values

- Codes actual value or interpretation of test (or both)
- Pathologic values
 - Blood tests
 - Examination of tissue
- Confirm diagnosis
 - AFP, HCG
- Document tumor volume
 - CEA
 - CA 19-9
- Prognostic
 - CA-125



5-1-2011

CNS schemas SSF 2 – Ki-67 / MIB-1

- Tumor marker that indicates percentage of cells that are actively dividing
 - Separates good prognosis and poor prognosis
- Codes
 - 001-100 1-100% (exact Labeling Index percentage)
 - 200 Labeling Index (LI) normal
 - 300 LI slightly elevated, no percentage provided
 - 400 LI elevated, no percentage provided
 - 988 Not applicable: information not collected
 - 997 Test ordered, results not in chart
 - 998 Test not done (not ordered and not performed)
 - 999 Unknown or no information; Not documented



5-1-2011

NET schemas – Chromogranin A

- **Source: clinical lab report or path report**
Other names
 - Serum chromogranin A, CGA, chromogranin
- **Marker for neuroendocrine tumors**
 - Specific but not sensitive immunostain for neuroendocrine cells. Positive more often for well-differentiated NET (carcinoid) than poorly-differentiated NET (neuroendocrine carcinoma).
- **Site-specific Factor note**
 - Record the highest CgA lab value recorded in the medical record prior to treatment.
 - Example: pretreatment CgA of 400 nanograms per milliliter (ng/ml); *record as 400*



5-1-2011

NET schemas – Chromogranin A

Code	Description
000	0 ng/ml
001	1 or less ng/ml
002-979	002-979 ng/ml
980	980 or greater ng/ml
988	Not applicable: information not collected for this case
997	Test ordered, results not in chart
998	Test not done (test was not ordered and was not performed)
999	Unknown or no information Not documented in patient record



5-1-2011

Heme-Retic SSF1 – JAK-2


- **Other Names**
 - JAK2, Janus kinase 2, Exon 12
- **Acquired gene mutation increases susceptibility to several myeloproliferative neoplasms (MPNs).**
 - Polycythemia vera – positive in > 90%
 - Essential thrombocythemia – positive in ~ 50%
 - Also primary myelofibrosis, CMML
- **JAK2 does not identify which specific MPN is present – clinical correlation needed**
- **Required for COC and SEER**



5-1-2011

**Heme-Retic SSF 1 – JAK-2
Coding Guidelines**


- Code JAK-2 test as documented in a laboratory test (whole blood or bone marrow) or elsewhere in the medical record.
 - Code for any hematopoietic disease for which JAK-2 is tested.
 - If JAK-2 not mentioned, use code 999 for a Heme-Retic schema disease such as leukemia or multiple myeloma where JAK-2 is not normally tested.
 - If JAK-2 is positive but the specific mutation is not stated, code as 850.

 5-1-2011

Heme-Retic SSF1 – JAK-2

Codes

- 000 JAK-2 test result stated as negative
- 010 JAK2 test performed, positive for mutation V617F in exon 14
- 020 JAK2 test performed, positive for mutation of exon 12
- 800 JAK2 test performed, positive for other specified mutation
- 810 JAK2 test performed, positive for more than one mutation
- 850 JAK2 test performed, positive NOS; specific mutation(s) not stated


 5-1-2011

Future Research/Special Interest SSFs

- Tests infrequently performed
- Applicable in limited circumstances
- May be collected prospectively

• **Examples**

- CTCs and DTCs (breast)
- TILs (Merkel cell)
- Involvement of Corpus Spongiosum/Corpus Cavernosum (penis)

 5-1-2011

Microsatellite Instability

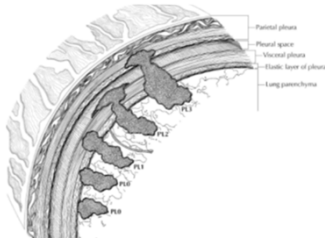
- SSF7 in colon, rectum and appendix schemas
- SSF5 in small intestine schema
- Pathologic test
 - Determines likelihood of a specific gene mutation for hereditary non-polyposis colorectal cancer (HNPCC)/Lynch syndrome
- Codes
 - 020 MSI Stable; No microsatellite instability
 - 040 MSI unstable low; Positive, low – not genetic
 - 050 MSI unstable high; Positive, high – genetic
 - 060 MSI unstable, NOS; Positive, NOS
 - 988 Not applicable: Information not collected



5-1-2011

Lung SSF 2 – Visceral Pleural Invasion/Elastic Layer

- For tumor < 3 cm, invasion of visceral pleura upstages T
 - PL1-PL2 → T2
 - PL3 → T3



Parietal pleura (PL3)
Pleural space
Mesothelial cells on basement membrane (single layer) (PL2)
Submesothelial connective tissue (PL1)
Elastic fibers (Elastic layer) (single layer or double layer separated by fibrous connective tissue)
Connective tissue layer on thin basement membrane (PL0)
Lung parenchyma



5-1-2011

Lung SSF 2 – Visceral Pleural Invasion/ Elastic Layer

- Required by COC, SEER
- Codes
 - 000 No evidence of visceral pleural invasion; not through elastic layer (PL0)
 - 010 Beyond visceral elastic pleura, limited to pulmonary pleura; through elastic layer (PL1)
 - 020 To surface of pulmonary pleura; Extends to surface of visceral pleura (PL2)
 - 030 Extends to parietal pleura (PL3)
 - 040 Invasion of Pleura, NOS
 - 988 Not applicable: Information not collected
 - 998 No histology of pleura
 - 999 Unknown if visceral pleural invasion is present; Not documented in patient record



5-1-2011

Associated Diseases and Conditions

- Items selected by TNM chapter authors
- Complete clinical picture of cancer
- Examples
 - History of asbestos exposure (mesothelioma)
 - Retinoblastoma gene mutation (retinoblastoma)
 - AIDS/HIV status (lymphoma, Kaposi sarcoma)



5-1-2011

Head and Neck SSF 10 HPV Status

- Required by COC, SEER and Canada for some H&N sites
- Human papilloma virus (HPV) infection may be a favorable risk factor for oral and other mucosal cancers
 - Highest risk strains for cancer are types 16 and 18
- Code results from any tissue, not just primary site
- Many codes—read carefully



5-1-2011

Head and Neck SSF 10 HPV Status

- Codes
 - 000 HPV test neg; Negative, NOS; High risk neg, low risk unstated
 - 010 LOW RISK pos (all pos type(s) low risk)
 - 020 HIGH RISK pos, spec type(s) other than 16 or 18*
 - 030 HIGH RISK pos for HPV 16 WITHOUT pos results for HPV 18 or pos of HPV 18 unknown* ^
 - 040 HIGH RISK pos for HPV 18 WITHOUT pos results for HPV 16 or pos of HPV 16 unknown* ^
 - 050 HIGH RISK pos for HPV 16 AND HPV 18 * ^
 - 060 HIGH RISK positive, NOS, type(s) not specified
 - 070 Positive, NOS, risk and type(s) not stated
 - 988 Not applicable: Information not collected
 - 997 Test ordered, results not in chart
 - 998 Test not done (not ordered and not performed), including no path specimen available for HPV testing
 - 999 Unknown or no information; Not documented

* WITH or WITHOUT positive results for low risk type(s)

^ WITH or WITHOUT positive results for other high-risk types



5-1-2011

Brain SSF 3 Karnofsky Performance Score/Scale

- Functional status at time of diagnosis
- Code physician statement in record; do not interpret description of status
 - If information not collected, use 988.
 - If no stated score, use 999.
- General categories
 - 80 – 100 Able to carry on normal activity and to work; no special care needed
 - 50 – 70 Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed
 - 10 – 40 Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly
 - 0 Dead



5-1-2011

Schema Discriminators

- Determines which schema to display for a case
- Extra information stored in SSF25
- Schema discriminators needed for
 - Hepatic ducts vs. cystic duct vs. common bile duct
 - Nasopharynx vs. pharyngeal tonsils (adenoids)
 - Stomach vs. esophagus-GE junction
 - Ciliary body vs. iris
 - Lacrimal gland vs. lacrimal sac
 - Peritoneum (sarcomas, male/female) vs. female peritoneum (carcinomas)



5-1-2011

Stomach/Esophagus GE Junction SSF25 – Schema Discriminator

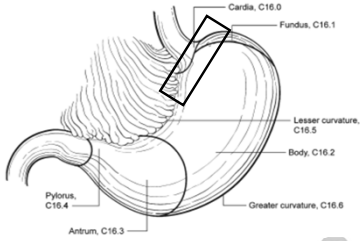
- Necessary because of shift of C16.0, parts of C16.1 and C16.2 to esophagus TNM staging
- Esophagogastric junction (EGJ) tumors:
 - If midpoint (epicenter) within 5 cm of EGJ and also extends into esophagus, classify and stage as esophagus
 - Stage all others with midpoint in stomach > 5 cm from EGJ or those within 5 cm of the EGJ *with no extension* into esophagus as gastric carcinoma



5-1-2011

**Stomach/Esophagus GE Junction
SSF25 – Schema Discriminator**

- Esophagogastric Junction
- Gastroesophageal Junction



From Edge et al. Used with permission of the American Joint Committee on Cancer (AJCC), Chicago, Illinois. The original source for this material is the AJCC Cancer Staging Manual seventh edition (2009) published by Springer Science and Business Media LLC. www.springerlink.com.



5-1-2011

**SSF 25: Involvement of Cardia and
Distance from GE Junction**

- | | |
|--|----------|
| • 000 No involvement of esophagus or EGJ | Stomach |
| • 010 Tumor located in Cardia or EGJ | EsophGEJ |
| • 020 Esoph or EGJ involved AND tumor midpoint from EGJ \leq 5 cm | EsophGEJ |
| • 030 Esoph or EGJ involved AND tumor midpoint from EGJ $>$ 5 cm | Stomach |
| • 040 Esoph or EGJ involved AND tumor midpoint from EGJ unknown | EsophGEJ |
| • 050 Esoph and EGJ not involved but tumor midpoint from EGJ is \leq 5 cm | Stomach |
| • 060 Esoph involved or esoph involvement unknown AND tumor midpoint from EGJ $>$ 5 cm or unknown AND MD stages case using esoph definitions | EsophGEJ |
| • 999 Involvement of esoph not stated, unk or no info, not documented | Stomach |
| • Blank for Stomach cases C16.3-C16.9 | Stomach |
| • Blank for Cardia/EGJ cases C16.0 | EsophGEJ |



5-1-2011

**Melanoma Ciliary Body/Melanoma Iris
SSF25 Schema Discriminator**

<u>Code</u>	<u>Description</u>	<u>Schema</u>
010	Ciliary Body <i>Includes Crystalline lens, Sclera, Uveal tract, Intraocular, Eyeball</i>	MelanomaCiliaryBody
020	Iris	MelanomaIris
100	OBSOLETE DATA RETAINED V0200 <i>C69.4 - originally coded in CSv1</i>	MelanomaCiliaryBody

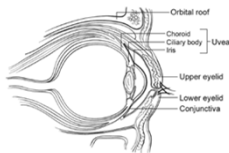


Image source: Malignant Melanoma of the Conjunctiva. In: Edge SB, Byrd DR, Compton CC, eds. AJCC Cancer Staging Manual, seventh ed. New York, NY: Springer, 2009 (546).

SSF Codes for Lab Values

- **Lab tests**
 - 000 0 result
 - 001 – 979 Actual value
 - 980 980 units or greater
 - 988 Not applicable: Information not collected
 - 997 Test ordered, results not in chart
 - 998 Test not done (not ordered and not performed)
 - 999 Unknown or no information



5-1-2011

Codes for Other SSF Types

- **Lab Value Interpretation**
 - 010 Positive/elevated
 - 020 Negative/normal; within normal limits
 - 030 Borderline; undetermined if pos or neg
 - 988 Not applicable
 - 997, 998, 999 Same as other SSFs



5-1-2011

Codes for Other SSF Types

- **Size/depth**
 - 000 Not found
 - 001 – 979 Actual measurement (cm, mm)
 - 980 980 units or greater
 - 988 Not applicable: Information not collected
 - 990 Microscopic focus [or related terms]
 - 991 – 997 Measurement ranges
*less than y units, more than x units,
between x and y units*
 - 999 Unknown or no information



5-1-2011

Codes for Other SSF Types

- **Conditions/History of disease**
 - 000 Condition not present/No hx of disease
 - 010 Condition present/Hx of disease
 - 020-090 Variations of condition present
 - 988 Not applicable
 - 998 No histologic examination of primary site
 - 999 Unknown or no information



5-1-2011

Use of SSF 900 Series Codes

- **987** Not applicable (case does not meet criteria for SSF)
- **988** Not applicable: information not collected for this case
- **997** Test ordered, results not in chart
- **998** Test not ordered OR No histologic examination of primary site
- **999** Unknown; not documented



5-1-2011

Coding Rules for Lab Test and Tumor Marker Interpretation Fields


- Reference ranges for background *only*
- Code clinician's/pathologist's interpretation of test. Examples:
 - Abnormal - Elevated
 - Normal - Equivocal
 - Present - Absent
 - Physician statement of T, N, or M value or stage group → implied interpretation of a lab value
- If no interpretation, use reference range listed on test report
- If no interpretation and no description of reference range, code 999



5-1-2011


REMINDER
Site-Specific Factors

- **If information regarding SSF is not in path report or medical record, Registrar is not required to go looking for it**
 - Information may not be available in some facilities
 - Not registrar's role to enforce practice standards
 - Instructions included in schemas on how to code missing information

 5-1-2011


www.cancerstaging.org/cstage


- **Website includes**
 - Coding instructions (downloadable PDFs)
 - Implementation Guide
 - Standards setters requirements for SSFs
 - Installation program for bookmarked and hyperlinked Part I and Part II documents
 - Site-specific schema
 - Natural order (online)
 - Alphabetic order (online)
 - Schema Groups (downloadable PDFs)
 - Access to software
 - Access to I&R
 - Information about educational initiatives

 5-1-2011

CAnswer Forum

- **Submit questions to CS Forum**
 - Located within the CAnswer Forum
 - Provides information for all
 - Allows tracking for educational purposes
 - Includes archives of Inquiry & Response System
- CS Forum: <http://cancerbulletin.facs.org/forums/>
- CS Web Site: www.cancerstaging.org/cstage



 51
