

**Collaborative Stage Data Collection System  
Version 2**

**Implementation Guide for  
Registries and Vendors**

**Elaine N. Collins  
Minnesota Cancer Surveillance System**

**Alan R. Houser  
C/NET Solutions**

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## Implementation Issues Team

SUZANNA HOYLER, BS, CTR, Team Leader  
Consultant  
Austin, TX

PEGGY ADAMO, RHIT, CTR  
National Cancer Institute  
Bethesda, MD

KIMBERLEY BOYUK, MA  
Statistics Canada  
Ottawa, ON

SUSAN CAPRON  
Chair, NAACCR Edits Work Group  
Chicago, IL

ELAINE COLLINS, RHIA, CTR  
Minnesota Cancer Surveillance System  
St. Paul, MN

DONNA GRESS, RHIT, CTR  
American Joint Committee on Cancer  
Chicago, IL

LORI HAVENER, CTR  
North American Association of Central Cancer  
Registries  
Springfield, IL

ALAN HOUSER, MA, MPH  
C/NET Solutions  
Public Health Institute  
Berkeley, CA

CAROL JOHNSON, CTR  
National Cancer Institute  
Bethesda, MD

PETER KIM  
Centers for Disease Control and Prevention  
Atlanta, GA

GARY M. LEVIN, CTR  
Florida Cancer Data System  
Miami, FL

MARY LEWIS  
Centers for Disease Control and Prevention  
Atlanta, GA

MARY NIGHTINGALE  
Canadian Cancer Registry  
Ottawa, ON

JERRI LINN PHILLIPS, MA, CTR  
National Cancer Data Base  
American College of Surgeons, Commission on  
Cancer  
Chicago, IL

JOAN PHILLIPS, CTR  
Centers for Disease Control and  
Prevention/NPCR  
Atlanta, GA

LYNN RIES, MS  
National Cancer Institute  
Bethesda, MD

DAVID RONEY  
Information Management Services, Inc.  
Silver Spring, MD

FRANCES ROSS, CTR  
Kentucky Cancer Registry  
Lexington, KY

JENNIFER SEIFFERT, MLIS, CTR  
Northrop Grumman Health Solutions  
Warsaw, IN

ANDREW STEWART  
National Cancer Data Base  
American College of Surgeons, Commission on  
Cancer  
Chicago, IL

DAVID STINCHCOMB  
National Cancer Institute  
Bethesda, MD

CASTINE VERRILL, MS, CTR  
Centers for Disease Control and Prevention  
Atlanta, GA

REDA WILSON, CTR  
Centers for Disease Control and Prevention  
Atlanta, GA

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# 1 INTRODUCTION

## 1.1 NAACCR 12 and CSv2

The North American Association of Central Cancer Registries, Inc. (NAACCR) in August 2009 released “2010 Implementation Guidelines and Recommendations”, an implementation plan for NAACCR Standards for Cancer Registries Volume II, Data Standards and Data Dictionary Version 12 (Standards Volume II Version 12). The Standards Volume II Version 12, dictionary and reporting layout, incorporate the revised data items for the Collaborative Stage Data Collection System Version 2 (CSv2), which is mandated for collecting stage information on cancer cases diagnosed January 1, 2010 and forward. The implementation of Standards Volume II Version 12 data structure and reporting layout, CSv2, and the NAACCR 12 Edits metafile must be a coordinated process. CSv2 requires the Version 12 structure and layout for data collection and reporting, and the NAACCR 12 Edits metafile requires data in the Version 12 layout and makes function calls to the CSv2 Dynamic Link Library (DLL) to validate CSv2 data codes. The National Program of Cancer Registries (NPCR) will provide an automated conversion program converting NAACCR 11 to NAACCR 12 data structure, and a conversion program from Collaborative Staging version 1 (CSv1) to CSv2 will be embedded within that program.

The timing of release for the NAACCR guidelines precluded the inclusion of full implementation guidelines for CSv2, as the data mapping between the American Joint Committee on Cancer (AJCC) Staging Manual 7<sup>th</sup> Edition (AJCC 7) and CSv2 was not completed until December 2009. This document supplements the CSv2 information provided in August 2009, focusing on implementation issues for central and hospital registries and for software vendors in moving from CSv1 to CSv2.

All files for this release are available from the CS Web page at

<http://www.cancerstaging.org/cstage/software.html>.

The CSv2 files completely replace the CSv1 files; data collected in CSv1 is converted into CSv2, and the CSv2 system alone should be maintained after implementation and testing. CSv2 is based on the same table-driven structure as CSv1, with specifications for special processing contained in many table notes. The CSv2 algorithm derives AJCC 7 stage, Summary Stage 1977 (SS1977), and Summary Stage 2000 (SS2000) values for cases with a diagnosis date 1/1/2010 and forward where enough information is provided; the CSv2 algorithm also derives values for the American Joint Committee on Cancer Staging Manual 6<sup>th</sup> Edition (AJCC 6) stage, SS1977, and SS2000 for all pre-2010 cases where enough information is provided. CSv2 contains many new site-specific factor fields which can be used for coding pre-2010 cases if desired by the registry. Section 2.2 specifies diagnosis date criteria used by the CSv2 algorithm.

## **1.2 Use of This Implementation Guide**

This Implementation Guide should be considered a supplement to the other documents released by the Collaborative Staging Task Force: The Collaborative Stage Data Collection System User Documentation and Coding Instructions (Manual Part I) and HTML tables (Manual Part II), the conversion specifications, and the software documentation. This document contains some duplication of these other materials as necessary to provide a guide for implementation of CSv2. In all cases, the other documentation should be considered the primary authority.

For registry personnel, this guide provides a background for the changes between CSv1 and CSv2. For software developers, in-house or outside vendors, this guide is designed to point out particular steps and considerations in upgrading to CSv2 in a timely fashion.

## **2 MAJOR CHANGES**

### **2.1 Data Collection System**

The name of the Collaborative Staging system has been changed to the Collaborative Stage Data Collection System, to emphasize that CSv2 is a tool for the collection of data which can be used to derive staging assignments and other useful information not directly related to staging at this time, rather than a staging system per se.

### **2.2 Staging Systems Supported by CSv2**

CSv2 retains backward compatibility with AJCC 6 and with SS1977 and SS2000, to maintain comparability of data over time. The following recommendations were made by the CSv2 Implementation Group to manage compatibility between CSv2 and CSv1:

- 1) Cancer Cases Impacted by CSv2
  - a) Once CSv2 is installed, it will be used on all cases. CSv2 will attempt to calculate both AJCC 6 and AJCC 7 staging, as described below.
    - i) AJCC 7 will be attempted to be calculated on cases diagnosed from January 1, 2010 and forward.
    - ii) AJCC 6 will be attempted to be calculated on all cases diagnosed from January 1, 2004 and forward. Cases diagnosed before January 1, 2010 can be coded using CSv2, but the algorithm will attempt to calculate AJCC 6 for these cases and will not attempt to calculate AJCC 7 stage. The algorithm will attempt to calculate SS1977 and SS2000 for cases diagnosed from January 1, 2004 and forward.
  - b) The four-digit year of diagnosis (the year component of the NAACCR data item 340, Date of Diagnosis) will be added to the algorithm to facilitate this calculation.
    - i) A converted four-digit year of diagnosis was added to the data card. There will be either a valid year, an invalid set of characters, or a blank in the year of diagnosis. The following steps should occur based on the year of diagnosis value:

- (1) If the year of diagnosis is a valid year greater than or equal to 2010 but less than or equal to the current year, the algorithm will attempt to calculate both AJCC 7 stage and AJCC 6 stage, as well as SS1977 and SS2000.
  - (2) If the year of diagnosis is a valid year greater than or equal to 2004 and less than or equal to 2009, the algorithm will attempt to calculate AJCC 6 stage, as well as SS1977 and SS2000 ; it will not attempt to calculate AJCC 7 stage.
  - (3) If the year of diagnosis is blank and the CS Version Input Original value is greater than or equal to 020001, the algorithm will attempt to calculate AJCC 7 stage and AJCC 6 stage, as well as SS1977 and SS2000.
  - (4) If the year of diagnosis is blank and the CS Version Input Original value is less than 020001, the algorithm will not attempt to calculate AJCC 7 stage. It will attempt to calculate AJCC 6 stage, SS1977, and SS2000.
  - (5) If the year of diagnosis is an invalid set of characters, or a value less than 2004 or greater than the current year, the algorithm will not attempt to calculate AJCC 6 stage, AJCC 7 stage, SS1977, or SS2000.
- c) The AJCC 6 and AJCC 7 stage values may be derived only if enough information has been supplied to the algorithm and if AJCC staging is appropriate for that tumor type.
  - d) Site-specific factors may be coded for any diagnosis year 2004 and forward, but new data or changes should only be entered into fields that are not obsolete in CSv2.

## 2) Installation of CSv2

- a) Institutionally based registries should install CSv2 with vendor-supplied updates before they begin abstracting 2010 cancer cases.

If any case with a diagnosis date of 1/1/2010 and forward is coded in CSv1, the coding must be updated to CSv2 after software installation to derive AJCC 7 staging. CSv2 derives SS1977 and SS2000 values for all cases coded in CSv1 and updated to CSv2 and for all cases coded in CSv2, for all cases with valid characters in the year of diagnosis field as specified above.

The following chart shows attempted stage calculations by year of diagnosis and CS Version Original.

	CS Version Input Original	CS Version Input Original	CS Version Input Original	CS Version Input Original
<b>Year of Diagnosis</b>	<b>01XXXX</b>	<b>020001 +</b>	<b>Blank</b>	<b>Anything else</b>
<b>Pre 2004</b>	No calculation	No calculation	No calculation	No calculation
<b>2004-2009</b>	NOT AJCC 7 AJCC 6 SS1977 SS2000	NOT AJCC 7 AJCC 6 SS1977 SS2000	NOT AJCC 7 AJCC 6 SS1977 SS2000	NOT AJCC 7 AJCC 6 SS1977 SS2000
<b>2010</b>	AJCC 6 AJCC 7 SS1977 SS2000	AJCC 6 AJCC 7 SS1977 SS2000	AJCC 6 AJCC 7 SS1977 SS2000	AJCC 6 AJCC 7 SS1977 SS2000
<b>2011+</b>	No calculation	No calculation	No calculation	No calculation
<b>Blank</b>	NOTAJCC 7 AJCC 6 SS1977 SS2000	AJCC 6 AJCC 7 SS1977 SS2000	NOT AJCC 7 AJCC 6 SS1977 SS2000	No calculation
<b>Anything else</b>	No calculation	No calculation	No calculation	No calculation

### 2.3 AJCC 7 Chapters/CSv2 Schemas

The development of CSv2 is a response to the decision of the AJCC to publish the 7<sup>th</sup> Edition of the Cancer Staging Manual. Changes in the manual include:

- new criteria for clinical and pathologic staging
- elimination of MX or unknown metastases as a staging element
- inclusion of many new site-specific prognostic indicators

- addition of new staging schemas including histology-specific TNM and stage groupings

**Appendix A** of this document lists the AJCC 7 chapters and corresponding CSv2 schemas, highlighting new chapters and new schemas. CSv2 schemas required to provide complete data collection, to allow derivation of SS1977 and SS2000 for ICD-O-3 sites and/or histologies that are not included in AJCC 7, are also listed in Appendix A.

**A spreadsheet detailing** AJCC 6 and AJCC 7 chapters, corresponding CSv1 and CSv2 schemas, ICD-O-3 sites, histologies and staged histologies for each schema for AJCC 6 and AJCC 7, is available for inspection and downloading from the AJCC web site at <http://www.cancerstaging.org/cstage/index.html>. Appendix 3 of the Collaborative Stage Data Collection System User Documentation and Coding Instructions Part I (User Documentation Part I, available from the same web site) provides another listing of schemas by ICD-O-3 codes, schema name, TNM mapping, if histology specific, size necessary for T, and number of site-specific factors.

## 2.4 Schema Revisions

To make CSv2 compatible with the changes introduced in the AJCC 7<sup>th</sup> Edition, it was necessary to rework the schemas from CSv1. The addition of new AJCC chapters based on histologic type required dividing some existing CS schemas into multiple new schemas: colon cancers are staged in three chapters in AJCC 7, represented by three CS schemas, Colon, GISTColon, and NETColon. Carcinomas of appendix, also coded in the Colon schema in CSv1, are included within three new CSv2 schemas: Appendix, GISTAppendix, CarcinoidAppendix. Single chapters in AJCC 7 also present multiple stage definitions based on histology: there are now three-histology based schemas for Corpus uteri, for carcinoma, adenosarcoma, and sarcoma. AJCC 7 provides different stage groupings by histology for esophagus and GE junction, but the same T, N, and M definitions are used for both squamous cell carcinoma and adenocarcinoma and separate histology-based schemas are not required. AJCC 7 separates the extrahepatic bile ducts by location, requiring new schemas for perihilar bile duct, distal bile duct, and cystic duct. The CSv2 revisions also provided the opportunity to divide an existing schema, Melanoma of Ciliary Body and Iris, into two separate schemas to reflect the two different staging tables for these sites.

Where such changes have occurred, resulting in new schemas for CSv2, the tables and codes have been structured to reproduce AJCC 6 staging for the affected sites and/or histologies, for both converted CSv1 and CSv2 cases. For example, a 2010 case coded as a cancer of the distal bile duct in CSv2 derives AJCC 7 staging as defined in the AJCC 7 chapter for Distal Bile Duct; it derives AJCC 6 staging as defined in the AJCC 6 chapter for Extrahepatic Bile Ducts. A 2010 case coded as GIST of the colon in CSv2 derives AJCC 7 staging as defined in the AJCC 7 chapter for Gastrointestinal Stromal Tumor (GIST). The codes used for colon in CSv1 for AJCC 6 staging formed the basis of the codes in the CSv2 schema for GIST of the colon, but the derived AJCC 6 stage values are not applicable, as GIST was not staged in AJCC 6 for colon. The value of “NA” in a TNM 7 or TNM 6 map column indicates that a T, N, or M value is not defined for that schema. The new schemas for mucosal melanoma of head and neck and gastrointestinal tumors contain “NA” in the TNM 6 column because these histologies were not

staged in AJCC 6. The new schema for lacrimal sac and the retained schema for other biliary sites contain “NA” in the TNM 7 column because these sites are specifically excluded from AJCC 7 staging for lacrimal gland and the bile duct sites. The value of “NA” on the schema index page for AJCC TNM 7 or AJCC TNM 6 Stage group table indicates that AJCC 7 or AJCC 6 is not defined for that schema. The schema index page for many ophthalmic schemas shows a reference to “AJCC 7 TNM Stage for sites with no stage groupings” and/or “AJCC 6 TNM Stage for sites with no stage groupings”. AJCC TNM values are calculated for these schemas, but the stage group is derived as “NA”.

## 2.5 Table and Code Changes

Where AJCC T values depend on tumor size, codes have been added to the CS Tumor Size tables to allow the coding of a size value when all that is known about the tumor is its size. For example, code 992 in the CS Tumor Size table for head and neck sites, “Described as ‘less than 2 cm,’ or ‘greater than 1cm,’ or ‘between 1 cm and 2cm’”, in CSv2 has the added description, “Stated as T1 with no other information on size”. Incorporating schema-specific “stated as” codes such as this has resulted in many more schema-specific CS Tumor Size tables in CSv2 than were used in CSv1. “Stated as” codes have also been added extensively to the CS Extension and CS Mets at DX tables; they were used regularly in the CS Lymph Nodes tables in CSv1, but very sparingly in the other tables. These codes allow coding when the only information known about tumor extension, nodal involvement, or metastatic disease is a physician’s assignment of a stage component.

The codes in CS Extension and CS Lymph Nodes have been expanded from two to three characters to allow a greater range of code values. Definitions of CSv1 codes have in most instances been preserved. Where changes have been necessary to accommodate new T, N, or M definitions or to correct CSv1 problems, the CSv1 codes have generally been made obsolete, with CSv1 data specified to be retained as originally coded or converted to a new code. In some cases AJCC 7 definitions have moved a staging variable from a T, N, or M category into another category (from a T value to an M value for example); for those situations, the CSv2 tables show the appropriate T, N, or M designation for AJCC 7 definitions, with table notes identifying the changes that have been made. The tables have been structured to correctly derive AJCC 6 stage values for cases with converted CSv1 codes and to correctly derive AJCC 6 stage values for new cases coded in CSv2. Some data conversions from CSv1 to CSv2 codes are required, and a minimal number of codes are identified as needing review and recoding from CSv1 to CSv2 values.

Some attempts have been made to make the coding structure consistent across schemas, in terms of definitions and placement of codes, though total consistency has not been achieved. The order of coded stage descriptions is generally determined by the AJCC 7 T value within the CS Extension table, the AJCC 7 N value within the CS Lymph Nodes table, and the AJCC 7 M value within the CS Mets at DX table. For codes with subdivisions, the specific codes generally come before the NOS codes. For example, all CS Extension codes mapping to an AJCC 7 T2 value generally come after all codes mapping to an AJCC 7 T1 value and before all codes mapping to an AJCC 7 T3 value. Within the group of codes mapping to the T2 value, if codes

map to T2a, T2b, and T2NOS, the numerically highest of these codes will generally map to the T2NOS value.

The evaluation tables for some schemas use two columns for staging basis. The Lung schema includes two columns in CS TS/Ext Eval and CS Lymph Nodes Eval, as the clinical and pathologic staging criteria changed for the T and N elements between AJCC 6 and AJCC 7 staging. Other new schemas, such as AdrenalGland, use two columns in all three eval tables, CS TS/Ext Eval, CS Lymph Nodes Eval, and CS Mets at DX Eval, values in the Staging Basis 7 column and blanks in the Staging Basis 6 column. The blanks indicate that the site and histology combination for the schema was not staged in AJCC 6. See section 2.9 for further information on the use of blanks in these tables. A template was established for creating new site-specific factor codes, and consistency was generally achieved across most schemas, in terms of the types of codes used for categories of items such as lab values, grade or point values, and history or no history of a particular condition. Some codes have been reserved for certain purposes, such as site-specific factor not applicable because the case does not meet all the conditions for its use (987), site-specific factor not applicable because not defined (988), test results not available (997), test not done (998), and unknown or no information (999). The template was generally applied to new site-specific factors in CSv2 and generally not used to update codes in site-specific factors collected in CSv1.

The number of site-specific factors has been increased from six to 25 with CS Site-Specific Factor 25 reserved for special-purpose use as a schema discriminator, to collect additional information needed to select the CS schema for coding under some case circumstances. The Breast schema is the only schema to use 24 site-specific factors.

Extra tables are used to combine values to derive a T, N, or M, such as codes for CS Tumor Size and CS Extension when T is defined by both elements. Another type of extra table is a special stage table, when multiple AJCC TNM 6 or AJCC TNM 7 stage tables are required to produce multiple stage groupings by age or histology; for example, Thyroid has eight AJCC stage tables based on combinations of age and histology. The number of extra tables has increased as required to bring together a greater number of data elements used to derive a T, N, or M value in AJCC 7, or to maintain backward compatibility to AJCC 6 staging where T, N, or M components have been redefined. The Lung schema requires the greatest number of extra tables, 11 for AJCC 7 staging and 8 for AJCC 6 staging, to deal with the change of multiple ipsilateral nodules from an M to a T element and the change of pleural effusion from a T to an M element, and to make the tables of manageable size. Due to the complexity of coding input fields in the Prostate schema needed to yield correct staging results, special calculation tables have been added as extra tables to this schema to show valid coding input across related tables (CS Extension, CS TS/Ext Eval, CS SSF3, CS SSF 8, CS SSF 10) and the derivation of stage output.

## **2.6 AJCC 7 T Clarifications/Changes**

The AJCC curators have clarified that Tis is considered an impossible stage category for certain glandular tumors, including tumors in the salivary glands, ovary, prostate, adrenal gland, lacrimal gland, and thyroid. CS Extension code 000 (meaning in situ) was mapped to Tis for

AJCC 6 staging in CSv1; it has been mapped for these sites to a value of TX for both AJCC 6 and AJCC 7 staging in CSv2. (Note: adrenal gland TX is mapped to NA in AJCC 6 staging, as this is a new chapter in AJCC 7.) For these schemas, any case with an extension code of 000 (coded in either CSv1 or CSv2) derives a value of TX and an unknown stage group when the CSv2 algorithm is executed. SS1977 and SS2000 continue to derive an In Situ stage value.

Biopsy of the highest T value is explicitly stated in the AJCC 7 manual as supporting pathologic staging:

“Pathologic assessment of T (pT) entails a resection of the tumor or may be assigned with biopsy only if it assigns the highest T category.” (p. 10)

CSvs has implemented this statement by adding to code 3 in the standard CS TS/Ext Eval table:

“No surgical resection done. Evaluation based on positive biopsy of highest T classification.”

## 2.7 AJCC 7 N Clarifications/Changes

The AJCC 7 manual contains a new table with criteria for pathologic evaluation of lymph nodes. Included are the statements:

“Pathologic assessment of the primary tumor (pT) is necessary to assign pathologic assessment of nodes (pN) except with unknown primary (T0). If pathologic T (pT) is available, then any microscopic evaluation of nodes is pN.

“In cases with only clinical T in the absence of pT, excision of a single node or sentinel node(s) is classified as clinical nodal status (cN).” (p. 10)

CS v2 has implemented these statements with a change in the standard CS Lymph Node Eval codes used in most schemas. The changed definitions are:

“Code 1: Does not meet criteria for AJCC pathologic staging based on at least one of the following criteria:

“No regional lymph nodes removed for examination. Evidence based on endoscopic examination, or other invasive techniques including surgical observation, without biopsy. No autopsy evidence used.

OR

Fine needle aspiration, incisional core needle biopsy, or excisional biopsy of regional lymph nodes or sentinel nodes as part of the diagnostic workup, WITHOUT removal of the primary site adequate for pathologic T classification (treatment).

“Code 3: Meets criteria for AJCC pathologic staging based on at least one of the following criteria:

“Any microscopic assessment of regional nodes (including FNA, incisional core needle

bx, excisional bx, sentinel node bx or node resection), WITH removal of the primary site adequate for pathologic T classification (treatment) or biopsy assessment of the highest T category.

OR

Any microscopic assessment of a regional node in the highest N category, regardless of the T category information.”

CSv2 does not include backward compatibility to the CS TS/Ext Eval or CS Lymph Nodes Eval codes used in CSv1. The data analyst will be able to determine which definition was in use when a case was coded by reference to the value in the CS Version Input Original data field.

## 2.8 AJCC 7 M Clarifications/Changes

“MX” (metastases cannot be determined) has been eliminated as a staging concept in AJCC 7. The CS algorithm continues to derive an MX for AJCC 6 staging for cases converted from CSv1 or coded in CSv2 where the “unknown” value, code 99, is entered; AJCC 6 stage group is calculated using an MX. SS1977 and SS2000 are also derived as Unknown. However, if code 99 is entered for a case with a diagnosis date of January 1, 2010 or later, the algorithm derives an M0 for AJCC 7 staging, and the AJCC 7 stage group is calculated using M0.

## 2.9 Storage and Display Codes

Storage codes are output values from the CS algorithm that are entered into the database: three-character numeric values for derived AJCC 7 T, N, and M and stage group; single-character alpha values for derived AJCC T, N, and M descriptors; and single-character numeric values for derived SS1977 and SS2000 stage. The storage codes are mapped to display codes, which carry the meaning of T, N, M, stage group, and descriptor components defined in the AJCC staging manuals, and the meaning of local, regional, and distant stage assignments in the Summary Stage manuals.

For example, a storage code of 060 in the derived AJCC T7 field maps to a display value of *Tispu*; a storage code of 420 in the derived AJCC 7 field maps to a display value of *IIESB*; a storage code of 4 in the derived SS1977 field maps to a display code of RE+RN. The use of storage codes facilitates computer manipulation and data queries, while the mapping to display codes facilitates representations of stage values readily understood by cancer professionals.

New T, N, and M values in AJCC 7 required new storage and display codes to be added to the list of output values that map to display codes. As noted above, the AJCC 6 T, N, M, and stage group storage codes are two-character fields; the AJCC 7 T, N, M, and stage group storage codes added in CSv2 are three-character fields. The HTML tables for CS TS/Ext Eval, CS Lymph Nodes Eval, and CS Mets at DX Eval in CSv1 showed the single-character storage codes in the Staging Basis column, except that “NA” was shown where AJCC staging was not

applicable and “N” was stored. In CSv2 the HTML tables show the display codes, which match storage codes except for “y-pathologic” and “not applicable” staging basis: “yp” is the display code, “p” is the storage code for “y-pathologic”. A blank is the display code, “9” is the storage code for “not applicable”.

See Appendix 4 of the User Documentation Part I for a complete list of storage and display codes.

## 2.10 CS Versioning

The names of the data fields tracking CS versioning have been updated to more clearly reflect their use. CS Version 1st (NAACCR Item 2935) has been renamed as CS Version Input Original. CS Version Latest (NAACCR Item 2936) has been renamed as CS Version Derived. A third field, CS Version Input Current (NAACCR Item 2937), has been added to allow tracking data conversions and corrections from the original input system to a more recent coding scheme.

The CS Version Input Current value of 020000 should be entered on all cases successfully converted by the automated conversion program provided by NPCR. The CS Version Input Current value should be updated to 020001 on all converted cases that undergo recoding in any CS input data fields after the installation of CSv2. As defined in *Standards Volume II Version 12*, “This data item [CS Version Input Current] is recorded the first time the CS input fields are entered and should be updated each time the CS input fields are modified.”

The CS Version Input Original value of 020001 should be entered on all new cases abstracted in CSv2.

See also Section 6.6, below.

## 2.11 Histology Inclusion Tables

CSv1 used histology exclusion tables to identify histologies that were not staged in AJCC 6. CSv2 uses histology inclusion tables to identify histologies that are staged in AJCC 7. The hematopoietic codes newly reportable in 2010 are included for reference on the schema index page for the HemeRetic schema; this schema does not have an histology inclusion table. The lymphoma codes newly reportable in 2010 are included in the histology inclusion table for the Lymphoma and LymphomaOcularAdnexa schemas.

# 3 SCHEMA/TABLE STRUCTURE

## 3.1 Schema Index Page

Each schema is headed by a schema index page that gives the name of the schema, the ICD-O-3 site codes to which the schema applies, histology codes for histology-specific schemas, histology codes excluded from or included in the schema, notes detailing special considerations

or changes from CSv1, and the list of tables used by the schema. Lymphomas, hematopoietic histologies, and Kaposi's sarcoma are assigned to histology-specific schemas that include all primary site codes; these histologies are not generally listed as exclusions on other schema index pages.

### 3.2 Table Structure

CSv2 retains the table structure established in CSv1, with the addition of CS Site-Specific Factors 7 through 25, a Histology Inclusion Table for AJCC 7 staging, an AJCC TNM 7 staging table, and Extra tables to link CS input variables as required to derive staging values. Following is a list of schema tables, the NAACCR Data Dictionary item number for data collected in data entry tables, and the function of each type of table. Appendix 2 of the User Documentation Part I provides another listing of fields by Data Item Name, NAACCR Data Item Number, effective date, character length, allowable values, justification and filling, blanks allowed, and NAACCR version 12 column numbers.

Schema Table	NAACCR Item Number	Table Function
CS Tumor Size	2800	Code size of primary site tumor. Used to derive AJCC T value, together with CS Extension depending on schema.
CS Extension	2810	Code anatomic extent of primary site tumor. Used to derive AJCC T value, together with CS Tumor Size depending on schema. Used to derive Summary Stage 1977 and Summary Stage 2000 values in conjunction with CS Lymph Node and CS Mets at DX values.
CS TS/Ext Eval	2820	Code AJCC clinical and pathologic staging basis for primary site tumor. Used to derive T value descriptor.
Reg LN Pos	820	Code number of regional nodes positive on pathologic examination. Pre-CS data field brought into the CS coding structure.
Reg LN Exam	830	Code number of regional nodes examined by pathologist. Pre-CS data field brought into the CS coding structure.
CS Lymph Nodes	2830	Code extent of regional node involvement. Used to derive AJCC N value. Used to derive Summary Stage 1977 and Summary Stage 2000 values in conjunction with CS Extension and CS Mets at DX values.

<b>Schema Table</b>	<b>NAACCR Item Number</b>	<b>Table Function</b>
CS Lymph Nodes Eval	2840	Code AJCC clinical and pathologic staging basis for nodal involvement. Used to derive N value descriptor.
CS Mets at DX	2850	Code involvement of distant metastases. Used to derive AJCC M value. Used to derive Summary Stage 1977 and Summary Stage 2000 values in conjunction with CS Extension and CS Mets at DX values.
CS Mets Eval	2860	Code AJCC clinical and pathologic staging basis for metastatic involvement. Used to derive M value descriptor.
CS Site-Specific Factor 1-24	2880, 2890, 2900, 2910, 2920, 2930, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878	Code schema-specific information: tumor characteristics not captured in other fields, prognostic indicators, other clinically relevant information requested by AJCC curators
CS Site-Specific Factor 25	2879	Code information required to select appropriate schema in case-specific circumstances
Histology Inclusion Table AJCC 7		List of ICD-O-3 histologies for which the algorithm derives AJCC 7 staging values.
Histology Exclusion Table AJCC 6		List of ICD-O-3 histologies for which the algorithm does not derive AJCC 6 staging values.
AJCC TNM 7 Stage		Matrix of derived TNM 7 values and derived AJCC 7 stage value for every combination of TNM. Some tables include SSF or other data items in the matrix.
AJCC TNM 6 Stage		Matrix of derived TNM 6 values and derived AJCC 6 stage value for every combination of TNM. Some tables include SSF or other data items in the matrix.

<b>Schema Table</b>	<b>NAACCR Item Number</b>	<b>Table Function</b>
Summary Stage		Matrix of derived Extension, Nodes, and Metastases values, expressed as TNM, and derived Summary Stage 1977/2000 value for every combination of TNM. Some tables include SSF values in matrix.
Extra Tables		Intermediate tables linking input values from coded fields to derive TNM values to pass to staging tables.

Table notes are greatly expanded in CSv2. The notes above the tables contain coding information of interest to data abstractors and coders. The notes include definitions of terms, instructions for correct selection of codes, and information about the clinical implications of many of the new site-specific factors. The notes below the tables contain specifications for the CSv2 algorithm, describing how coded information is passed to the extra tables to derive T, N, M, and stage values.

A list of site-specific factors by schema is included in Appendix 8 of the User Documentation Part I. A spreadsheet with this list is also available for inspection and downloading from the AJCC website at <http://www.cancerstaging.org/cstage/index.html>.

### **3.3 Additional CS Input Data Fields**

Four new data fields in the NAACCR Data Dictionary are identified as CS items and assigned to AJCC as the source of standard. These fields are available for data entry across all schemas.

<b>Data Item Name</b>	<b>NAACCR Item Number</b>	<b>Item Function</b>
CS Mets at DX-Bone	2851	Code presence of bone metastasis at diagnosis
CS Mets at DX-Brain	2852	Code presence of brain metastasis at diagnosis
CS Mets at DX-Liver	2853	Code presence of liver metastasis at diagnosis
CS Mets at DX-Lung	2854	Code presence of lung metastasis at diagnosis.

### **3.4 Non-CS Data Fields Listed in the CS User Documentation**

Three new data fields in the NAACCR Data Dictionary, not listed as CS data items but assigned to AJCC as the source of standard, are included in the CS Manual with definitions and coding instructions.

<b>Data Item Name</b>	<b>NAACCR Item Number</b>	<b>Item Function</b>
Grade Path Value	441	Code numerator of numeric grade value as expressed in pathology report
Grade Path System	449	Code denominator of numeric grade value as expressed in pathology report
Lymph-vascular Invasion	1182	Code presence of lymph-vascular invasion on pathologic examination of tumor

### 3.5 Non-CS Data Fields Used by the CS Algorithm

Six data fields not identified as CS items and not assigned to AJCC as the source of standard are used by the CS algorithm in schema selection and derivation of stage values. Date of Diagnosis: Year of Diagnosis is used by the CS algorithm to determine if AJCC 6 (2004 and later) and AJCC 7 (2010 and later) stages are to be derived.

<b>Data Item Name</b>	<b>NAACCR Item Number</b>	<b>Item Function</b>
Primary Site	400	Code primary site of tumor
Histologic Type ICD-O-3	522	Code histology of tumor
Behavior Code ICD-O-3	523	Code behavior of tumor
Grade	440	Code grade of tumor
Date of Diagnosis: Year of Diagnosis	390	Code date of diagnosis
Age at Diagnosis	230	Code age of patient at diagnosis

### 3.6 Derived Output from CS Algorithm

The CSv2 algorithm derives, for both AJCC 6 and AJCC 7, TNM values, descriptors for the TNM values (clinical, pathologic, y-pathologic, autopsy), stage groups, SS1977, and SS2000. The following table lists the derived data fields and the NAACCR Item Number.

<b>Data Item Name</b>	<b>NAACCR Item Number</b>	<b>Item Function</b>
Derived AJCC-6 T	2940	Store AJCC 6 derived T value
Derived AJCC-6 T Descript	2950	Store AJCC 6 derived T descriptor value
Derived AJCC-6 N	2960	Store AJCC 6 derived N value
Derived AJCC-6 N Descript	2970	Store AJCC 6 derived N descriptor value
Derived AJCC-6 M	2980	Store AJCC 6 derived M value
Derived AJCC-6 M Descript	2990	Store AJCC 6 derived M descriptor value
Derived AJCC-6 Stage Grp	3000	Store AJCC 6 derived stage group value
Derived SS1977	3010	Store derived SS1977 value
Derived SS2000	3020	Store derived SS2000 value
Derived AJCC-7 T	3400	Store AJCC 7 derived T value
Derived AJCC-7 T Descript	3402	Store AJCC 7 derived T descriptor value
Derived AJCC-7 N	3410	Store AJCC 7 derived N value
Derived AJCC-7 N Descript	3412	Store AJCC 7 derived N descriptor value
Derived AJCC-7 M	3420	Store AJCC 7 derived M value
Derived AJCC-7 M Descript	3422	Store AJCC 7 derived M descriptor value
Derived AJCC-7 Stage Grp	3430	Store AJCC 7 derived stage group value

The CS algorithm outputs six administrative data fields to flag CS output as derived and to track the CS version under which data are coded and processed. The values in these data fields are added to the case when the CS tables are accessed (CS Version Input Original and CS Version Input Current), or when the case is processed by the CS algorithm (the derived flags).

<b>Data Item</b>	<b>NAACCR Item Number</b>	<b>Item Function</b>
Derived AJCC--Flag	3030	Identify AJCC stage item as a derived value
Derived SS 1977--Flag	3040	Identify SS1977 stage item as a derived value
Derived SS2000--Flag	3050	Identify SS2000 stage item as a derived value
CS Version Input Current	2937	Identify current CS version in which the case is coded. This is the same value as CS Version Input Original if the case has not been updated or converted to a later version. This is the value for a later version than CS Version Input Original if the case has been updated or converted to a later version.
CS Version Input Original	2935	Identify CS version installed when the case is first coded using the CS data tables. In CSv1, the related field may have identified the CS version installed when the case was first processed by the CS algorithm.
CS Version Derived	2936	Identify CS version used to derive the current output. If a case is reprocessed by the CS algorithm at multiple installations of new versions of the system, the value in this field will reflect the latest version number. Multiple derivations using different versions of CS are not tracked.

### **3.7 CS Data Items Scheduled for Implementation in 2011**

Planned for 2011 implementation are pre-treatment (clinical) stage information, and post-treatment (y-pathologic) stage information for those cases where the patients undergo neoadjuvant treatment (radiation therapy and/or systemic therapy) before definitive surgery. The data items planned for collection and the corresponding derived stage fields are listed in **Appendix B**.

## 4 TABLE DESCRIPTIONS

### 4.1 Table attributes

Attributes in three categories are assigned to the CS tables to indicate how they are used in the algorithm. The table attributes are contained within the XML files/HTML pages. Schemas may share common tables. In the HTML pages, the table heading appears as a schema-specific designation; all other content for every common table is the same in all schemas that use the table.

<b>Attribute Category</b>	<b>Attribute Name</b>	<b>Attribute Definition</b>
Usage	Active	Table collecting data required to derive stage output
	Drone	Table collecting data not required to derive stage output
	Discriminator	Site-Specific Factor 25 table used in schema selection
	Undefined	Site-Specific Factor slot with no definition for schema
Currency	Current	Used in CSv2
	Obsolete	CSv1 table made obsolete in CSv2
	Future	Site-Specific Factor slot defined for future use
Proposed Role	Input	Data entered by abstractor
	Stage	Data derived by algorithm
	Extra	Intermediate table combining input fields and deriving TNM values as output
	Histoinc	Histology inclusion table for AJCC 7 staging
	Histoexc	Histology exclusion table for AJCC 6 staging

## 4.2 Schema Discriminators

In most cases the ICD-O-3 codes for site and histology determine the schema that is used for coding CSv2 information. CS Site-Specific Factor 25 is reserved for use as a schema discriminator, for cases where additional information is required to select the correct CSv2 schema for coding. Schema discriminators are used to distinguish between subsites that have the same ICD-O-3 primary site code but different staging, and to assign a case to one of multiple possible schemas based on tumor characteristics or sex of patient in addition to the site and histology codes. The schema discriminator must be presented to the user, who must enter a valid code before schema selection can be performed so that data entry into the remaining CSv2 fields can be completed.

The conversion program will identify each CSv1 case that would require a schema discriminator if it were originally coded in CSv2 and enter 100 into the Site-Specific Factor 25 field. 100 is tagged as an OBSOLETE DATA RETAINED code. Site-Specific Factor 25 must be updated to a current code in any record that undergoes updating to CSv2 coding and is stamped with a CS Version Input Current code higher than 020000.

988 is the “not applicable” code for Site-Specific Factor 25, to be used for all cases where the site and histology are sufficient to identify the appropriate CSv2 schema for coding. Blank is the appropriate code to be used for all cases where not all ICD-O-3 site codes included in the schema require the discriminator: the histology code is the same and the first three digits of the ICD-O-3 site code are the same as a site/histology combination that requires a schema discriminator, but the fourth digit of the ICD-O-3 site code is different. For example, the ICD-O-3 codes for stomach, 16.1 and 16.2, for the histologies shown in the table, require that Site-Specific Factor 25 be coded; the ICD-O-3 codes 16.0, 16.3-16.6, 16.8-16.9 do not require that Site-Specific Factor 25 be coded, and the site-specific factor is left blank.

CSv2 schemas with discriminators are listed in the following table. Any case with a site code and histology code listed in the Site/Histology column requires the SSF 25 code for schema selection.

Schemas	Site/ Histology	Basis of Selection	CS SSF 25	Schema	Default/Conversion from CSv1
Pharyngeal Tonsil Nasopharynx	C11.1 All histologies except 8720-8790	Subsite designation	010 Posterior wall of nasopharynx	Nasopharynx	Nasopharynx
			020 Adenoid Pharyngeal tonsil Nasopharyngeal tonsil	Pharyngeal Tonsil	

			Blank for Nasopharynx cases which are C11.0, C11.2, C11.3, C11.8, C11.9	Nasopharynx	
Cystic Duct BileDuctsPerihilar BileDuctsDistal	C24.0 All histologies	Subsite designation	010 Perihilar bile duct(s)	BileDuctsPerihilar	100 BileDuctsPerihilar
			020 Stated as Klatskin tumor	BileDuctsPerihilar	
			030 Cystic bile duct; cystic duct	CysticDuct	
			040 Common bile duct Common duct, NOS	BileDuctsDistal	
			050 Diffuse involvement More than one subsite involved, subsite of original not stated	BileDuctsPerihilar	
			060 Subsite of extrahepatic bile ducts not stated, but treated with combined hepatic and hilar resection	BileDuctsPerihilar	
			070 Subsite of extra-hepatic bile ducts not stated, but treated with pancreaticoduodenectomy	BileDuctsDistal	
			999 Subsite of extra-hepatic bile ducts not stated and not classifiable in codes 050-070	BileDuctsPerihilar	
Melanomalris MelanomaCiliaryBody	C69.4 8720-8790	Subsite designation	010 Ciliary Body Crystalline lens Sclera Uveal tract Intraocular Eyeball	MelanomaCiliaryBody	100 MelanomaCiliaryBody
			020 Iris	Melanomalris	

LacrimalGland LacrimalSac	C69.5 All histologies	Subsite designation	010 LacrimalGland	LacrimalGland	100 LacrimalGland
			020 Lacrimal sac Lacrimal duct, NOS Nasal lacrimal duct Nasolacrimal duct	LacrimalSac	
EsophagusGEJunction Stomach	C16.1, C16.2 8000-8152, 8154-8231, 8243-8245, 8247, 8248, 8250-8934, 8940-9136, 9141-9582, 9700-9701	Involvement of esophagus, location in relation to GE Junction	000 No involvement of esophagus or EGJ	Stomach	100 Stomach
			010 Tumor located in Cardia or EGJ	EsophagusGEJunctio n	
			020 Esophagus or EGJ involved AND distance of tumor midpoint from EGJ 5cm or less	EsophagusGEJunctio n	
			030 Esophagus or EGJ involved AND distance of tumor midpoint from EGJ more than 5cm	Stomach	
			040 Esophagus or EGJ involved AND distance of tumor midpoint from EGJ unknown	EsophagusGEJunctio n	
			050 Esophagus and EGJ not involved but distance of tumor midpoint from EGJ is 5cm or less	Stomach	
			060 Esophagus involved or esophagus involvement unknown AND distance of tumor midpoint from EGJ more than 5cm or unknown AND Physician stages case using esophagus definitions	EsophagusGEJunctio n	

			999 Involvement of esophagus not stated, unknown or no information, not documented in patient record	Stomach	
			Blank for Stomach cases which are C16.3-C16.9	Stomach	Stomach
			Blank for Cardia/EGJ cases which are C16.0	EsophagusGEJunction	EsophagusGEJunction
Peritoneum PeritoneumFemaleGen	C48.0- C48.2, C48.8,  8000-8576, 8590-8671, 8930-8934, 8940-9110	Sex	001 Male	Peritoneum	Peritoneum
			002 Female	PeritoneumFemaleGen	
			003 Other (Hermaphrodite)	Peritoneum	
			004 Transsexual	Peritoneum	
			009 Unknown sex	Peritoneum	
			Blank for C48.1, C48.2, or C48.8 with histology codes 8580-8589,8680-8921,9120-9136,9141-9582,9700-9701	Peritoneum	

### 4.3 Tables Used in Stage Derivation

A spreadsheet listing CS and non-CS tables and extra tables required to derived AJCC TNM 7 value and stage groups, AJCC TNM 6 values and stage groups, and Summary Stage (both SS1977 and SS2000), by schema, is available from the AJCC website, <http://www.cancerstaging.org/cstage/index.html>.

The following table summarizes the tables used in deriving stage values for AJCC 7, CSv2-AJCC 6, CSv1-AJCC 6, CSv2-Summary Stage, and CSv1-Summary Stage. For schemas that existed in CSv1, where the schemas are listed in the column for CSv2 AJCC 6 or CSv2 SS1977/2000, but not in the adjoining column for CSv1 AJCC 6 or CSv1 SS1977/2000, a full update of a CSv1 case to CSv2 coding requires the completion of the additional Site-Specific Factor items as listed in the CSv2 columns.

Site-Specific Factor 10, Location of Primary Tumor, for GISTPeritoneum is a unique CS table; it combines features of both site-specific factor and extra tables. The location of the tumor in mesentery, omentum, pelvic peritoneum, rectouterine pouch, or other specified peritoneal site is used to select the appropriate AJCC 7 staging table, for GISTStomach (location in omentum) or GISTSmallIntestine (location in other sites).

<b>AJCC 7</b>	<b>CSv2 AJCC 6</b>	<b>CSv1 AJCC 6</b>	<b>CSv2 SS1977/2000</b>	<b>CSv1 SS1977/2000</b>
CS Tumor Size	CS Tumor Size	CS Tumor Size		
CS Extension	CS Extension	CS Extension	CS Extension	CS Extension
CS TS/Ext Eval	CS TS/Ext Eval	CS TS/Ext Eval		
CS Lymph Nodes	CS Lymph Nodes	CS Lymph Nodes	CS Lymph Nodes	CS Lymph Nodes
CS Nodes Eval	CS Nodes Eval	CS Nodes Eval		
CS Mets at DX	CS Mets at DX	CS Mets at DX	CS Mets at DX	CS Mets at DX
CS SSF 1  Non-Melanoma Head and Neck Esophagus EsophagusGEJunction Stomach Lung MelanomaSkin Placenta Prostate Conjunctiva MelanomaConjunctiva Retinoblastoma	CS SSF 1  Non-Melanoma Head and Neck EsophagusGEJunction Stomach NETStomach Lung MelanomaSkin Placenta Conjunctiva MelanomaConjunctiva Retinoblastoma	CS SSF 1  Non-Melanoma Head and Neck Stomach MelanomaSkin Placenta Testis Retinoblastoma	CS SSF 1  Pleura Retinoblastoma	CS SSF 1  Pleura Retinoblastoma
CS SSF 2  SmallIntestine Colon Rectum Appendix MelanomaSkin Lymphoma MelanomaConjunctiva MelanomaCiliaryBody MelanomaChoroid	CS SSF 2  Colon Rectum Appendix CarcinoidAppendix NETColon NETRectum MelanomaSkin Bladder MelanomaConjunctiva MelanomaCiliaryBody MelanomaChoroid LymphomaOcularAdnexa	CS SSF 2  Colon Rectum MelanomaSkin Testis	CS SSF 2  CorpusCarcinoma CorpusAdenosarcoma CorpusSarcoma	

<b>AJCC 7</b>	<b>CSv2 AJCC 6</b>	<b>CSv1 AJCC 6</b>	<b>CSv2 SS1977/2000</b>	<b>CSv1 SS1977/2000</b>
CS SSF 3 Prostate MelanomaSkin MerkelCellSkin MerkelCellPenis MerkelCellScrotum MerkelCellVulva Breast MelanomaCiliaryBody MelanomaChoroid	CS SSF 3 Prostate MelanomaSkin Breast MelanomaCiliary Body MelanomaChoroid	CS SSF 3 MelanomaSkin Breast Testis Prostate Retinoblastoma	CS SSF 3 Prostate	CS SSF 3 Prostate
CS SSF 4 MelanomaSkin Breast Testis MelanomaCiliaryBody MelanomaChoroid Melanomalris	CS SSF 4 MelanomaSkin Breast Testis	CS SSF 4 MelanomaSkin Breast Testis		
CS SSF 5 GISTPeritoneum Breast Testis	CS SSF 5 Breast Testis	CS SSF 5 Breast Testis		
CS SSF 6 GISTEsophagus GISTSmallIntestine GISTStomach SkinEyelid	CS SSF 6 SkinEyelid			
CS SSF 7 MelanomaSkin Testis	CS SSF 7 Testis			
CS SSF 8 Prostate				
CS SSF 9 Testis	CS SSF 9 Testis			

<b>AJCC 7</b>	<b>CSv2 AJCC 6</b>	<b>CSv1 AJCC 6</b>	<b>CSv2 SS1977/2000</b>	<b>CSv1 SS1977/2000</b>
CS SSF 10 GISTPeritoneum Testis Prostate	CS SSF 10 Testis			
CS SSF 11 GISTAppendix GISTColon GISTRectum Testis	CS SSF 11 Vulva Testis			
CS SSF 12 Skin				
CS SSF 16 Skin				
CS SSF 17 Penis				
Lymph-vascular invasion  Penis Testis				
Reg LN Pos  Esophagus EsophagusGEJunction Stomach SmallIntestine Appendix Colon Rectum	Reg LN Pos  EsophagusGEJuncti on Stomach Appendix CarcinoidAppendix Colon Rectum NETColon NETRectum NETStomach	Reg LN Pos  Stomach Colon Rectum		

AJCC 7	CSv2 AJCC 6	CSv1 AJCC 6	CSv2 SS1977/2000	CSv1 SS1977/2000
Histology Esophagus EsophagusGEJunction Bone Thyroid	Histology Bone Thyroid	Histology Thyroid	Histology Thyroid	
			Behavior Breast	Behavior Breast
Grade Penis Thyroid	Grade Thyroid		Grade Thyroid	
Age at Diagnosis Thyroid	Age at Diagnosis Thyroid	Age at Diagnosis Thyroid		

#### 4.4 Obsolete Tables

Entire tables have been made obsolete. Tables coding tumor size have been replaced because of faults with the unit of measurement. Site-specific factor tables have been replaced with new tables collecting more granular information. Site-specific factor tables have been made obsolete but not replaced in some new histology-based schemas, where the information is no longer pertinent to staging for the primary site based on histology. Obsolete tables are identified on the schema index pages. Each code within the obsolete table is also tagged as obsolete, except for code 988, a current code used to indicate that the value for the table is no longer collected. Data collected in obsolete tables is retained. See Section 5.4.1 for information on updating obsolete table data. Obsolete tags used in obsolete tables include OBSOLETE DATA RETAINED V0200, OBSOLETE DATA CONVERTED V0200, and OBSOLETE DATA CONVERTED AND RETAINED V0200. See Section 4.5 below for information on obsolete codes. **Appendix C** lists tables marked as obsolete in CSv2.

The notes for Site-Specific Factor 4, Prostate Apex Involvement, in the Prostate schema, specify that this field is to be collected for cases diagnosed through 12/31/2009. It is not marked as an obsolete table. Code 988, “not applicable”, is available for coding cases with a diagnosis date of January 1, 2010 and forward, but will cause an edit failure if used on cases with an earlier diagnosis date.

## 4.5 Obsolete Codes

Many codes have been made obsolete in CSv2. Mapping requirements have resulted in obsolete codes to reflect AJCC 7 changes in how T, N, or M values are assigned to anatomic extension of tumors; to correct problems in the original CSv1 mapping; to provide more consistent coding across all the schemas; and to accommodate revised code ranges for numeric values.

Obsolete codes are found in new schemas. They are required to account for all the codes that could have been used in CSv1 to code a case in the CSv1 schema to which it would have been assigned, though it is assigned to a new schema in CSv2. For example, MelanomaBuccalMucosa is a new CSv2 schema. In CSv1 a case with melanoma of buccal mucosa would have been coded using the BuccalMucosa schema; CS Extension 95, no evidence of primary tumor, mapping to T0, was a valid code in that schema and potentially could have been used to code the case. 950 is not considered a valid code for MelanomaBuccalMucosa, as AJCC does not define T0 in the chapter on “Mucosal Melanoma of the Head and Neck”. Code 950 is included in the CS Extension table for MelanomaBuccalMucosa, because it was a valid code in the “parent” CSv1 Buccal Mucosa schema, but it is marked as OBSOLETE DATA RETAINED V0200 in the CSv2 schema because its use is no longer appropriate for the combination of site and histology in this new schema.

Obsolete codes are not found in the new site-specific factors 7 through 24; these site-specific factors were undefined in CSv1. The conversion program will enter 988, “not applicable”, into these fields for converted CSv1 cases. Obsolete code 100 is defined for Site-Specific Factor 25 for cases where its use is required in CSv2; see sections 4.2 and 5.4.3 for further information.

Obsolete codes remain in the XML tables and HTML pages with labels describing how they are handled in the data conversion from CSv1 to CSv2, as shown in the following table.

Label	Display in HTML table				Action
	TNM 7	TNM6	SS1977	SS2000	
OBSOLETE DATA RETAINED V0200	ERROR	value	value	value	Code no longer available for use, CSv1 code retained in existing data
OBSOLETE DATA CONVERTED V0200 See Code XXX	ERROR	ERROR	ERROR	ERROR	Code no longer available for use, CSv1 code converted to new code as designated. Algorithm will produce an error if obsolete code is used.
OBSOLETE DATA REVIEWED AND CHANGED V0200 Recoded to XXX or XXX	ERROR	ERROR	ERROR	ERROR	Code no longer available for use, review case and recode immediately upon implementation. Algorithm will produce an error if obsolete code is used
OBSOLETE DATA CONVERTED AND RETAINED	ERROR	value	value	value	Code no longer available for use. CSv1 code has been converted to this value. This value is retained.

OBSOLETE DATA RETAINED V0200 codes remain valid for all CSv1 cases converted to CSv2 and are used in the derivation of AJCC 6 stage for converted CSv1 cases or those marked with CS Version Input Current code of 020000. Obsolete codes are not valid for data input in CSv2, and any obsolete code should fail a data edit and/or generate an ERROR message in the CS calculation for cases marked with CS Version Input Original and/or CS Version Input Current of 020001 or higher.

The OBSOLETE DATA CONVERTED V0200 tag identifies codes that will be automatically converted during the upgrade to CSv2. These codes will be invalid for use after conversion of CSv1 cases to CSv2. The codes and their descriptions will remain in the CSv2 HTML tables, but they should not appear in any records after data conversion and will generate a CS error if used. The conversion specifications will provide guidelines for the conversion of obsolete codes to active codes in CSv2.

The OBSOLETE DATA REVIEWED AND CHANGED V0200 tag identifies cases which must be manually reviewed after the automated conversion process. These cases will derive ERROR values when processed by the CS algorithm, and should be reviewed and recoded as soon as possible after conversion and before inclusion in any required data report. The cases needing review will be identified by the conversion program. See section 4.6 for further information.

OBSOLETE DATA CONVERTED AND RETAINED V0200 identifies a code to which data have been converted and then made obsolete. There is a single use of this code, in the obsolete Site-Specific Factor 2 table in the head and neck schemas. The CSv1 code 888, used for Not applicable because no lymph nodes involved, is converted to 987, and 987 made obsolete. (The more common OBSOLETE DATA CONVERTED V0200 tag indicates a code from which data has been converted to another code.)

CSv1 codes made obsolete in later versions of CSv1 are identified with an OBSOLETE DATA CONVERTED or OBSOLETE DATA RETAINED label with the appropriate CSv1 version number. OBSOLETE DATA CONVERTED V01XX codes are expected to have been converted prior to implementation of CSv2 and will generate both CS and edit errors if used. OBSOLETE DATA RETAINED V01XX codes are treated similarly to OBSOLETE DATA RETAINED V0200 codes; they are valid for records with a CS Version Input Current value of 020000; they will generate CS and/or edit errors if used in any case with a CS Version Input Current value of 020001 or higher.

## **4.6 Cases Needing Review and Recoding**

As noted, cases including codes with an OBSOLETE DATA REVIEWED AND CHANGED V0200 tag must be manually reviewed to complete the conversion from CSv1 to CSv2.

In addition, prostate cases where autopsy information was coded in CS Extension-Clinical Extension also need review and recoding in CS Site-Specific Factor 3, CS Extension-Pathologic Extension. This recoding is not identified by an OBSOLETE tag in the Prostate schema tables,

but cases will be identified by the conversion program. The CSv1 coding instructions for prostate autopsy information were open to interpretation, and have been clarified in CSv2. A new CS edit for use with CSv2 has been written to compare CS TS/Ext Eval codes which identify staging information derived from autopsy (3) and cancer diagnosed at autopsy (8) with the coding in CS Site-Specific Factor 3.

The following table shows the cases that will need review, by schema, data field, code, recode, and description of the bases for the recoding. The last column shows an estimate of the annual number of cases involved, based on SEER 17 data for 2004-2007, covering approximately 25% of the United States population. The number of cases needing manual was deliberately kept to a very small number.

Schema	Data Field	Code	Recode	Description	Estimated Annual Cases
Nasopharynx	CS Extension	650 700	CS Extension 605, 710	Involvement of orbit recoded to distinguish between bone of floor of orbit and other orbit	272
Esophagus	CS Mets at DX	12	CS Lymph Nodes 260 CS Mets at DX 15	Lymph nodes, recoded to regional nodes and distant nodes	180
MelanomaConjunctiva	CSExtension	400	CS Extension 330, 335	Correction of coding for involvement of substantia propria, recoded to new extension code based on corneal involvement	8
		410	CS Extension 415, 425		4
		420	CS Extension 430, 435		4
		460	CS Extension 440, 465		0

Schema	Data Field	Code	Recode	Description	Estimated Annual Cases
Vagina	CSLymphNodes	100	CS Lymph Nodes 150, 425  CS Mets at DX 20	Pelvic lymph nodes, recoded as regional nodes if primary upper two-thirds of vagina, metastases if primary lower third of vagina	52
Prostate  Cases identified:  CS TS/Ext Eval = 3, CS SSF 3 = 950, 960, 970, 980, 990  CS TS/Ext Eval = 8, CS not = 99 and/or CS SSF 3 = 950, 960, 970, 980, 990	CS Extension		CS SSF 3	Autopsy cases, removed from CS Extension-Clinical Extension and recoded in CS SSF 3, CS Extension-Pathologic Extension	104

#### 4.7 “Not Applicable” Codes

Code 888, used as the “Not applicable” code in CSv1, has been replaced by code 987 or 988 in CSv2 in all tables except for CS Tumor Size. Code 88, the “not applicable” code in the CSv1 CS Mets at DX table, remains a two-character code in CSv2, and has been replaced by code 98. The conversion specifications will provide detailed instructions for the conversion of code 888 to 987 or 988. Code 987 is used in CSv2 to mean the site-specific factor is not applicable to the circumstances of the case. Code 988 is used in CSv2 to mean the table value is not collected because

- the entire table is now obsolete and data are no longer collected in this table
- the site-specific factor was not defined for the schema in CSV1, it is defined in CSV2, but is not required by a standard setter, and/or the registry has chosen not to collect the factor (CSV2 cases)
- the site-specific factor has not been defined for the schema (CSV2 cases), or

- the site-specific factor has been defined in CSv2 but is not required by a standard setter, and/or the registry has chosen not to collect the factor

**Blank is used as the “not applicable” designation in Site-Specific Factor 25 under the circumstances described in section 4.2.**

**Appendix D** shows the meaning and use of code 988 as defined in specific table types

## **5 CODING/UPDATING REQUIREMENTS**

### **5.1 Standard Setter Requirements**

Each standard setter (SEER, NPCR, COC, CCCR, and central registries) will make available to its reporting registries a list of the required input data fields to be collected in CSv2. The requirements established by SEER, NPCR, and COC are included in **Appendix E** in this document. The data items required by SEER and COC generally include all fields required in CSv1 plus new data fields needed to calculate AJCC 6 and AJCC 7 stage, SS1977, and SS2000 in CSv2 plus fields of clinical interest to the users of cancer information supported by the standard setter. The data items required by NPCR include all fields required to calculate SS1977 and SS2000 in CSv2 plus estrogen and progesterone status and the results of HER2 testing for breast cancers.

In addition to meeting data requirements established by reporting obligations, each registry may elect to collect further CSv2 input data fields as determined by facility interest and policy.

Requirements not available for inclusion in this implementation guide will be posted on the CS website at <http://www.cancerstaging.org/cstage/index.html>.

### **5.2 Coding Non-Collected Data Fields**

As detailed in Section 4.6, 988, the standard code for “Not applicable”, also contains the meaning that a data item is not collected because it is not required by a standard setter to which the registry reports and/or the registry has chosen not to collect the item. This code is used in both obsolete CS Tumor Size tables and CS Site-Specific Factor tables. Upon implementation, 888 in undefined CSv1 Site-Specific Factors 1 through 6 will be converted to 988, and 988 will be retained in the converted records in these data fields in CSv2. Site-Specific Factors 7 through 24 will be entered as 988 by the conversion program. Site-Specific Factor 25 will be entered as 100 where required or blank or 988 where not required to determine the appropriate schema for the case. Site-Specific Factors 1 through 6 and CS Eval fields that were reported under CSv1 as blank will be retained as blank by the conversion program.

The CSv2 Implementation Group has agreed that, going forward with data collection in CSv2, registries may either enter 988 in unused obsolete tables, undefined site-specific factors, or site-specific factors not required and/or not collected, or leave these data fields blank. Software vendors may wish to pursue discussions with their client registries about the best way to implement this decision, to assure that each registry is able to collect all required and desired

optional data fields, and that the registry is cued to collect the complete set of data fields upon initial data entry.

When making policy and/or implementation decisions about the collection of new site-specific factor fields, registries and vendors should be aware that new site-specific factors are used in the calculation of AJCC 6, AJCC 7, SS1977, and SS2000 fields. If these fields are left blank, the CS algorithm will return an ERROR message when attempting to derive the appropriate stage value. See the table in section 4.3 for a list of the required data fields for stage calculation.

### **5.3 Updating Existing Data**

Upon initial installation and conversion of CSv1 data to the CSv2 standard, the CS Version Input Original field should remain as originally written to each data record under CSv1 (as CS Version 1<sup>st</sup>). The CS Version Input Current data item, a new field with CSv2, should be filled with the value 020000. After installation and conversion of data, if any case is reviewed and updated to use a CSv2 code, the entire case must be reviewed and changed to use CSv2 codes across all data items. The CS Version Input Current code should be updated to 020001 during the data entry process; this update is dependent upon the registry software retrieving the current version from the CS Dynamic Link Library (.DLL) and inserting it into the case record. Standard data edits will flag any obsolete codes as edit errors in a record with CS Version Input Current coded to 020001.

### **5.4 Special Considerations for Updating Cases Coded in CSv1**

#### **5.4.1 Data in Obsolete Fields**

Information entered into CSv1 fields that have been made obsolete in CSv2 will be retained within the database. However, any updates to this information must be made in the new CSv2 fields that have replaced the CSv1 fields. (See **Appendix C** for the list of obsolete CSv1 and corresponding CSv2 fields.)

For example, in CSv1 Gleason pattern for prostate cancer was collected in Site-Specific Factor 5 and Gleason score was collected in Site-Specific Factor 6. The use and interpretation of information collected in these fields have been problematic, and new site-specific factors have been created to more accurately collect Gleason score and pattern for prostate and to support the use of Gleason score as an element in AJCC 7 staging. Gleason pattern and score on needle core biopsy and TURP are collected in Site-Specific Factors 7 and 8 in CSv2, and Gleason pattern and score on prostatectomy and autopsy are collected in Site-Specific Factors 9 and 10. If a registry performs a review of codes for Gleason pattern and score on converted CSv1 cases, any necessary updating of codes must be performed in the new site-specific factors, 7 through 10, rather than in the obsolete site-specific factors, 5 and 6.

A valid CSv2 value of 988 should be entered into the obsolete field to indicate that the data have been manually reviewed and recoded in another data field. Depending upon vendor implementation, updating codes in obsolete fields to 988 may occur automatically or may

require review and manual data entry by the abstractor. The schemas with obsolete fields where updates must be coded in new fields include all non-mucosal melanoma head and neck schemas, prostate, testis, conjunctiva, and melanoma of choroid, ciliary body, and iris.

#### **5.4.2 OBSOLETE DATA RETAINED Data Items**

CSv1 cases with codes marked as OBSOLETE DATA RETAINED will remain as originally coded unless manually updated by the abstractor. The abstractor may choose a new code which directly maps to a T, N, M, or Summary Stage value, or a new code which is sent to an extra table where the stage element is derived. If the new code is sent to an extra table, as signaled by the \* in the TNM 6 column of the data input field and as described in the note below the table, the abstractor must also update coding in any related fields identified in the note to derive the correct stage value, regardless of whether the related fields were initially required for AJCC 6 stage or Summary Stage. If the related fields were not required and are not updated, the value of 988 will be used in the stage calculation and will either return an “ERROR” message or be treated as “unknown”.

For example, for bladder cancers, AJCC 6 N value was derived directly from the CS Lymph Nodes code in CSv1. In CSv2, AJCC 6 N value for bladder is derived from the CS Lymph Nodes code and CS Site-Specific Factor 2 code for size of metastasis in lymph node in CSv2. If the CS Lymph Nodes code is updated for a converted CSv1 case but Site-Specific Factor 2 remains coded as 988, AJCC 6 stage will be calculated as if the size of metastasis in the lymph node is unknown.

As another example, for lung cancers, AJCC 6 T value was derived directly from the CS Extension code in CSv1. In CSv2, AJCC 6 T value is derived from CS Tumor Size, CS Extension, CS Mets at DX, and CS Site-Specific Factor 1 code for separate tumor nodules in CSv2. If the CS Tumor Size, CS Extension and CS Mets at DX codes are updated for a converted CSv1 case but Site-Specific Factor 1 remains coded as 988, the presence of separate tumor nodules will be treated as unknown in the final AJCC 6 stage calculation.

As noted previously, the table in Section 4.3 identifies schemas where updating converted CSv1 to CSv2 codes requires the coding of CSv2 site-specific factors not available in CSv1.

#### **5.4.3 Evaluation Codes**

As noted in sections 2.6 and 2.7, the definitions for CS TS/Ext Eval and CS Lymph Nodes Eval have changed in CSv2. There is no conversion from CSv1 to CSv2. If any cases with converted CSV1 codes are updated to CSv2 coding, the eval code definitions as stated in CSv2 should be applied.

#### **5.4.4 Schema Discriminator**

The schema discriminator is entered as 100 and marked as OBSOLETE DATA RETAINED V0200 for all CSv1 cases where a schema discriminator is required in CSv2 to bring up the correct schema for data entry. The schema discriminator must also be updated to a valid CSv2

code if any case with code 100 in the Site-Specific Factor 25 field is reviewed and updated to CSv2 coding.

### **5.4.5 Testis Schema**

The testis schema is a special case of obsolete staging information that has been preserved. Site-Specific Factors 1, 2, and 3, used in deriving the S (Serum Marker) value for AJCC 6 staging, have been made obsolete. However the values are retained, and the tables used to derive the S value and AJCC 6 stage remain in the schema and are not marked as obsolete. The tables are identified on the schema index page as “Serum Marker S Value Table CSv1” and “AJCC TNM 6 Stage CSv1”. The site-specific factor tables used to calculate AJCC 6 stage have been made obsolete due to the ambiguity in the definition and coding of the tumor markers in CSv1. Stage will continue to be derived for converted CSv1 cases as originally coded; however, if any updates are made to a converted case after CSv2 implementation, the entire case should be reviewed and recoded using the active CSv2 site-specific factors for tumor markers and the CSv2 coding instructions for these data fields. The instructions in the User Documentation Part I and above the data entry tables contain many clarifications about the appropriate use of serum tumor markers to derive the S staging element.

## **6 SOFTWARE IMPLEMENTATION**

CSv2 is a major enhancement over the CSv1 introduced in 2004; the amount of data collected, the number of schemas, and the complexity of staging criteria in the AJCC Staging Manual, 7<sup>th</sup> Edition, have all increased in this upgrade. The basic structure has remained, but it has grown more complex. Additional tools for implementing CSv2 have been provided to help ease the transition.

### **6.1 Source Files**

All files required for adding CSv2 to the registry system are available at <http://www.cancerstaging.org/cstage/software/index.html>, including documentation of the application interface, a Windows–compiled library, XML and HTML tables, and ready-to-compile source code for other operating systems.

### **6.2 Application Interface (API)**

Documentation for the API (see *CS API Version 2.doc*) will be vital to implementation of the new algorithm. New API functions have been added to provide more tools to use the XML tables as a resource, reducing the need for external tables to support the library.

### 6.3 Data Card Changes

With the increased number of input fields and output fields including additional non-CS fields (see section 3.4), the Data Card has been expanded, with changes in where field values are stored on the card. Refer to “Required Data Structure” in the CS API Version 2 document for the revised layout.

### 6.4 Schema Determination

With more than 50 new schemas introduced in CSv2, and the possibility that additional schemas may be added in incremental updates with consequent renumbering of schemas, it is recommended that implementation not rely on fixed schema numbers. Instead the API functions should be used to send the information required for schema determination and to retrieve the schema number from the .DLL. This procedure will allow for future CSv2 updates with minimal programming changes.

Schema selection controls which site-specific factor fields require data entry for a case and which codes are available for each CS field abstracted. The flow of data abstracting must be arranged so that the abstractor records all values necessary to select the correct CS schema for a case before data entry into the CS fields begins. For most schemas, site and histology are adequate for determining the schema. However, some ICD-O-3 site codes include multiple subsites which are staged differently in AJCC 7; thus an additional Schema Discriminator (Site-Specific Factor 25) is required to finalize the schema determination (see section 4.2). For schemas where Site-Specific Factor 25 is required, this field must also be presented to the abstractor before all the other CS fields. Schema selection is a two-step process:

- Does the site/histology combination identify a schema that requires a value from SSF 25? If no, select schema.
- Does the site/histology combination point to a schema that requires a value from SSF 25? If yes, present SSF25 for coding; then select schema.

If the site/histology combination requires a discriminator value to complete the selection of the proper schema and the discriminator value is not present, the .DLL will return an error code to the calling program. The calling program must recognize that error code and request the discriminator value from the registrar to send to the .DLL.

### 6.5 Derivation of Stage Values

The algorithm will return derived stage values to the calling program via the datacard. Note that, for 2010, the returned stage values include both AJCC 6 and AJCC 7 stage values as well as both SS1977 and SS2000 values. The calling program is responsible for copying these values from the datacard into the program database.

If the algorithm is reapplied to a case, but the rederivation of one or more of the stage values is not possible, the old values in those derived stage fields, including the corresponding derived stage flags, should be replaced with blanks.

## 6.6 Version Stamping

There are now three fields for recording the coding history of the data collected in CSv2: CS Version Input Original (formerly CS Version First), CS Version Derived (formerly CS Version Latest), and CS Version Input Current. This new field was included to record when a case has been updated from the original coding rules.

The CSv2 library contains only the latest version number and returns it to the calling program via the API; it is up to the calling program to determine when and how the version number should be stamped into each of these three fields.

- CS Version Input Original – this field should be filled by the calling program the first time the CS tables are accessed for data entry
- CS Version Input Current – this field should be filled by the calling program whenever a case has been updated with newer codes from a CS version newer than that used to stamp the CS Version Input Original field.
- CS Version Derived – this field should be filled by the calling program whenever the algorithm can successfully calculate a derived stage value (SEER Summary Stage or AJCC Derived Stage Group) from the current values in the input fields.

If a case abstracted under a previous version of CS has an empty field for CS Version Input Original, the algorithm has no way to know under which version it was abstracted; it knows only the current version. Such cases should be corrected before updating to CSv2 in order to have the correct CS Version recorded for the initial coding system.

## 7 DATA CONVERSION FROM CSV1 TO CSV2

### 7.1 Field Changes

The input fields CS Extension and CS Lymph Nodes will each expand to three characters to allow improved assignment of codes in a hierarchical fashion. Generally, each field will be padded on the right with a zero, but some fields will require additional recoding, either by program or by hand after manual review.

### 7.2 Conversion Program

CDC/NPCR is preparing a conversion program that will convert NAACCR 11 to NAACCR 12 records, with the conversion of CSV1 data to CSV2 data embedded within it. Details of that program and how it can be implemented will be available in early 2010. After the conversion routines have been applied, all cases should have CS Version Input Current set to 020000. Upon manual updates to the cases after that point, CS Version Input Current should be set to the version number derived from the .DLL.

### **7.3 Conversion Specifications**

The complete conversion specifications were not available at the time this document was being prepared, but will be made available in a separate document upon the release of CSv2. The specifications are those that will be used in the CDC/NPCR conversion program mentioned in section 7.2.

### **7.4 Old Cases, New Fields**

Cases coded under CSv1 do not need to be recoded with the new data items of CSv2; the new fields may be left blank, or the abstractor may wish to gather information into the registry database with the newer tools available. If a case was originally coded under CSv1, the CSv2 algorithm will (after the conversion) continue to calculate AJCC 6 and the SEER Summary Stages. It will not calculate AJCC 7 for cases coded in CSv1 because the case will not have sufficient data for correctly staging the case under AJCC 7 rules and the algorithm will not derive AJCC 7 for a case diagnosed prior to 2010.

### **7.5 New Cases, Old Fields**

All cases diagnosed on or after 1/1/2010 should be coded according to the CSv2 schemas. Because CSv2 software may become available to the hospital registrar before the central registry can process 2010 cases, it is not recommended that the central registry require that all such cases be initiated with CSv2. If a 2010 case is initiated in CSv1 before CSv2 becomes available, the CS Version First field will contain a version 010401 stamp; however this version stamp will not prevent the algorithm from deriving AJCC 7 stage codes after conversion to CSv2. All CSv1 cases must be updated to CSv2 coding after software installation so that the CS Version Input Current field can be stamped as according to the value in the .DLL, the derived stage codes calculated, and the case submitted to the central registry.

## **8 DOCUMENTATION**

### **8.1 NAACCR Data Dictionary**

The NAACCR Version 12 Data Standards and Data Dictionary defines the CS data fields. The Data Dictionary provides the NAACCR item number, position within the NAACCR version 12 report layout, and requirements for collection as established by the standard setters, SEER, COC, NPCR, and CCCR. This volume is available on the NAACCR website at [http://www.naacr.org/index.asp?Col\\_SectionKey=7&Col\\_ContentID=133](http://www.naacr.org/index.asp?Col_SectionKey=7&Col_ContentID=133). An HTML Help version of this document will be made available with Registry Plus.

### **8.2 CSv2 User Documentation**

The CSv2 User Documentation is presented in two parts, both available for downloading from <http://www.cancerstaging.org/cstage/manuals/index.html>.

- Part I of the CSv2 User Documentation contains a description of the system and coding instructions for each CS data element. This has been expanded from Part I of the CSv1 Staging Manual and Coding Instructions with additional coding examples, schema-specific notes, and descriptions of the data collected in the new CSv2 site-specific factors.
- Part II of the CSv2 User Documentation contains the tables used for coding each schema, with all notes included: above-table notes guiding abstracting and below-table notes identifying extra tables used by the algorithm to derive stage values. The tables document the mapping to T, N, M and stage group for both AJCC 6 and AJCC 7 staging and for both SS1977 and SS2000. Part II may also be generated from the Cstage.DLL using newly available API functions.

The CSv2 User Documentation is intended to be an electronic document, accessible on the abstractor's computer. A printed version of the User Documentation will be available for purchase from the National Cancer Registrars Association.

### 8.3 CSv2 Software

The CSv2 software is published on the AJCC website for downloading by software vendors and central registries, at <http://www.cancerstaging.org/cstage/software/index.html>. The software contains:

- API Documentation
- DLLs
  - cstage.dll -- For the build/version number, either right-click on the file in Windows Explorer and check the version properties tab or call the API function CStage\_get\_version()
  - Wrapper dlls used for VB.Net and Java
- Include files: csapi.h and collab.h
- API sample programs
  - Test-o-Matic
  - VB.NET, C, Java, and C#
- XML & HTML tables used in the build

The .DLL files contain the source code for the CS algorithm, composed of routines to read the CS XML tables and derive stage values. The XML tables are the fundamental repository of the CS system, containing table notes, codes, descriptions, mappings to the derived values, and specifications for data processing. Test-o-Matic is a downloadable interactive program useful for entering individual case information and reviewing CS output, both for testing the performance of the algorithm and the accuracy of data coding.

### 8.4 Inquiry and Response System

The Inquiry and Response System, I&R, maintained by the COC, <http://web.facs.org/coc/default.htm>, is the official resource for questions about the use of CSv2. A requester will specify the CS schema and/or data item, selecting from a pick list of schemas

and items, to characterize the type of question being asked. The CS I&R Team is defining a workflow process to include tracking all CS questions, obtaining input from CS and subject experts, and providing a response within a specified time period. The I&R database will serve as a repository of information useful for consistent interpretation of coding issues and guidance in further development of the CSv2 system.

## **9 EDITS**

### **9.1 NAACCR Version 12 Edits Metafile**

The NAACCR Version 12 Edits Metafile is under development. A beta release of the metafile, including schema-specific CS field validation edits at the least as well as edits for other new fields, is planned for January 2010. A second release of the metafile including additional CS edits is planned for release within one month of the final release of the CS system. All current CS edits have been updated to allow for three-character CS Extension and CS Lymph Nodes fields, and to accommodate the new ICD-O-3 hematopoietic codes that become reportable on 1/1/2010. The Edits Engine has been modified to allow function calls to the CS .DLL to check for valid CS codes. The CS Edits Workgroup is reviewing all CS schemas and tables to identify interfield data relationships and construct edits to enforce consistent coding across related fields. Given the increase in the amount of data collected in CSv2, the expanded table notes instructing coding, the complexity of data relationships across the new tables, and time required for coders to use and identify problems, it is anticipated that the identification and construction of CSv2 edits will extend well beyond the initial implementation of the system.

### **9.2 Edits Installation**

The Edits metafile is a separate program from the CSv2 algorithm, though both programs have been modified to allow Edits function calls to the CS .DLL as noted in 9.1. The CS Mapping Team recommends that Edits be called to run on case information after input of CS data items but before the CS algorithm is called to derive stage output values. The Edits program generates more specific error messages than the CS algorithm; processing edits before CS calculation assists the abstractor in identifying coding problems that may not be readily identifiable from a manual review of CS input codes.

### **9.3 Edits at Conversion**

As noted in sections 10.1 and 12.2 below, all available CS edits should be run both before and after data conversion. The NAACCR 11.3a metafile is available now for use before conversion. The NAACCR 12 metafile is expected to be available in a beta version in January, 2010.

Note that the NAACCR 12 metafile edits cannot be run with the Edit Engine used with NAACCR version 11.x metafiles. New EDITS Tools (EditWriter, Edit Engine, and GenEdits Plus) have been updated for use with NAACCR 12 records and edits. These tools will be available from <http://www.askcnet.org/editstools/edits2010.html>.

## 9.4 Edits Based on CS Version Input Current

All codes marked with an OBSOLETE tag in the CSv2 HTML tables will fail with a CS Version Input Current value of 020001. All cases with a diagnosis date 1/1/2010 and later will fail with a CS Version Input Current value less than 020001. This edit, “CS Version Input Current, Date of DX (CS)”, will be useful in identifying any 2010 cases that may have been entered in CSv1 and require updating to CSv2 codes required to derive AJCC 7 staging.

## 9.5 Edits on Blank and 988

Edits will be skipped for any site-specific factor field entered as blank or coded 988, “not applicable.” However, edits based on each standard-setter’s requirements will check that fields required by that standard-setter are not coded as blank or 988. For example, an edit checking correspondence between Site-Specific Factors 7 and 8 for Prostate, collecting Gleason score and pattern, would be skipped if either or both fields were coded 988; however a second edit checking on the completion of required data items for COC would fail if either or both of these fields were coded 988.

# 10 CENTRAL REGISTRY CONSIDERATIONS

Many issues facing central registries have been addressed in the *NAACCR 2010 Implementation Guidelines and Recommendations*. Central registries should determine which CS data fields they will collect, edit, and maintain; communicate their requirements to reporting entities and their software vendors; and update their database structures and all programs to correctly process the CS data being reported in the NAACCR 12 layout. Central registries may be in a position where they receive data abstracted under CSv1 and CSv2 and reported in NAACCR Version 11.3 and Version 12.0 layouts from different facilities during the same time period, depending on registry software implementation schedules. The central registries should develop a plan for managing the transition period, until all registries are reporting data from CSv2 in the NAACCR 12 layout, so that timely case reporting is not adversely affected.

## 10.1 Staging System Selection

As identified in the table in Section 4.3, different CS data items are accessed in the derivation of AJCC stage and Summary Stages. If the central registry elects to collect information to derive SEER Summary Stage 2000 only, for example, the registry may opt to filter out CS error messages related to data items not included in the derivation of SS2000.

## 10.2 Data Preparation for Existing Records

To ensure correct conversion and derivation of CS data, all records in the registry database with staging information diagnosed from 1/1/2004 through the date of implementation must be processed through the CSv2 algorithm; AJCC 6 stage and SS1977 and SS2000 will be re-derived on all cases where sufficient information is available. It is strongly recommended that registries identify all edits developed for use with CSv1 on the fields they collect and re-edit all

cases before implementation of CSv2. CSv1 edits were added to the standard NAACCR metafile at intervals from 2004 through mid-2009; all CSv1 cases in the registry database may not have passed through all available CS edits. Fewer conversion problems are anticipated with edited data.

Registries may also elect to rederive AJCC 6 and/or SS1977 and SS2000 on their cases after they have been edited, as a second step to ensure that cases are correctly coded before data conversion. Registries should also identify and correct coding on all cases which contain a blank in the CS Version 1st data field to ensure correct processing by the conversion program.

### **10.3 Data Conversion**

Central registries must run the data conversion program on cases diagnosed from 2004 through the latest received records in the registry database. After the CSv2 .DLL has been installed and CS data items have been converted to CSv2, the registry will no longer be able to process input data based on CSv1. Data may continue to come in from hospital registries under both CSv1 and CSv2 for cases prior to 2010. The central registry must convert these cases to CSv2 for processing. NPCR will provide a separate .DLL which converts data from NAACCR 11.3 to NAACCR 12 format.

### **10.4 Data Review After Conversion**

Registries may also wish to prepare a plan for manual review and change of cases with data items identified in the conversion specifications as OBSOLETE DATA REVIEWED AND CHANGED. (The obsolete tag for these codes is anticipatory in a sense; it indicates to a future user what has happened to the case after the conversion process has been completed by manual attention.) The volume of these cases was kept as small as possible. These cases should result in an ERROR value upon first processing by the CSv2 algorithm. They require manual review, and then reprocessing to derive stage values. The automated conversion program will produce a list of cases requiring manual review and conversion. The CS Version Input Current field will be set to 020001 when cases are recoded using the CSv2 tables.

### **10.5 Code 988 versus Allowable Blanks**

Central registries should determine if they will allow blanks to be reported from the “not applicable” data items, specifically obsolete tables and site-specific factors, or require the reporting of 988 in these fields. They should communicate this decision to software vendors and reporting registries, along with the communication about required data fields.

### **10.6 Updates on CSv1 Records**

As data entry into new CS fields is permitted for converted CSv1 cases, central registries should determine if they will accept CSv2 updates on converted CSv1 records, and communicate this information also to reporting entities and software vendors. As presented in section 5.3, any update to a converted CSv1 record after implementation of CSv2 will require complete review of the record for concordance with CSv2 coding. If updates are allowed and accepted into the central registry database, converted CSv1 cases collected from 2004 forward may come to have a mix of converted CSv1 and CSv2 codes complicating data query and analysis if the

remaining fields are not also updated. It is highly recommended that central registries carefully scrutinize the reporting of the CS Version Input Original and the CS Version Input Current data fields to ascertain that vendors have correctly implemented these data items and that they are reliable indicators of the CS coding present in any given record.

If central registries update staging information within-house, either on records originally reported by facility registries or on records collected by their own staff, they should assure that data entry is tied to maintaining the CS Version Input Current field. Any update of a record with CS Version Input Current of 020000 should involve review of the entire record, update of all codes to current CSv2 definitions, and update of CS Version Input Current to the currently installed version of the CSv2 program.

## **10.7 Timing of Submissions**

It is strongly recommended that all registries complete their 2009 cases before upgrading to CSv2, and not begin abstracting 2010 cases until after successful installation and testing of the CSv2 program. If reporting registries wish to maintain concurrent abstracting and start with their 2010 cases before they receive software upgrades containing the CSv2 algorithm, they should develop a plan for reviewing and recoding these cases after software upgrade. The central registry can assist reporting registries in developing and implementing their plans to maintain the currency of their data abstracting and to most efficiently prepare to recode their 2010 cases if they do go ahead with abstracting using CSv1.

In planning for any recoding of 2010 data initially collected in CSv1, it is strongly recommended that the central registry emphasize the extent and type of changes that have occurred moving from the CSv1 to the CSv2 coding system:

- reassignment of sites and/or histologies to new schemas
- a significant number of CSv1 codes are obsolete in CSv2
- table notes and coding instructions are greatly expanded and should be carefully reviewed by each abstractor coding each new type of case
- code definitions in the CS TS/Ext Eval and CS Lymph Nodes Eval fields have changed to reflect changes in clinical and pathologic staging criteria
- many new and unfamiliar site-specific factors are collected

The central registry should communicate as soon as possible with reporting registries their anticipated date for being able to receive and process CSv2 cases. The central registry should develop a plan for identifying and tracking any 2010 cases that may be reported as CSv1 cases, and following up with reporting registries on the resubmission of such cases after CSv2 software is available. See section 9.4 for a recommended edit to assist in this process. If the central registry anticipates a significant lag between the date registries are able to report their CSv2 cases in NAACCR 12 and the central registry is able to receive such cases, the central registry

should develop a plan for tracking and holding data submissions until they can be processed, so reporting facilities are able to meet reporting timeliness requirements.

## **10.8 Submission Testing**

Central registries should consider requesting test files from all vendors for review and approval of placement of data fields and correctness of data conversions before accepting routine submissions in the NAACCR 12 data layout. Careful inspection of initial submissions can identify problems in the vendor's translation of codes from registry software into the NAACCR layout, and also problems in the central registry's processing programs moving data from the NAACCR layout into the registry database. Reviewing the first data submissions which contain converted data may identify systematic problems in either the facility's or the central registry's conversion of CSV1 cases which can be rectified at an early stage when the registries are still focused on the conversion process.

## **10.9 Edits**

Members of the CSV2 Task Force have worked closely with the NAACCR Collaborative Stage Edits Work Group to develop standard edits for the CSV2 data items. CSV2 edits will be available in the NAACCR 12 metafile. The central registry should install and use the NAACCR 12 Edit Metafile as soon as it becomes available after release of the CSV2 program. The central registry should carry out any desired customization of the Edit Metafile as soon as practicable after it becomes available, and re-edit all converted cases using the NAACCR 12 Metafile. As noted in Section 9.1, the development and review process for CS edits will continue into the future, and central registries should develop a plan that facilitates upgrades of edit metafiles as they are posted by the NAACCR Edits Committee.

Refer to Section 9.3 for information about upgraded Edits Tools required for NAACCR Version 12 and CSV2.

Early release of a customized metafile to vendors will facilitate implementation of those edits within the reporting registries.

## **10.10 Quality Monitoring**

In addition to aggressively supporting all training opportunities for central registry and reporting registry staff members, central registries should develop a program of monitoring data quality focused on the changes from CSV1 to CSV2. Subjects for review might include the use of schema discriminators for the biliary sites and stomach/GE Junction; lung coding in general; the use of Her2 and any other newly required site-specific factor fields for breast; prostate coding in general; and use of tumor marker fields for testis. As they perform quality monitoring, central registries should be aware of data relationships that could be subject to edits, registrar problems or misconceptions that could be amenable to training, and system faults that could be rectified. Central registries should communicate any such findings with the general registry community and in particular to the CSV2 Project Manager.

## 11 VENDOR/SOFTWARE DEVELOPER CONSIDERATIONS

In addition to incorporating the CS .DLL into the data processing stream, vendors are faced with a number of presentation issues:

### 11.1 Schema Discriminator

The schema discriminator where required must be presented to the abstractor before the schema tables can be selected. The schema discriminator is required for very few schemas, as detailed in section 4.2. When it is required but is missing from the datacard or is invalid for the schema, an error code will be presented to the calling program. The implementation must relay that message to the abstractor, who must be able to access and recode the schema discriminator field as necessary upon review of any case, to change the discriminator from one schema code to another, to add a discriminator code to a case where not previously coded, or to change the code to “not applicable” where previously coded but not required. The software must allow updating of the schema discriminator and then selection and presentation of the correct schema tables for continued data entry.

### 11.2 Multiple Site-Specific Factor Fields

Minus the schema discriminator, there are 24 potential site-specific factor fields for every record abstracted, and there are gaps in the assignment of site-specific factors to data items. For example, with the site-specific factors for the Vulva schema, 1 through 9 and 16 through 24 are undefined, but 10 through 15 are defined.

Some questions for the vendor/developer to consider:

- Will a placeholder for each site-specific factor be included in the abstracting screen and activated only when required, or will each field be displayed only when required?
- Will unused fields be pre-filled with 988 to cue the abstractor that the field is not coded, or will unused fields be displayed as blank or embody some other cue to the abstractor? If displayed, will unused fields be skipped over, or require the abstractor to tab through?
- What flexibility is available to tailor the program to the different requirements of standard setters, central registries, and facility policy?

The CS API Version 2 document describes an additional function (CStage\_get\_table\_currency) that may be used to hide unused or obsolete fields or otherwise allow the abstractor to skip over such fields with minimal keystrokes and/or allow the software to prefill such fields with 988.

### 11.3 Table Displays and Hyperlinks

The complete XML files and HTML pages for CSv2 are available for download and contain a wealth of information beyond just the codes and their descriptions. This information includes notes above the table to aid the abstractor in selecting the most appropriate code; notes below the table that contain specifications for deriving stage values but also inform the abstractor about which pieces of information will be put together and where to look to see how they are put together; and TNM 7, TNM 6, SS1977, and SS2000 values that will be directly derived from a particular input code.

When implemented, hyperlinks will lead the abstractor to further information and instructions in the User Documentation Part I that will aid in correct coding. CSv2 is designed to be an electronic system, with all information readily accessible to the abstractor when abstracting.

- How will this information be displayed through menus, picklists, and other display functions?
- The CS Mapping Team recommends that all notes, codes, code descriptions, and mappings for TNM 7, TNM 6, SS1977, and SS2000 be included in the picklists or immediately accessible help pages.

The vendor/developer issue is: how should that information be made available to the user?

- One option is to include the HTML tables with the software installation, replicating the online User Documentation on the user's desktop.
- Another option is to use functions provided by the API to retrieve the information from the XML tables: after the registry software has retrieved the schema ID from the .DLL, it can use that schema ID to generate help pages and pick lists for each table during data entry and provide schema-specific displays of the table with notes.

Refer to the *CS API Version 2* document for information on these functions.

### 11.4 Obsolete Codes and Tables

Many CS Extension, CS Lymph Nodes, and CS Mets at DX tables contain codes marked as OBSOLETE DATA RETAINED. The system also contains a small number of entire tables that are marked as OBSOLETE, with most of the codes within the tables marked as OBSOLETE DATA RETAINED. The CS Mapping Team has recommended that obsolete codes and tables not be displayed in the regular abstracting screen, but that they be available for inspection as needed. Some tables do not contain any obsolete codes, the Prostate Site-Specific Factor 3 table contains 24 obsolete codes. Obsolete codes are sequenced numerically with active codes and used in the derivation of AJCC 6 stage for CSv1 cases that have not been updated to CSv2 codes. Some questions for the vendor to consider:

- How are obsolete codes accessed by the registrar for viewing and reporting purposes? If the registrar decides to update values in a CSv1 record, does the registry software deny the use of obsolete codes or rely on the Edits program to produce a failure?

- Can the software link obsolete tables with their replacement tables, to display the set of tables together, allow coding in the new table or tables, and automatically update the obsolete table with 988?

## **11.5 Breast SSF16**

Site-Specific Factor 16 in the Breast schema records combinations of ER, PR, and Her2 results. The code in this field could be automatically derived from values entered in Site-Specific Factors 1, 2, and 15 for Breast, as readily identified by registrars in training sessions. Software vendors may consider whether a module can be written to perform the derivation within the registry software. Site-Specific Factor 15, Summary Results of Her2 testing, appears to be a field that could be automatically derived, but the selection of the correct code includes a timing value that is not collected, so the field is not amenable to automation.

## **11.6 Timing of CS Version Stamping**

An issue identified in CSv1 was ambiguity in the meaning of the CS Version 1st value. In some software programs, it was implemented to identify when the CS input fields were entered, and in others, it identified when the CS output values were derived. Some registries did enter data values at one time without the derivation of stage, deriving stage later after installation of a revised version of the CS algorithm with the CS Version 1st value tied to derivation rather than data entry. CS Version 1st has been renamed to CS Version Input Original in CSv2; the NAACCR Data Dictionary specifies that the version number should be returned as part of the call to the CS Library or entered on data input. Software implementations must be modified as necessary to tie the return of CS Version Input Original and CS Version Input Current to data entry rather than stage derivation.

CS Version Derived should be stamped upon successful completion of derived Summary and/or AJCC stage. For quality purposes, the software should require derivation of stage upon completion of the case, so that algorithm output can be reviewed by the registrar and input values modified as necessary while the registrar is working with the source materials.

## **11.7 Timing of Data Entry for 2010 Cases**

It is strongly recommended that registries not begin abstracting 2010 cases until after they have received their software upgrades with the CSv2 algorithm installed. The vendor can assist registries ready to begin abstracting before software is available by furnishing paper forms that follow the anticipated layout of the data entry screens, by creating a spreadsheet or database program that can serve as an intermediate data collection vehicle, or by creating a shell within the registry software that supports data entry at a minimum. The HTML tables with coding information are available for reference on the AJCC website at <http://www.cancerstaging.org/cstage/software/index.html>, and the vendor can assist the registry with instructions on accessing the tables for coding as an adjunct to the registry software system.

## **11.8 Edits**

If possible, the NAACCR 12 Edit Metafile should be included with the software release to the registries, along with instructions for processing converted cases with the metafile. As noted in Section 9.1, the development and review process for CS edits will continue into the future, and vendors should develop a plan that facilitates upgrades of edit metafiles as they are posted by the NAACCR Edits Committee.

## **11.9 Submission Format Testing**

It is recommended that central registries consider evaluating test submissions from vendors before software is released to client registries, and from selected reporting registries after updating to NAACCR 12 and CSv2, to ensure that submitted data are formatted properly. Once each vendor has been certified, it is likely that all client registries of that vendor will be compliant with the new reporting rules. For registries that manage their own software, each registry should submit a test file when ready.

## **11.10 Data Conversion Instructions and Review**

It is recommended that vendors provide instructions to registries on how to re-run the algorithm on all cases previously entered in CSv1, ensuring that stage values will be appropriately derived in CSv2. Registries may convert their data all at one time, depending on software capability, or there may be procedures for applying the new algorithm on selected subsets of the registry database. It is recommended that vendors should provide instructions for data preparation of CSv1 cases, including identification and correction of any records with a blank in the CS Version 1st data field.

It is recommended that a list be made available to the registry after data conversion and processing by the CS algorithm, of cases which have failed to derive a stage value. These cases may include codes flagged as OBSOLETE DATA REVIEWED AND CHANGED, they may include prostate autopsy cases, they may include cases with other data input errors. The registry should review and recode such cases using active codes, and then manually rerun the algorithm to derive an AJCC 6 stage and SS1977 and SS2000 values. The CS Version Input Current value should be updated to 020001, indicating that the entire case is coded using valid codes in CSv2. A second list of any 2010 cases that may have been abstracted in CSv1 should be made available to the registry for recoding of the standard fields and the newly required fields in CSv2. The registry software should provide an easy method for registries to mark such cases for resubmission to the central registry after they have been recoded.

## **11.11 Vendor Information**

Vendor information is available on the CS website at <http://www.cancerstaging.org/cstage/software/index.html>. The website includes a PDF of the PowerPoint presentation to vendors on November 4, 2009. A second implementation call for vendors is scheduled for January 13, 2010. A test file of cases with CSv2 input information, in NAACCR 12 layout, is available at the same web site.

Vendor questions or general questions regarding the CS release can be submitted to Donna Gress, RHIT, CTR, AJCC Technical Specialist at [ajcc@facs.org](mailto:ajcc@facs.org) or [dgress@facs.org](mailto:dgress@facs.org).

## **12 FACILITY REGISTRY CONSIDERATIONS**

### **12.1 Data Fields**

The facility registry must become informed of the changes coming with the publication of the AJCC 7<sup>th</sup> Edition Staging Manual and the implementation of CSv2. The registry must share this information with the Cancer Committee, communicating to the Committee members the new data fields that have been defined, and the purposes for collecting these items. The registry must identify requirements for data collection established by standard setters to which the registry reports, and with the Cancer Committee establish policies for collecting any other items of interest to the local facility. The registry should determine which items are available within the facility record, which items could be available if the interest in collecting the information were known, where in the facility record to routinely look for the information, and the concordance between how the item is displayed in the facility record and collected in the CSv2 system.

The registrar must communicate local policy decisions to the software vendor and ensure that the software is customized as necessary to support complete and correct collection of all CSv2 data items needed to meet external and internal reporting requirements.

As noted, the hospital registry is faced with many challenges in preparing for and implementing CSv2. The registry is strongly encouraged to work in close collaboration with and seek guidance from the program cancer committee in disseminating information about CSv2 and the cancer data items, making the necessary decisions, and developing new policies for the collection and use of CSv2 data.

### **12.2 Timing of Data Abstracting and Reporting**

The facility registry should communicate its plans with the central registry for proceeding with abstracting 2010 cases. Both partners should be aware of the time constraints under which each operates, when the facility registry will be able to and desires to submit 2010 cases, and when the central registry will be able to receive and process cases in the NAACCR 12 layout with CSv2 data fields included.

### **12.3 Data Preparation**

Facility registries should undertake the same data preparation steps as the central registries. With vendor support if required, all cases with stage coded and derived in CSv1 should be re-edited with the most complete set of CS edits available for the data fields collected, to ensure a smooth conversion to CSv2 processing. The NAACCR 11.3a metafile contains the last release of edits for CS data fields collected in CSv1. CS Version 1st should be entered on all CSv1 cases. If the registry has started abstracting 2010 cases before the software upgrade is

available, the registry should develop its own plan to make sure that these cases are identified, recoded if necessary after data conversion, and resubmitted to the central registry.

In planning for any recoding of 2010 data initially collected in CSv1, it is strongly recommended that the hospital registry become informed about the extent and type of changes that have occurred moving from the CSv1 to the CSv2 coding system:

- reassignment of sites and/or histologies to new schemas
- a significant number of CSv1 codes are obsolete in CSv2
- table notes and coding instructions are greatly expanded and should be carefully reviewed by each abstractor coding each new type of case
- code definitions in the CS TS/Ext Eval and CS Lymph Nodes Eval fields have changed to reflect changes in clinical and pathologic staging criteria
- many new and unfamiliar site-specific factors are collected

## **12.4 Data Review**

After data conversion and processing of converted cases by the CS algorithm, the registry should receive a report of cases which failed processing because they contain codes which are flagged as OBSOLETE DATA REVIEWED AND CHANGED, they are prostate autopsy cases, or they have other coding problems. The registry must review these cases, recode them entirely using active CSv2 codes, and rerun the algorithm to derive stage values. The conversion specifications identify the few situations where manual review is required. The registry should process all converted records with the NAACCR 12 edits metafile after release to identify any possible problems with the data conversion.

## **12.5 Data Submission**

The facility registry should recode in CSv2 and resubmit to the central registry any 2010 cases coded in CSv1, any converted cases that have not already been submitted to the central registry, and any new cases entered in CSv2. The facility registry should not submit its entire database of converted cases from 2004 forward unless specifically requested to do so by the central registry. If the facility registry discovers a systematic problem in its data conversion that may affect the validity of previously reported cases, or require a correction to the converted data within the central registry, the facility registry should communicate such problems to the central registry and participate in joint planning for resolution. The facility registry should identify the first data submission to the central registry using the updated software program, to alert the central registry to closely review the submission for correctness in data placement and coding. The facility registry should identify the first data submission to the central registry that contains data from converted cases as well as new cases, to alert the central registry to closely review the submission for the accuracy of the conversion process.

## 12.6 Questions

All questions and inquiries about how to use the CSv2 system should be submitted to the I&R at <http://web.facs.org/coc/default.html>.

## 13 TRAINING

### 13.1 Training Participants

AJCC, NAACCR, SEER, the Canadian Council of Cancer Registries (CCCR) and Canadian Partnership Against Cancer, NPCR, the National Cancer Registrars Association (NCRA), and central registries are supporting multiple training efforts to acquaint registrars with the changes represented by CSv2 and the components of the new data collection system. The CS website at <http://cancerstaging.org/cstage/education.html> provides links to the CSv2 Speaker's Bureau and the training plans of NCRA, CCCR, NAACCR, SEER, and NPCR. The Speaker's Bureau link provides a list of trained CSv2 speakers by state and by last name, as well as a list of scheduled presentations and locations.

Information about CSv2 has appeared in multiple registry venues, including *The Connection* and the *Journal of Registry Management* from NCRA, and *The NAACCR Narrative* the newsletter for NAACCR members. Introductory presentations were made at the 2009 spring meetings of both NCRA and NAACCR. The AJCC held an initial train-the-trainer meeting in Chicago in July, attended by designated trainers from the standard setting organizations, followed by a second train-the-trainer session in Atlanta for NPCR designated trainers for the NPCR-supported central registries. AJCC train-the-trainer sessions continue via webcasts as new modules are developed and materials made available for trainers to take to their registry audiences.

### 13.2 Training Materials

The AJCC has taken the lead in supporting the development of training materials identified by the CS logo. Phase I of training resulted in eleven modules available for the trained trainers: Introduction to CS, Head and Neck Cancers, Colorectal and Appendix Cancers, Liver and Intrahepatic Bile Duct Cancers, Lung Cancer, Melanoma of Skin, Merkel Cell of Skin, Breast, Prostate and Other Genitourinary Cancers, Gynecologic Cancers, Lymphoma and Hematopoietic/Reticuloendothelial Malignancies. Each module contains a PowerPoint Presentation covering what's new in the schema including codes and rationale for changes or inclusion in CSv2, case exercises, and case exercises with answer sheets marked for trainer use, identifying correct codes and information supporting the codes in the cases. The CSv2 Education Team has worked in tandem with the CSv2 Mapping Team in developing the training materials, identifying schema issues, and updating presentations as schema mapping has evolved. As the CSv2 algorithm is put into production and registrars gain experience in using CSv2, the CS Education Team plans on further training efforts to focus on the scientific and clinical basis for many of the new data items collected, as well as assistance in problem areas in using the new system.



## Appendix A1. Correspondence by AJCC Chapter between AJCC 7<sup>th</sup> Edition Chapters and CSv2 Schemas, by AJCC Chapter

AJCC Staging Manual 7 <sup>th</sup> Edition	Collaborative Stage Data Collection System Version 2
Ch 1 Purposes and Principles of Staging	
Ch 2 Cancer Survival Analysis	
Ch 3 Lip and Oral Cavity	Buccal Mucosa FloorMouth GumLower GumOther GumUpper LipLower LipOther LipUpper MouthOther PalateHard TongueAnterior
Ch 4 Pharynx	Hypopharynx Nasopharynx Oropharynx PalateSoft PharyngealTonsil TongueBase
Ch 5 Larynx	EpiglottisAnterior LarynxGlottic LarynxOther LarynxSubglottic LarynxSupraglottic
Ch 6 Nasal Cavity and Paranasal Sinuses	Nasal Cavity SinusEthmoid SinusMaxillary
Ch 7 Major Salivary Glands	ParotidGland SalivaryGlandOther SubmandibularGland
Ch 8 Thyroid	Thyroid
Ch 9 Mucosal Melanoma Head and Neck	MelanomaBuccalMucosa MelanomaEpiglottisAnterior MelanomaFloorMouth MelanomaGumLower MelanomaGumOther MelanomaGumUpper MelanomaHypopharynx MelanomaLarynxGlottic MelanomaLarynxOther MelanomaLarynxSubglottic MelanomaLarynxSupraglottic

	MelanomaLipLower MelanomaLipOther MelanomaLipUpper MelanomaMouthOther MelanomaNasalCavity MelanomaNasopharynx MelanomaOropharynx MelanomaPalateHard MelanomaPalateSoft MelanomaPharynxOther MelanomaSinusEthmoid MelanomaSinusMaxillary MelanomaTongueAnterior MelanomaTongueBase
Ch 10 Esophagus and Esophagogastric Junction	Esophagus EsophagusGEJunction
Ch 11 Stomach	Stomach
Ch 12 Small Intestine	SmallIntestine
Ch 13 Appendix	Appendix CarcinoidAppendix
Ch 14 Colon and Rectum	Colon Rectum
Ch 15 Anus	Anus
Ch 16 Gastrointestinal Stromal Tumor	GISTAppendix GISTColon GISTEsophagus GISTPeritoneum GISTRectum GISTSmallIntestine GISTStomach
Ch 17 Neuroendocrine Tumors	NETAmpulla NETColon NETRectum NETSmallIntestine NETStomach
Ch 18 Liver	Liver
Ch 19 Intrahepatic Bile Ducts	BileDuctsIntrahepat
Ch 20 Gallbladder	CysticDuct Gallbladder
Ch 21 Perihilar Bile Ducts	BileDuctsPerihilar
Ch 22 Distal Bile Duct	BileDuctsDistal
Ch 23 Ampulla of Vater	AmpullaVater
Ch 24 Exocrine and Endocrine Pancreas	PancreasBodyTail PancreasHead PancreasOther
Ch 25 Lung	Lung
Ch 26 Pleural Mesothelioma	Pleura
Ch 27 Bone	Bone
Ch 28 Soft Tissue Sarcoma	HeartMediastinum Peritoneum

	SoftTissue
Ch 29 Cutaneous Squamous Cell Carcinoms	Skin
Ch 30 Merkel Cell Carcinoma	MerkelCellSkin MerkelCellPenis MerkelCellScrotum MerkelCellVulva
Ch 31 Melanoma of Skin	MelanomaSkin
Ch 32 Breast	Breast
Ch 33 Vulva	Vulva
Ch 34 Vagina	Vagina
Ch 35 Cervix Uteri	Cervix
Ch 36 Corpus Uteri	CorpusAdenosarcoma CorpusCarcinoma CorpusSarcoma
Ch 37 Ovary	Ovary PeritoneumFemaleGen
Ch 38 Fallopian Tube	FallopianTube
Ch 39 Gestational Trophoblastic Tumors	Placenta
Ch 40 Penis	Penis
Ch 41 Prostate	Prostate
Ch 42 Testis	Testis
Ch 43 Kidney	KidneyParenchyma
Ch 44 Renal Pelvis and Ureter	KidneyRenalPelvis
Ch 45 Urinary Bladder	Bladder
Ch 46 Urethra	Urethra
Ch 47 Adrenal	AdrenalGland
Ch 48 Carcinoma of Eyelid	SkinEyelid
Ch 49 Carcinoma of Conjunctiva	Conjunctiva
Ch 50 Malignant Melanoma of Conjunctiva	MelanomaConjunctiva
Ch 51 Malignant Melanoma of Uvea	MelanomaCiliaryBody** MelanomaChoroid Melanomalris**
Ch 52 Retinoblastoma	Retinoblastoma
Ch 53 Carcinoma of Lacrimal Gland	LacrimalGland
Ch 54 Sarcoma of Orbit	Orbit
Ch 55 Ocular Adnexal Lymphoma	LymphomaOcularAdnexa
Ch 56 Brain and Spinal Cord	Brain [no TNM designation] CNSOther [no TNM designation]
Ch 57 Lymphoid Neoplasms	Lymphoma MycosisFungoides
Not included in AJCC 7 chapters	AdnexaUterineOther BiliaryOther [AJCC 6 staging] DigestiveOther EndocrineOther EyeOther GenitalFemaleOther GenitalMaleOther HemeRetic

	III Defined Other Intracranial Gland Kaposi Sarcoma Lacrimal Sac [AJCC 6 staging] Melanoma Sinus Other Middle Ear Pharynx Other Respiratory Other Trachea Urinary Other
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\*\*Melanoma Ciliary Body and Melanoma Iris included in single schema in CSv1, split in CSv2.

## Appendix A2. Correspondence by AJCC Chapter between AJCC 7<sup>th</sup> Edition Chapters and CSv2 Schemas, by Schema

SCHEMA	AJCC CHAPTER
Adnexal Uterine Other	
Adrenal Gland	Adrenal
Ampulla Vater	Ampulla of Vater
Anus	Anus
Appendix	Appendix
Bile Ducts Distal	Distal Bile Duct
Bile Ducts Intrahepat	Intrahepatic Bile Ducts
Bile Ducts Perihilar	Perihilar Bile Ducts
Biliary Other	
Bladder	Bladder
Bone	Bone
Brain	Brain and Spinal Cord
Breast	Breast
Buccal Mucosa	Lip and Oral Cavity
Carcinoid Appendix	Appendix
Cervix	Cervix Uteri
CNS Other	Brain and Spinal Cord
Colon	Colon and Rectum
Conjunctiva	Carcinoma of the Conjunctiva
Corpus Adenosarcoma	Corpus Uteri
Corpus Carcinoma	Corpus Uteri
Corpus Sarcoma	Corpus Uteri
Cystic Duct	Gallbladder
Digestive Other	
Endocrine Other	
Epiglottis Anterior	Larynx
Esophagus	Esophagus and Esophagogastric Junction
Esophagus GE Junction	Esophagus and Esophagogastric Junction
Eye Other	
Fallopian Tube	Fallopian Tube

FloorMouth	Lip and Oral Cavity
Gallbladder	Gallbladder
GenitalFemaleOther	
GenitalMaleOther	
GISTAppendix	Gastrointestinal Stromal Tumor
GISTColon	Gastrointestinal Stromal Tumor
GISTEsophagus	Gastrointestinal Stromal Tumor
GISTPeritoneum	Gastrointestinal Stromal Tumor
GISTRectum	Gastrointestinal Stromal Tumor
GISTSmallIntestine	Gastrointestinal Stromal Tumor
GISTStomach	Gastrointestinal Stromal Tumor
GumLower	Lip and Oral Cavity
GumOther	Lip and Oral Cavity
GumUpper	Lip and Oral Cavity
HearMediastinum	Soft Tissue Sarcoma
HemeRetic	
Hypopharynx	Pharynx
IllDefinedOther	
IntracranialGland	
KaposiSarcoma	
KidneyParenchyma	Kidney
KidneyRenalPelvis	Renal Pelvis and Ureter
LacrimalGland	Carcinoma of the Lacrimal Gland
LacrimalSac	
LarynxGlottic	Larynx
LarynxOther	Larynx
LarynxSubglottic	Larynx
LarynxSupraglottic	Larynx
LipLower	Lip and Oral Cavity
LipOther	Lip and Oral Cavity
LipUpper	Lip and Oral Cavity
Liver	Liver
Lung	Lung
Lymphoma	Lymphoid Neoplasms
LymphomaOcularAdnexa	Ocular Adnexal Lymphoma
MelanomaBuccalMucosa	Mucosal Melanoma of the Head and Neck
MelanomaChoroid	Malignant Melanoma of the Uvea
MelanomaCiliaryBody	Malignant Melanoma of the Uvea
MelanomaConjunctiva	Malignant Melanoma of the Conjunctiva
MelanomaEpiglottisAnterior	Mucosal Melanoma of the Head and Neck
MelanomaEyeOther	
MelanomaFloorMouth	Mucosal Melanoma of the Head and Neck
MelanomaGumLower	Mucosal Melanoma of the Head and Neck
MelanomaGumOther	Mucosal Melanoma of the Head and Neck
MelanomaGumUpper	Mucosal Melanoma of the Head and Neck
MelanomaHypopharynx	Mucosal Melanoma of the Head and Neck

MelanomaIris	Malignant Melanoma of the Uvea
MelanomaLarynxGlottic	Mucosal Melanoma of the Head and Neck
MelanomaLarynxOther	Mucosal Melanoma of the Head and Neck
MelanomaLarynxSubglottic	Mucosal Melanoma of the Head and Neck
MelanomaLarynxSupraglottic	Mucosal Melanoma of the Head and Neck
MelanomaLipLower	Mucosal Melanoma of the Head and Neck
MelanomaLipOther	Mucosal Melanoma of the Head and Neck
MelanomaLipUpper	Mucosal Melanoma of the Head and Neck
MelanomaMouthOther	Mucosal Melanoma of the Head and Neck
MelanomaNasalCavity	Mucosal Melanoma of the Head and Neck
MelanomaNasopharynx	Mucosal Melanoma of the Head and Neck
MelanomaOropharynx	Mucosal Melanoma of the Head and Neck
MelanomaPalateHard	Mucosal Melanoma of the Head and Neck
MelanomaPalateSoft	Mucosal Melanoma of the Head and Neck
MelanomaPharynxOther	Mucosal Melanoma of the Head and Neck
MelanomaSinusEthmoid	Mucosal Melanoma of the Head and Neck
MelanomaSinusMaxillary	Mucosal Melanoma of the Head and Neck
MelanomaSinusOther	Mucosal Melanoma of the Head and Neck
MelanomaSkin	Melanoma of the Skin
MelanomaTongueAnterior	Mucosal Melanoma of the Head and Neck
MelanomaTongueBase	Mucosal Melanoma of the Head and Neck
MerkelCellPenis	Merkel Cell Carcinoma
MerkelCellScrotum	Merkel Cell Carcinoma
MerkelCellSkin	Merkel Cell Carcinoma
MerkelCellVulva	Merkel Cell Carcinoma
MiddleEar	
MouthOther	Lip and Oral Cavity
MycosisFungoides	Lymphoid Neoplasms
Nasal/Cavity	Nasal Cavity and Paranasal Sinuses
Nasopharynx	Pharynx
NETAmpulla	Neuroendocrine Tumors
NETColon	Neuroendocrine Tumors
NETRectum	Neuroendocrine Tumors
NETSmallIntestine	Neuroendocrine Tumors
NETStomach	Neuroendocrine Tumors
Orbit	Sarcoma of the Orbit
Oropharynx	Pharynx
Ovary	Ovary and Primary Peritoneal Carcinoma
PalateHard	Lip and Oral Cavity
PalateSoft	Pharynx
PancreasBodyTail	Exocrine and Endocrine Pancreas
PancreasHead	Exocrine and Endocrine Pancreas
PancreasOther	Exocrine and Endocrine Pancreas
ParotidGland	Major Salivary Glands
Penis	Penis
Peritoneum	Soft Tissue Sarcoma
PeritoneumFemaleGen	Ovary and Primary Peritoneal Carcinoma

PharynxgealTonsil	Pharynx
PharynxOther	
Placenta	Gestational Trophoblastic Tumors
Pleura	Pleural Mesothelioma
Prostate	Prostate
Rectum	Colon and Rectum
RespiratoryOther	
Retinoblastoma	Retinoblastoma
Retroperitoneum	Soft Tissue Sarcoma
SalivaryGlandOther	Major Salivary Glands
Scrotum	Cutaneous Squamous Carcinoma and Other Cutaneous Carcinoma
SinusEthmoid	Nasal Cavity and Paranasal Siunuses
SinusMaxillary	Nasal Cavity and Paranasal Siunuses
SInusOther	
Skin	Cutaneous Squamous Carcinoma and Other Cutaneous Carcinoma
SkinEyelid	Carcinoma of the Eyelid
SmallIntestine	Small Intestine
SoftTissue	Soft Tissue Sarcoma
Stomach	Stomach
SubmandibularGland	Major Salivary Glands
Testis	Testis
Thyroid	Thyroid
TongueAnterior	Lip and Oral Cavity
TongueBase	Pharynx
Trachea	
Urethra	Urethra
UrinaryOther	
Vagina	Vagina
Vulva	Vulva

<b>AdnexalUterineOther AdrenalGland AmpullaVater</b>	<b>Collaborative Stage Data Collection System Version 2</b>
Ch 3 Lip and Oral Cavity	Buccal Mucosa FloorMouth GumLower GumOther GumUpper LipLower LipOther LipUpper MouthOther PalateHard TongueAnterior

Ch 4 Pharynx	Hypopharynx Nasopharynx Oropharynx PalateSoft PharyngealTonsil TongueBase
Ch 5 Larynx	EpiglottisAnterior LarynxGlottic LarynxOther LarynxSubglottic LarynxSupraglottic
Ch 6 Nasal Cavity and Paranasal Sinuses	Nasal Cavity SinusEthmoid SinusMaxillary
Ch 7 Major Salivary Glands	ParotidGland SalivaryGlandOther SubmandibularGland
Ch 8 Thyroid	Thyroid
Ch 9 Mucosal Melanoma Head and Neck	MelanomaBuccalMucosa MelanomaEpiglottisAnterior MelanomaFloorMouth MelanomaGumLower MelanomaGumOther MelanomaGumUpper MelanomaHypopharynx MelanomaLarynxGlottic MelanomaLarynxOther MelanomaLarynxSubglottic MelanomaLarynxSupraglottic MelanomaLipLower MelanomaLipOther MelanomaLipUpper MelanomaMouthOther MelanomaNasalCavity MelanomaNasopharynx MelanomaOropharynx MelanomaPalateHard MelanomaPalateSoft MelanomaPharynxOther MelanomaSinusEthmoid MelanomaSinusMaxillary MelanomaTongueAnterior MelanomaTongueBase
Ch 10 Esophagus and Esophagogastric Junction	Esophagus EsophagusGEJunction
Ch 11 Stomach	Stomach
Ch 12 Small Intestine	SmallIntestine
Ch 13 Appendix	Appendix CarcinoidAppendix
Ch 14 Colon and Rectum	Colon

	Rectum
Ch 15 Anus	Anus
Ch 16 Gastrointestinal Stromal Tumor	GISTAppendix GISTColon GISTEsophagus GISTPeritoneum GISTRectum GISTSmallIntestine GISTStomach
Ch 17 Neuroendocrine Tumors	NETAmpulla NETColon NETRectum NETSmallIntestine NETStomach
Ch 18 Liver	Liver
Ch 19 Intrahepatic Bile Ducts	BileDuctsIntrahepat
Ch 20 Gallbladder	CysticDuct Gallbladder
Ch 21 Perihilar Bile Ducts	BileDuctsPerihilar
Ch 22 Distal Bile Duct	BileDuctsDistal
Ch 23 Ampulla of Vater	AmpullaVater
Ch 24 Exocrine and Endocrine Pancreas	PancreasBodyTail PancreasHead PancreasOther
Ch 25 Lung	Lung
Ch 26 Pleural Mesothelioma	Pleura
Ch 27 Bone	Bone
Ch 28 Soft Tissue Sarcoma	HeartMediastinum Peritoneum SoftTissue
Ch 29 Cutaneous Squamous Cell Carcinoms	Skin
Ch 30 Merkel Cell Carcinoma	MerkelCellSkin MerkelCellPenis MerkelCellScrotum MerkelCellVulva
Ch 31 Melanoma of Skin	MelanomaSkin
Ch 32 Breast	Breast
Ch 33 Vulva	Vulva
Ch 34 Vagina	Vagina
Ch 35 Cervix Uteri	Cervix
Ch 36 Corpus Uteri	CorpusAdenosarcoma CorpusCarcinoma CorpusSarcoma
Ch 37 Ovary	Ovary PeritoneumFemaleGen
Ch 38 Fallopian Tube	FallopianTube
Ch 39 Gestational Trophoblastic Tumors	Placenta
Ch 40 Penis	Penis
Ch 41 Prostate	Prostate

Ch 42 Testis	Testis
Ch 43 Kidney	KidneyParenchyma
Ch 44 Renal Pelvis and Ureter	KidneyRenalPelvis
Ch 45 Urinary Bladder	Bladder
Ch 46 Urethra	Urethra
Ch 47 Adrenal	AdrenalGland
Ch 48 Carcinoma of Eyelid	SkinEyelid
Ch 49 Carcinoma of Conjunctiva	Conjunctiva
Ch 50 Malignant Melanoma of Conjunctiva	MelanomaConjunctiva
Ch 51 Malignant Melanoma of Uvea	MelanomaCiliaryBody** MelanomaChoroid MelanomaIris**
Ch 52 Retinoblastoma	Retinoblastoma
Ch 53 Carcinoma of Lacrimal Gland	LacrimalGland
Ch 54 Sarcoma of Orbit	Orbit
Ch 55 Ocular Adnexal Lymphoma	LymphomaOcularAdnexa
Ch 56 Brain and Spinal Cord	Brain [no TNM designation] CNSOther [no TNM designation]
Ch 57 Lymphoid Neoplasms	Lymphoma MycosisFungoides
Not included in AJCC 7 chapters	AdnexaUterineOther BiliaryOther [AJCC 6 staging] DigestiveOther EndocrineOther EyeOther GenitalFemaleOther GenitalMaleOther HemeRetic IliDefinedOther IntracranialGland KaposiSarcoma LacrimalSac [AJCC 6 staging] MelanomaSinusOther MiddleEar PharynxOther RespiratoryOther Trachea UrinaryOther

\*\*MelanomaCiliaryBody and MelanomaIris included in single schema in CSv1, split in CSv2.

## Appendix B. Pre- and Post-Treatment CSv2 Fields

Data Item	NAACCR Item Number	Item Function
CS PreRx Tumor Size	2730	Code pre-treatment tumor size
CS PreRX Extension	2735	Code pre-treatment extension of primary tumor
CS PreRx Tum Sz/Ext Eval	2740	Code pre-treatment evaluation method of primary tumor
CS PreRx Lymph Nodes	2750	Code pre-treatment nodal involvement
CS PreRX Reg Nodes Eval	2755	Code pre-treatment evaluation method of regional nodes
CS PreRx Mets at DX	2760	Code pre-treatment metastatic involvement
CS PreRx Mets Eval	2765	Code pre-treatment evaluation method of metastases
CS PostRx Tumor Size	2770	Code post-treatment tumor size
CS PostRx Extension	2775	Code post-treatment extension of primary tumor
CS PostRx Lymph Nodes	2780	Code post-treatment regional nodal involvement
CS PostRx Mets at DX	2785	Code post-treatment metastatic involvement
Derived PreRx-7 T	3440	Store derived PreRx AJCC 7 T value
Derived PreRx-7 T Descrip	3442	Store derived PreRx AJCC 7 T descriptor value
Derived PreRx-7 N	3450	Store derived PreRx AJCC 7 N value
Derived PreRx-7 N Descrip	3452	Store derived PreRx AJCC 7 N descriptor value
Derived PreRx-7 M	3460	Store derived PreRx AJCC 7 M

		value
Derived PreRx-7 M Descrip	3462	Store derived PreRx AJCC 7 M descriptor value
Derived PreRx-7 Stage Grp	3470	Store derived PreRx AJCC 7 stage group value
Derived PostRx-7 T	3480	Store derived PostRx AJCC 7 T value
Derived PostRx-7 N	3482	Store derived PostRx AJCC 7 N value
Derived PostRX-7 M	3490	Store derived PostRx AJCC 7 M value
Derived PostRx-7 Stage Grp	3492	Store derived PostRx AJCC 7 stage group value
Derived Neoadjuv Rx Flag	3600	Indicates whether patient received neoadjuvant therapy prior to first course surgery

## Appendix C. CSv1 Tables Obsolete in CSv2

Schema	Obsolete Table	Replacement Table
All Head and Neck schemas including Melanoma of Head and Neck schemas	CS Site-Specific Factor 2, Extracapsular Extension	CS Site-Specific Factor 8 Extracapsular Extension Clinically CS Site-Specific Factor 9 Extracapsular Extension Pathologically
Prostate	CS Site-Specific Factor 5 Gleason Pattern	CS Site-Specific Factor 7 Gleason Pattern Needle BX/TURP CS Site-Specific Factor 9 Gleason Pattern Prostatectomy
Prostate	CS Site-Specific Factor 6 Gleason Score	CS Site-Specific Factor 8 Gleason Score Needle BX/TURP CS Site-Specific Factor 10 Gleason Score Prostatectomy
Testis	CS Site-Specific Factor 1 AFP Value	CS Site-Specific Factor 6 Preorchiectomy AFP Value CS Site-Specific Factor 7 Preorchiectomy AFP Interpretation
Testis	CS Site-Specific Factor 2 HCG Value	CS Site-Specific Factor 8 Preorchiectomy HCG Value CS Site-Specific Factor 9 Preorchiectomy HCG Interpretation
Testis	CS Site-Specific Factor 3 LDH Value	CS Site-Specific Factor 10 Preorchiectomy LDH Interpretation
Conjunctiva	CS Tumor Size	CS Site-Specific Factor 1 Tumor Size
Melanoma Choroid	CS Tumor Size	CS Site-Specific Factor 2 Measured Basal Diameter
Melanoma Choroid	CS Site-Specific Factor 1 Measured Thickness	CS Site-Specific Factor 3 Measured Thickness
Melanoma Ciliary Body	CS Tumor Size	CS Site-Specific Factor 2 Measured Basal Diameter
Melanoma Ciliary Body	CS Site-Specific Factor 1 Measured Thickness	CS Site-Specific Factor 3 Measured Thickness
Melanoma Iris	CS Tumor Size	CS Site-Specific Factor 2 Measured Basal Diameter
Melanoma Iris	CS Site-Specific Factor 1 Measured Thickness	CS Site-Specific Factor 2 Measured Thickness
Adrenal Gland	CS Site-Specific Factor 1 WHO Grade Classification	
Carcinoid Appendix	CS Site-Specific Factor 1 Preoperative CEA	

Endocrine Other	CS Site-Specific Factor 1 WHO Grade Classification	
GIST Appendix	CS Site-Specific Factor 1 Preoperative CEA	
GIST Appendix	CS Site-Specific Factor 2 Clinical Assessment of Nodes	
GIST Colon	CS Site-Specific Factor 1 Preoperative CEA	
GIST Colon	CS Site-Specific Factor 2 Clinical Assessment of Nodes	
GIST Rectum	CS Site-Specific Factor 1 Preoperative CEA	
GIST Rectum	CS Site-Specific Factor 2 Clinical Assessment of Nodes	
GIST Small Intestine	CS Site-Specific Factor 1 Preoperative CEA	
GIST Stomach	CS Site-Specific Factor 1 Preoperative CEA	
NET Colon	CS Site-Specific Factor 1 Preoperative CEA	
NET Rectum	CS Site-Specific Factor 1 Preoperative CEA	
NET Small Intestine	CS Site-Specific Factor 1 Preoperative CEA	

## Appendix D. Not Applicable 988 Code in CS Input Tables

Item #	Table	988 Definition	Note
1	CS Tumor Size, active table in CSv2	988 = tumor 988 millimeters in size  988 = Not applicable: Lymphoma, HemeRetic schemas	888 is a valid code within the standard number range of 001-988 millimeters.  888 converted to 988 for Lymphoma, HemeRetic schemas only
2	CS Tumor Size, obsolete table in CSv2	988 = Not applicable: Information not collected	Number range in CSv1 specified as 001-988 millimeters and 989 millimeters and greater. Number range redefined as 001-979 millimeters, 980 millimeters and greater. Codes 981-988, 989 converted to 980. Codes 981-987, 989 marked obsolete. Code 988 redefined as not applicable, used for CSv2 cases or CSv1 cases updated and recoded in CSv2.  888 is an obsolete but valid code within the standard number range of 001-979 millimeters.
3	CS Extension	988 = Not applicable: IIIDefinedOther schema	888 converted to 988 for schema where CS Extension is not coded
4	CS TS/Ext Eval		Blank used in schemas where AJCC 7 and/or AJCC 6 stage values not derived. Replaces NA used in CSv1.
5	CS Lymph Nodes	988 = Not applicable: Brain, Placenta, Lymphoma, IIIDefinedOther schemas	888 converted to 988 for schemas where CS Lymph Nodes is not coded
6	CS Nodes Eval		Blank used in schemas where AJCC 7 and/or AJCC 6 stage values not derived. Replaces NA used in CSv1.

7	CS Mets at DX	98 = Not applicable: Lymphoma, HemeRetic, KaposiSarcoma, IIIDefinedOther schemas	88 converted to 98 for schemas where CS Mets at DX is not coded
8	CS Mets at DX	98 = OBSOLETE DATA RETAINED V0200: Not applicable for this site: LymphomaOcularAdnexa schema	Converted from 88 “Not applicable for this site” used in CSv1 in Lymphoma schema
9	CS Mets Eval		Blank used in schemas where AJCC 7 and/or AJCC 6 stage values not derived. Replaces NA used in CSv1.
10	CS SSF 1-6 coding a size value, used in CSv1 and kept in CSv2	988 = OBSOLETE DATA CONVERTED V0200	Number range in CSv1 specified as 001-988 millimeters and 989 millimeters and greater. Number range redefined as 001-979 millimeters, 980 millimeters and greater. Codes 981-988, 989 converted to 980, marked as obsolete.  888 is a valid code within the standard number range of 001-979 millimeters.  988 has no separate meaning as “not applicable”
11	CS SSF 1-6, coding a size value, used in CSv1 but table obsolete in CSv2	988 = Not applicable: Information not collected for this schema	Number range in CSv1 specified as 001-988 millimeters and 989 millimeters and greater. Number range redefined as 001-979 millimeters, 980 millimeters and greater. Codes 981-988, 989 converted to 980. Codes 981-987, 989 marked obsolete. Code 988 redefined as not applicable, used for CSv2 cases or CSv1 cases updated and recoded in CSv2.  888 is an obsolete but valid code within the standard number range of 001-979 millimeters.  988 is available as default code for

			SSF
12	CS SSF 1-6, coding other than size value, used in CSv1 and kept in CSv2	988 not defined in CSv2	888, used to mean the concept of the SSF not applicable to the case, converted to 987.
13	CS SSF 1-6, coding other than size value, used in CSv1 but table obsolete in CSv2	988 = Not applicable: Information not collected for this schema	988 newly defined in CSv2, other codes are obsolete  988 is available as default code for SSF
14	CS SSF 1-6, not used in CSv1, used and required for staging in CSv2	988 = Not applicable: Information not collected for this case	888 is converted to 988, 888 becomes an obsolete code  988 is available code for registries not required/not electing to collect SSF information
15	CS SSF 1-6, not used in CSv1, used and not required for staging in CSv2	988 = Not applicable: Information not collected for this case.	888 is converted to 988, 888 becomes an obsolete code  988 is available code for registries not required/not electing to collect SSF information
16	CS SSF 1-6, not used in CSv1, not used in CSv2	988 = Not applicable: Information not collected for this schema	888 is converted to 988, 888 becomes an obsolete code  988 is available as default code for SSF
17	CS SSF 7-24, used and required for staging in CSv2	988 = Not applicable: Information not collected for this case	988 is available code for registries not required/not electing to collect SSF information  988 entered in SSF 7-24 in all CSv1 cases converted to CSv2

18	CS SSF 7-24, used and not required for AJCC staging in CSv2	988 = Not applicable: Information not collected for this case	988 is available code for registries not required/not electing to collect SSF information  988 entered in SSF 7-24 in all CSv1 cases converted to CSv2
19	CS SSF 7-24 not used in CSv2	988 = Not applicable: Information not collected for this schema	988 is available as default code for SSF  988 entered in SSF 7-24 in all CSv1 cases converted to CSv2
20	CS SSF 25 required as discriminator in CSv2	988 not defined in CSv2	100 entered in CSv1 cases where site/histology require schema discriminator in CSv2, marked as OBSOLETE DATA RETAINED V0200
21	CS SSF 25 not required as discriminator for all ICD-O-3 sites included in schema	988 not defined in CSv2	Blank entered in CSv1 cases where not all ICD-O-3 site codes included in the schema require the discriminator for correct schmea assignment Blank is correct code for CSv2 cases meeting this criterion
21	CS SSF 25 not required as discriminator in CSv2	988 = Not applicable: Information not collected for this schema	988 entered in CSv1 cases where site/histology do not require schema discriminator in CSv2

## Appendix E. Data Requirements by Standard Setters

### E.1 Required Status Table for Collaborative Stage Data Elements, NAACCR Data Dictionary

This table shows the data elements required by NPCR, COC, SEER, and CCCR. Refer to the note at the bottom of the table for a listing of codes definitions. Refer to Appendix E.2 for additional information about SEER requirements. Refer to Appendix E.3 for information on NPCR requirements for site-specific factors. Refer to Appendix E.4 for information on COC requirements for site-specific factors.

Item	Item Name	NPCR	COC		SEER		CCCR		Exchange Elements		Source of Standard	Note
		Collect	Collect	Transmit	Collect	Transmit	Collect	Transmit	Hosp> Central	Central> Central		
441	Grade Path Value	.	R	R	R	R	.	.	T*	T*	AJCC	New
449	Grade Path System	.	R	R	R	R	.	.	T*	T*	AJCC	New
1182	Lymph-vascular Invasion	.	R	R	RS	RS	.	.	.	.	AJCC	New
2730	CS PreRX Tumor Size	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2735	CS PreRx Extension	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2740	CS PreRx Tum Sz/Ext Eval	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2750	CS PreRx Lymph Nodes	.	.	.	.	.	.	.	.T*	.T*	AJCC	New

2755	CS PreRx Reg Nodes Eval	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2760	CS PreRx Mets at DX	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2765	CS PreRx Mets Eval	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2770	CS PostRx Tumor Size	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2775	CS PostRx Extension	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2780	CS PostRx Lymph Nodes	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2785	CS PostRx Mets at DX	.	.	.	.	.	.	.	.T*	.T*	AJCC	New
2800	CS Tumor Size	R	R	R	R	R	R*	R*	T	T	AJCC	
2810	CS Extension	R	R	R	R	R	R*	R*	T	T	AJCC	
2820	CS Tumor Size/Ext Eval	R	R	R	R	R	R*	R*	T*	T*	AJCC	
2830	CS Lymph Nodes	R	R	R	R	R	R*	R*	T	T	AJCC	
2840	CS Lymph Nodes Eval	.	R	R	R	R	R*	R*	T*	T*	AJCC	
2850	CS Mets at DX	R	R	R	R	R	R*	R*	T	T	AJCC	

2851	CS Mets at Dx-Bone	.	R	R	R	R	.	.	T*	T*	AJCC	New
2852	CS Mets at Dx Brain	.	R	R	R	R	.	.	T*	T*	AJCC	New
2853	CS Mets at Dx-Liver	.	R	R	R	R	.	.	T*	T*	AJCC	New
2854	CS Mets at Dx-Lung	.	R	R	R	R	.	.	T*	T*	AJCC	New
2860	CS Mets Eval	.	R	R	R	R	R*	R*	T*	T*	AJCC	
2861	CS Site-Specific Factor 7	.	RS	RS	RS	RS			T*	T*	AJCC	New
2862	CS Site-Specific Factor 8	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2863	CS Site-Specific Factor 9	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2864	CS Site-Specific Factor 10	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2865	CS Site-Specific Factor 11	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2866	CS Site-Specific Factor 12	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2867	CS Site-Specific Factor 13	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2868	CS Site-Specific	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New

	Factor 14											
2869	CS Site-Specific Factor 15	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2870	CS Site-Specific Factor 16	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2871	CS Site-Specific Factor 17	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2872	CS Site-Specific Factor 18	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2873	CS Site-Specific Factor 19	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2874	CS Site-Specific Factor 20	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2875	CS Site-Specific Factor 21	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2876	CS Site-Specific Factor 22	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2877	CS Site-Specific Factor 23	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2878	CS Site-Specific Factor 24	.	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2879	CS Site-Specific Factor 25	RS	RS	RS	RS	RS	.	.	T*	T*	AJCC	New
2880	CS Site-Specific Factor 1	RS	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised

2890	CS Site-Specific Factor 2	RS	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised
2900	CS Site-Specific Factor 3	RS	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised
2910	CS Site-Specific Factor 4	.	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised
2920	CS Site-Specific Factor 5	.	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised
2930	CS Site-Specific Factor 6	.	RS	RS	RS	RS	R*	R*	T*	T*	AJCC	Revised
2935	CS Version Input Original	R	R	R	D	R	R*	R*	T*	T*	AJCC	Revised
2936	CS Version Derived	R	R	R	D	R	D	D	T*	T*	AJCC	Revised
2937	CS Version Input Current	R	R	R	D	R	.	.	T*	T*	AJCC	Revised
2940	Derived AJCC-6 T	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
2950	Derived AJCC-6 T Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
2960	Derived AJCC-6 N	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
2970	Derived AJCC-6 N Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
2980	Derived	.	D	R	D	R	D	D	T*	T*	AJCC	Revised

	AJCC-6 M											sed
2990	Derived AJCC-6 M Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3000	Derived AJCC-6 Stage Grp	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3010	Derived SS1977	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3020	Derived SS2000	D	D	R	D	R	D	D	T*	T*	AJCC	Revised
3030	Derived AJCC-- Flag	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3040	Derived SS1977-- Flag	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3050	Derived SS2000-- Flag	D	D	R	D	R	D	D	T*	T*	AJCC	Revised
3400	Derived AJCC-7 T	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3402	Derived AJCC-7 T Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3410	Derived AJCC-7 N	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3412	Derived AJCC-7 N Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
342-	Derived AJCC-7 M	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3430	Derived AJCC-7 M Descript	.	D	R	D	R	D	D	T*	T*	AJCC	Revised
3440	Derived PreRX-7	.	.	.	.	.	.D	D	T*	T*	AJCC	New

	T											
3442	Derived PreRx-7 T Descrip	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3450	Derived PreRx-7 N	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3452	Derived PreRx-7 N Descrip	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3460	Derived PreRx-7 M	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3462	Derived PreRX-7 M Descrip	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3470	Derived PreRX-7 Stage Grp	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3480	Derived PostRx-7 T	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3492	Derived PostRx-7 N	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3490	Derived PostRX-7 M	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3492	Derived PostRx-7 Stge Grp	.	.	.	.	.	.D	D	T*	T*	AJCC	New
3600	Derived Neoadjuv Rx Flag	.	.	.	.	.	.D	D	T*	T*	AJCC	New

Codes for Recommendations: R = Required. RS = Required, site specific. D = Derived. . = No recommendations. T = data vital to complete exchange record. T\* = transmit data if available for any case in exchange record.

## **E.2 Surveillance, Epidemiology, and End Results Program, National Cancer Institute**

SEER recommends that participating central cancer registries work closely with their hospital registries to avoid duplication of effort in implementing CSv2 (version 02.00.01).

SEER requires that all SEER reportable cases diagnosed 1/1/2010 and forward be coded and processed under CSv2. Therefore, CSv2 will have to be implemented before the processing of any 2010+ cases. After CSv2 has been implemented all cases need to be processed under CSv2 even if the diagnosis year is prior to 2010. Implementation of CSv2 will involve the conversion of CS input data items under CSv1 to CSv2 data items before the CSv2 algorithm can be operational. For two CS data items, this will require going from a two digit field to a three digit field. The conversions are extensive and should be done with care. Specifications for the conversion of CSv1 to CSv2 data fields will be provided. Very few cases will have to be reviewed and recoded in order to implement CSv2. The new algorithm (version 02.00.01) should be run on all cases (2004+) ASAP after the CSv2 algorithm has been placed into operation in order to have the CS derived fields correctly defined. The CSv2 algorithm will correct errors in the CSv1 algorithm for the derivation of T, N, M and stage for AJCC 6th edition and the derivation of SEER summary stage 1977 and 2000. It will be necessary to use the 3 CS version flags to help determine how cases will be handled by the CSv2 algorithm. New CSv2 edits will be provided.

The IT staff should electronically provide the codes, descriptions, and any notes/footnotes to the abstractor and coder for each CS field that is collected.

Refer to Appendix E.1 for a list of data items required by SEER.

Note: CS Pre- and -Post-RX items will be not be required for 2010 cases. A decision will be made in 2010 for implementation for cases diagnosed 2011+ as to which Pre- and Post-RX items and for which schemas they will be required.

**CS Site-specific factors (SSFs):** SEER will not require all of the SSFs CS data items but there will be schema-specific requirements for the Site-specific factors (SSFs). Only those SSFs which 1) have been required under CSv1; or 2) are needed to derive AJCC 6th edition, AJCC 7th edition, or SEER Summary Stages (1977 and 2000) will be required plus a few SSFs that are considered to be clinically relevant. SEER registries may collect additional SSFs and submit them. A listing of the required SSFs by schema will be provided in a spreadsheet. Some of the original SSFs 1-6 that were required have been made Obsolete and will no longer be required. Note: For prostate, CS Site-Specific Factor 4 (Prostate Apex Involvement) will not be required for cases diagnosed 2010+. It will, however, be required up until 2010 diagnosis and therefore, is not marked as Obsolete. If a SSF is not collected by a registry for a specific-schema, it should be submitted as a '988' [not applicable].

SEER requires that the latest version of the CSv2 algorithm be run on all cases diagnosed 2004-2008 before they are submitted for the November 2010 SEER data submission.

The CS Implementation Guide, the conversion specifications, and other tools will provide detailed information to ensure a smooth transition from CSv1 to CSv2.

### E.3 National Program of Cancer Registries (NPCR)

Schema	Site-Specific Factor #	Site-Specific Factor Title
<b>Site-Specific Factors Required to Derive Summary Stage</b>		
Pleura	SSF 1	Pleural Effusion
Retinoblastoma	SSF 1	Extension Evaluated at Enucleation
CorpusAdenosarcoma	SSF 2	Peritoneal Cytology
CorpusCarcinoma	SSF 2	Peritoneal Cytology
CorpusSarcoma	SSF 2	Peritoneal Cytology
Prostate	SSF 3	CS Extension - Pathologic Extension
Schemas where required	SSF 25	Schema Discriminator
<b>Other Required Site-Specific Factors</b>		
Breast	SSF 1	Estrogen Receptor Assay (ERA)
	SSF 2	Progesterone Receptor Assay (PRA)
	SSF 8	HER2: IHC Test Lab Value
	SSF 9	HER2: IHC Test Interpretation
	SSF 10	HER2: FISH Test Lab Value
	SSF 11	HER2: FISH Test Interpretation
	SSF 12	HER2: CISH Test Lab Value
	SSF 13	HER2: CISH Test Interpretation
	SSF 14	HER2: Result of Other or Unknown Test





Schema	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
GumUpper	X	X	X	X	X	X	X	X	X	X	X														
HeartMediastinum	X	X	X	X																					
HemeRetic	X																								
Hypopharynx	X	X	X	X	X	X	X	X	X	X	X														
IIIIDefinedOther																									
IntracranialGland	X	X																							
KaposiSarcoma	X																								
KidneyParenchyma	X	X	X	X	X	X	X	X	X																
KidneyRenalPelvis	X	X																							
LacrimalGland	X	X	X	X	X	X	X	X	X																X
LacrimalSac																									X
LarynxGlottic	X	X	X	X	X	X	X	X	X	X	X														
LarynxOther	X	X	X	X	X	X	X	X	X	X	X														
LarynxSubglottic	X	X	X	X	X	X	X	X	X	X	X														
LarynxSupraglottic	X	X	X	X	X	X	X	X	X	X	X														
LipLower	X	X	X	X	X	X	X	X	X	X	X	X													
LipOther	X	X	X	X	X	X	X	X	X	X	X	X													
LipUpper	X	X	X	X	X	X	X	X	X	X	X	X													
Liver	X	X	X	X	X	X	X	X	X																
Lung	X	X																							
Lymphoma	X	X	X	X	X																				
LymphomaOcular Adnexa	X	X	X	X	X	X	X	X	X	X	X	X													
MelanomaBuccal Mucosa	X	X	X	X	X	X	X	X	X	X	X	X													
MelanomaChoroid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										

Schema	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
MelanomaCiliaryBody	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X
MelanomaConjunctiva	X	X	X																							
MelanomaEpiglottis	X	X	X	X	X	X	X	X	X	X	X															
MelanomaEyeOther																										
MelanomaFloorMouth	X	X	X	X	X	X	X	X	X	X	X															
MelanomaGumLower	X	X	X	X	X	X	X	X	X	X	X															
MelanomaGumOther	X	X	X	X	X	X	X	X	X	X	X															
MelanomaGumUpper	X	X	X	X	X	X	X	X	X	X	X															
MelanomaHypopharynx	X	X	X	X	X	X	X	X	X	X	X															
MelanomaIris	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X
MelanomaLarynxGlottic	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLarynxOther	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLarynx Subglottic	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLarynx Supraglottic	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLipLower	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLipOther	X	X	X	X	X	X	X	X	X	X	X															
MelanomaLipUpper	X	X	X	X	X	X	X	X	X	X	X															
MelanomaMouthOther	X	X	X	X	X	X	X	X	X	X	X															
MelanomaNasalCavity	X	X	X	X	X	X	X	X	X	X	X															
MelanomaNasopharynx	X	X	X	X	X	X	X	X	X	X	X															
MelanomaOropharynx	X	X	X	X	X	X	X	X	X	X	X															
MelanomaPalateHard	X	X	X	X	X	X	X	X	X	X	X															
MelanomaPalateSoft	X	X	X	X	X	X	X	X	X	X	X															
MelanomaPharynxOther	X	X	X	X	X	X	X	X	X	X	X															
MelanomaSinusEthmoid	X	X	X	X	X	X	X	X	X	X	X															

Schema	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
MelanomaSinus Maxillary	X	X	X	X	X	X	X	X	X	X	X														
MelanomaSinusOther	X	X	X	X	X	X	X	X	X	X	X														
MelanomaSkin	X	X	X	X	X	X	X	X	X																
MelanomaTongue Anterior	X	X	X	X	X	X	X	X	X	X	X														
MelanomaTongueBase	X	X	X	X	X	X	X	X	X	X	X														
MerkelCellPenis	X		X													X	X	X	X	X					
MerkelCellScrotum	X		X													X	X	X	X	X					
MerkelCellSkin	X		X													X	X	X	X	X					
MerkelCellVulva	X		X							X						X	X	X	X	X					
MiddleEar	X	X	X	X	X	X	X	X	X	X	X														
MouthOther	X	X	X	X	X	X	X	X	X	X	X														
MycosisFungoides	X																								
NasalCavity	X	X	X	X	X	X	X	X	X	X	X														
Nasopharynx	X	X	X	X	X	X	X	X	X	X	X														X
NETAmpulla				X	X	X																			
NETColon	X	X									X					X	X								
NETRectum	X	X									X					X	X								
NETSmallIntestine						X					X	X													
NETStomach	X					X					X	X													
Orbit																									
Oropharynx	X	X	X	X	X	X	X	X	X	X	X														
Ovary	X	X	X	X	X																				
PalateHard	X	X	X	X	X	X	X	X	X	X	X														
PalateSoft	X	X	X	X	X	X	X	X	X	X	X														
PancreasBodyTail	X	X	X																						

Schema	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
PancreasHead	X	X	X																						
PancreasOther	X	X	X																						
ParotidGland	X	X	X	X	X	X	X	X	X																
Penis										X	X	X					X	X							
Peritoneum	X	X	X	X																					X
PeritoneumFemaleGen	X	X	X	X	X																				X
PharyngealTonsil	X	X	X	X	X	X	X	X	X	X	X														X
PharynxOther	X	X	X	X	X	X	X	X	X	X	X														
Placenta	X	X																							
Pleura	X	X	X	X	X																				
Prostate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
Rectum	X	X	X	X	X	X	X	X	X	X															
RespiratoryOther																									
Retinoblastoma	X	X	X	X	X	X																			
Retroperitoneum	X	X	X	X																					
SalivaryGlandOther	X	X	X	X	X	X	X	X	X																
Scrotum	X									X	X	X					X								
SinusEthmoid	X	X	X	X	X	X	X	X	X	X	X														
SinusMaxillary	X	X	X	X	X	X	X	X	X	X	X														
SinusOther	X	X	X	X	X	X	X	X	X	X	X														
Skin	X									X	X	X					X								
SkinEyelid	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
SmallIntestine	X	X	X	X	X																				
SoftTissue	X	X	X	X																					
Stomach	X	X												X	X	X									X

Schema	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
SubmandibularGland	X	X	X	X	X	X	X	X	X																	
Testis	X	X	X	X	X	X	X	X	X	X	X															
Thyroid	X																									
TongueAnterior	X	X	X	X	X	X	X	X	X	X	X															
TongueBase	X	X	X	X	X	X	X	X	X	X																
Trachea																										
Urethra	X																									
UrinaryOther																										
Vagina	X	X	X	X	X	X	X																			
Vulva										X	X	X	X	X												