Objectives

- Collaborative Stage Data Collection System Overview
- CSv2 high level changes
- CS General guidelines
- CS General Instructions
- Coding CS Data Elements
Collaborative Stage

• What is Collaborative Stage Data Collection System (CS)?
  – Set of coding structures based on tumor characteristics such as tumor size, extension, nodes, distant metastasis, and other data items
  – Algorithm to combine these characteristics into various staging systems

• Implementation dates
  – CSv1: cases diagnosed January 1, 2004
  – CSv2: cases diagnosed January 1, 2010

Why CS Developed

• One staging system to meet all needs
• All groups agreed to this collaboration
• Reduce registrar workload
• Reduce error rate
• Able to derive all various staging systems

Advantages of CS

• Eliminate duplicate data collection
• Clinically relevant data
• Compatibility between systems
• Data collected similar to past data fields
• New items
  – Evaluation for origin of data
  – Site-specific factors
CS System

- Collaborative Stage Data Collection System
  - Modified EOD format
  - EOD codes more detailed than other systems
  - Assures consistency over time
  - Collected data collapsed into other staging systems

Other Staging Systems

- AJCC TNM staging
  - Forward flexibility and clinical utility
  - Changed periodically to meet decision-making needs
  - TNM general rules incorporated into CS rules
  - Computer able to derive T, N, M and stage group from CS
    - Derives both 6th and 7th Editions

Other Staging Systems

- Summary staging
  - Two versions, 1977 and 2000
  - Longitudinal stability for population-based registries
  - Less complex than other systems
  - Useful for small case series
  - Computer able to derive 1977 and 2000 versions from CS
New Rules and Instructions

- New theories and design
- Changes and compromises to derive
- Competing general instructions and guidelines for old systems
- Change in structure and format

Changes in Abstracting Rules

- Organizations agreed to
  - Resolution in timing rule
  - Standardized coding rules
- CS data set derives best stage
- Disease progression
  - Further extension or metastasis after diagnosis established
  - Excluded from CS fields

Changes in Abstracting Rules

- Abstracting rules updated to deal with contemporary health care environment
  - No tests expected to be negative
  - Clinical notes report positive findings
- Rules will
  - Improve data
  - Provide complete staging
How The CS System Works

- Determine site or histology
  - 153 schemas based on primary site or histology
- Code all required CS fields
- Activate computer algorithm
  - Summary Stage 1977 & 2000
  - AJCC 6th & 7th T, N, M, descriptor for each, stage group
- Algorithms
  - Portable platform-independent form
  - Accuracy of derived stages
- Stage determined by computer

Benefits of Collaborative Stage

- Efficiency and Quality of Data
  - Unified rules and standardized training
  - Stage is derived from objective data
    - Registrar controls quality of data
    - Does not depend on physician staging
- Maintains independent objectives of users
  - ACoS; AJCC; NPCR; SEER
  - Accommodates future TNM revisions

CSv2 High Level Changes
CSv2 Data Input and Output

- 41 data items (at most) collected for 2010 diagnosis cases and forward are staged using CSv2
  - 6 descriptive (size, extension, nodes, metastasis)
  - 3 evaluation
  - 25 site-specific (if used)
  - Lymph-Vascular Invasion
  - Grade Path Value and Grade Path System
  - 4 Mets at Dx – Metastatic Sites

- 4 staging systems output
  - TNM 6th edition
  - TNM 7th edition
  - Summary Stage 1977
  - Summary Stage 2000

CS Coding Instructions

- Electronic Coding Instructions
  - Designed for desktop use for easy access
    - 508 compatible for people with disabilities
  - Print manual will be available through a vendor

- Part I extensively revised and expanded
  - Improvements based on suggestions from users and reliability studies

- Part I rules cross-referenced in Part II
  - Hyperlinks in electronic instructions

CS Coding Instructions Part I

- Part I Section 1
  - General
  - Data fields

- Part I Section 2 - Site-specific notes section
  - Lymph nodes (head and neck, breast)
  - Other problematic data items
  - Lab values and tumor markers

- Appendices

- Cross-referenced to Part II schemas
CSv2 Changes

• New name
  – Collaborative Stage Data Collection System (CS)
• Based on AJCC Cancer Staging Manual, seventh edition
• Commitment to make staging more clinically relevant
  – Better definitions and instructions
  – More site-specific factors
• 2010 CAP Protocols are compatible
  – Changed to match the AJCC seventh edition

CSv2 Changes

• Some primary sites have multiple schemas determined by histology
  • Example: Colon (carcinoma), GIST Colon, NET Colon
• Schema Discriminator
  – Some primary site codes have multiple schemas
  • Example: C24.0 Extrahepatic bile ducts (distal bile duct, cystic duct; right, left, and common hepatic ducts)
  • Example: Nasopharynx includes pharyngeal tonsils. Nasopharynx has its own schema; pharyngeal tonsils are coded with oropharynx
  • Example: Peritoneum (usually soft tissue sarcomas, but sometimes primary peritoneal carcinoma in women)
  – Schema discriminator brings appropriate schema to computer screen

CSv2 Changes

• Obsolete codes
  – Necessary as a result of TNM 6 to 7 changes
    • Splitting of previous codes
    • Moving a structure from Extension to Mets at Dx
    • Correcting mapping errors in CS version 1
  – Labeled in CSv2
    • Obsolete codes may be hidden in software
  – Do not use obsolete codes for 2010 diagnoses and forward
    • Retained as a reference for data users
Effective Dates of CS versions 02.02 and 02.03

- Cases with a diagnosis date of 2010
  - Coded in CS version 02.02 or higher

- Cases with a diagnosis date of 2011
  - Coded in CS version 02.03 or higher
  - Once 02.03 is installed it should be used for all cases regardless of diagnosis date

General Guidelines

- 1. Microscopic confirmation useful but not required
- 2. Code all sites and all histologies
  - Computer algorithm sorts data into stages
  - All sites summary staged
- 3. Only applicable cases staged for TNM

CS General Guidelines
CS General Guidelines

4. Timing rule
   – Includes all information gathered through completion of surgery(ies) in first course of treatment OR
   – within four months of diagnosis in absence of disease progression
   – whichever is LONGER

Timing rule NOT identical to TNM7

5. Take site specific and histology specific guidelines over general guidelines

6. Hierarchical codes
   – Within categories, least specific --> more specific
   – Code the highest applicable number
   – Code as specifically as possible
     • Use ‘localized’, ‘stated as’ and ‘NOS’ sparingly

7. Use of clinical-pathologic information
   – In general, pathology information takes priority
   – When malignant tissue is not completely removed or not removed, gross observation at surgery important
   – Clinical information can change the stage
   – All information pertaining to the case coded according to CS rules
CS General Guidelines

7. Use of clinical-pathologic information (cont')

- When neo-adjuvant treatment is NOT given and pathology report disproves the clinical information
- When pre-op treatment given, record the greatest extent of invasion prior to the beginning of treatment. In rare cases, post-operative disease is more extensive; use code '6' for method of evaluation field
- Reg LN Pos and Reg LN Exam are based on pathologic information only

8. Eval Fields (CS TS/Ext Eval, CS Lymph Nodes Eval, CS Mets at Dx Eval)

- General structure
  - 0 clinical only
  - 1 invasive techniques, no bx; or needle bx
  - bx does not meet criteria for pathologic T
  - 2 autopsy (known or suspected dx)
  - pathology
  - meets criteria for pathologic T
  - 5 pre-op tx, clinical eval
  - 6 pre-op tx, path eval
  - 8 autopsy (dx not suspected or diagnosed)
  - 9 unknown, not assessed, not documented

9. Site-Specific Factors

- Included in every schema
- Incorporated into staging algorithms when additional information is necessary to derive
  - the T, N, M, or
  - TNM Stage group or
  - When the SSF is of clinical or prognostic importance
CS General Guidelines

10. Exclude: tumor extension, lymph node involvement or distant metastasis obtained after disease progression documented

11. Autopsy Reports
   – Used in CS the same way as pathology reports
   – Apply same timing rules for inclusion and exclusion

CS General Guidelines

12. Clinician statement of T, N, M
   – Codes included in CS version 2
     • Stated as T1, NOS; Stated as T1a
   – Use only when there is no information available to assign more specific code
   – Discrepancies between clinician statement and documentation
     • Documentation takes precedence
     • Discuss case with clinician

CS General Guidelines

13. Reportable-by-Agreement Cases
   – Staging systems available in TNM for neoplasms that may not be reportable to population-based registries
     • Examples
       – Borderline tumors of ovary; GIST, NOS
       – Carcinoid of appendix
       – Squamous ca of skin
       – High grade dysplasia (esophagus)
       – PanIN III of pancreas, severe ductal dysplasia
CS General Guidelines

14. No forward compatibility
   - CS version 2 maps to both TNM 6th and 7th editions
   - Cannot rerun computer algorithm to derive TNM 7th edition on a pre-2010 case
   - For new schemas, no backward compatibility
   - Cases not previously staged will not generate a TNM 6th edition

CS General Guidelines

15. Lymphomas and hematopoietic diseases generally excepted
   - Staging of solid tumors are not same as lymphomas and systemic hematopoietic diseases

CS General Instructions
CS General Instructions

1. Coding “none” vs. “unknown”
   - Use unknown code(s) if reasonable doubt that tumor is no longer localized
   - Inaccessible lymph nodes:
     - Not easily examined by palpation, observation, physical examination or other similar methods
     - Applies to early stage (T1, T2, localized) tumors
     - Examples (but not limited to): bladder, kidney, prostate, esophagus, stomach, lung, liver, corpus, ovary
   - Coding Death Certificate Only Cases

2. Use of autopsy information
   - Use appropriate eval code: 2 vs. 8
   - Refer to the schema-specific lists of codes

3. Definitions of Adjacent tissues, Structures, and Organs
   - Refer to Part I Section 1, p21 of the CS Coding Instructions for terms that relate to adjacent connective tissues, organs and structures
CS General Instructions

4. Ambiguous Terminology
   - Some terms are considered as involvement and others should not be considered as involvement
   - Refer to Part I Section 1 p22 of the CS Coding Instructions

5. Coding Involvement of regional and distant lymph nodes

6. Document source of CS data elements

Coding Instructions for CS Data Elements

CS Data Elements: Tumor Size

• Priority of Tumor Size Source:
  - No preoperative treatment - PATHOLOGY report
  - Preoperative treatment - IMAGING report UNLESS tumor is larger at surgery
  - IMAGING report – when no specific size info from path or operative report
CS Data Elements: Tumor Size

• Record exact size of primary tumor
  – Code the size of the primary tumor, not the size of polyp, ulcer, cyst or distant metastasis
    • EXCEPTION: If the tumor is described as "cystic mass" and the size given is entire mass, code the size of the entire mass
  – Record the largest dimension or diameter of tumor
  – Record the size of the invasive component, if given

• Record exact size of primary tumor (con’t)
  – Both an in situ and invasive component present
    – Additional rule for breast primaries
    – Pure in situ lesions

• Record exact size of primary tumor (con’t)
  – Disregard microscopic residual or positive surgical margin
    – If residual tumor is larger than excisional biopsy, code the size of residual tumor
  – Do not add pieces of chips together
CS Data Elements: Tumor Size

- Record exact size of primary tumor (con’t)
  - Residual tumor is larger than excisional biopsy
  - Incisional needle biopsy
  - Malignant melanoma
  - Multifocal/multicentric tumors
  - “Stated as”

CS Data Elements: Tumor Size

- Special Codes:
  - Use field for tumor dimension only
  - No size reported, code as 999
  - Use of Code 000, 990 – 995, 998

CS Data Elements: Extension

- Code the farthest documented extension of the primary tumor
  - Do not include discontinuous mets to distant sites
CS Data Elements: Extension

• Record extension information:
  – No neo-adjuvant treatment: Pathology report
  – Neo-adjuvant treatment: clinical report prior to treatment
  – No response to neo-adjuvant treatment and the tumor is more extensive than the clinical: pathology report

• Contiguous extension only
  – All codes represent direct extension of tumor
  – Exception of mucinous carcinoma of appendix, corpus uteri, ovary, fallopian tube and female peritoneum.

• Code the highest applicable specific number
  – Codes for Unknown, Not Applicable, and NOS categories such as Localized NOS or “Stated as T1, NOS” do not take priority over more specific codes with lower number

• Inferring extension code from stated T category or site-specific staging
  – If the information in the medical record is ambiguous or incomplete, physician statement of T category can be used
CS Data Elements: Extension

- Use of NOS categories:
  - NOS is added when there is further breakdown of the category into subsets, but the correct subset cannot be determined

- Discontinuous or distant metastases:
  - Must be coded in CS Mets at Dx field
  - Exceptions: corpus uteri, ovary, fallopian tube and female peritoneum

CS Data Elements: Extension

- In situ pathology with nodal or metastatic tumor
  - Use code Localized, NOS if there is no better info then in situ

- Microscopic residual or positive tumor margins:
  - Does not increase the extension code

CS Data Elements: CS Lymph Nodes

- Record the specific involved regional lymph node chain(s) farthest from the primary site:
  - Identifies regional nodes only

  - Code farthest involved regional node chain clinically or pathologically
    - If no neoadjuvant therapy: use pathology information
    - Pathologic information takes precedence: if there is discrepancy between clinical and pathologic information about the same lymph node
    - Inaccessible lymph nodes rule for regional lymph nodes
CS Data Elements: CS Lymph Nodes

- Record the specific involved regional lymph node chain(s) farthest from the primary site (con’t):
  - Direct tumor extension into lymph node
  - Multiple nodes involved for head and neck primary
  - Neoadjuvant treatment planned or administered
  - No response to neoadjuvant treatment
  - Use of Code 800

CS Data Elements: CS Lymph Nodes

- When CS Extension is coded as in situ or noninvasive:
  - Use code 000 when CS Ext is coded in situ
  - “In situ” means noninvasive
  - If there is evidence of regional lymph node involvement, code the CS Lymph Nodes appropriately and code the CS Extension and behavior code to reflect that the tumor is invasive

CS Data Elements: CS Lymph Nodes

- Terms meaning lymph node involvement:
  - If solid tumor- “fixed”; “matted”; “mass in the hilum, mediastinum, retroperitoneum, and/or mesentery” are considered involvement
  - Ignore: palpable, enlarged, visible swelling, shotty, lymphadenopathy unless statement of involvement present
  - For lymphoma cases, any positive involvement indicates involvement of lymph nodes
CS Data Elements: CS Lymph Nodes

• Terms meaning lymph node involvement (con’t):
  – Inaccessible lymph nodes rule
  – “homolateral”, “ipsilateral” and “same side” are used interchangeably
  – Any unidentified nodes included with the resected primary site specimen are to be coded as regional lymph nodes, NOS

• Coding size of lymph node: code from pathology report, if available
  – Code the size of the mets, not the entire node
    • Some site specific schema will require to code the size of the entire node
  – If the size of the mets in the node is unknown, code the size of the involved node
  – Code the clinical size if pathology report is not present

• Coding size of lymph node: code from pathology report, if available (con’t)
  – If the size is described as a mass, code the size of the mass
  – Info about location, number and size of the lymph nodes may be collected in CS Lymph Nodes field and one or more site-specific factors
CS Data Elements: CS Lymph Nodes

• Inferring lymph node involvement from stated N category or site-specific staging

• Isolated Tumor Cells (ITCs) in lymph nodes: ITCs are single cells or small clusters of epithelial cells in regional lymph nodes whose metastatic potential unknown

• Use of NOS categories

CS Data Elements: CS Lymph Nodes

• Discontinuous (satellite) tumor deposits (peritumoral nodules) for colon, appendix, rectosigmoid and rectum:
  • Tumor nodules in pericolic or perirectal fat without evidence of residual lymph node structures can be one of several aspects of the primary cancer: discontinuous spread, venous invasion with extravascular spread, or a totally replaced lymph node
  
  – 7th edition: if the primary tumor is localized or T1 or T2, code CS Lymph Node as 050
  
  – Code the total number of tumor deposits in the appropriate SSFs for Tumor Deposits

CS Data Elements: CS Lymph Nodes

• Sentinel lymph nodes
  
  – Involved nodes found during sentinel lymph node procedures are positive nodes and coded in CS Lymph Nodes
  
  – Involved nodes may be classified as clinical if there is no resection of the primary tumor
CS Data Elements: Regional Nodes
Positive/Examined
- Regional lymph nodes only
- Based on pathologic information only
- True in situ cases cannot have positive lymph nodes

CS Data Elements: Regional Nodes
Positive/Examined
- Counting nodes (positive or examined):
  - Cumulative from all procedures that removed lymph nodes
  - Do not count positive aspiration or core biopsy of node in same chain removed at surgery
  - Do count positive aspiration or core biopsy of node in different region
  - If location of biopsied/aspirated node unknown, do not count

CS Data Elements: Regional Nodes
Positive/Examined
- Isolated tumor cells (ITCs) in lymph nodes:
  - Do not include in the count of lymph nodes positive and examined
  - Exception: For cutaneous melanoma and Merkel cell carcinoma, count nodes with ITCs as positive nodes

- Priority of node counts
  - Final dx, synoptic report, microscopic, gross
CS Data Elements: Regional Nodes
Positive/Examined

- Special Codes
  - Code 95: when the only procedure is a needle aspiration or core biopsy
  - Use of Code 97: when the number of involved nodes cannot be determined
  - Use of Code 98: When the assessment of lymph nodes is clinical only

CS Data Elements: Regional Nodes
Examined

- "Sampling": removal of a limited number of lymph nodes
  - Lymph node biopsy, berry picking, sentinel lymph node procedure, sentinel node biopsy, selective dissection

- "Dissection": removal of most or all of the nodes in the lymph node chain(s)
  - Lymphadenectomy, radical node dissection, lymph node stripping

CS Data Elements: CS Mets at Dx

- Generally used for discontinuous, blood-borne, or fluid-borne mets and involved distant lymph nodes

- Code the documented metastasis
  - Priority given to the highest M category or subcategory
  - May be clinical or inferred
  - May be based on tissue diagnosis (pathology)
  - If pre-op rx: clinical stage information is used
### CS Data Elements: CS Mets at Dx

- **Mets at Dx codes (general structure)**
  - 10 Distant lymph nodes
  - 40 Specific named structures or carcinomatosis
  - 50 Distant nodes plus distant mets
  - 60 Nonspecific distant metastases

- **No MX in TNM 7th edition**
  - Registrar can code Mets at Dx 00 unless distant mets are identified and classified as cM1 or pM1

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### CS Data Elements: CS Mets at Dx

- **When to code 00 vs. 99**
  - Code 00 when
    - No clinical or pathologic evidence of distant mets and patient is not treated as if mets are present or suspected
    - Only history and physical exam must have been performed
  - Code 99 when
    - Reasonable doubt that tumor no longer localized
    - Maps to MX in TNM 6th edition and M0 in 7th edition

- **No MX in TNM 7th edition**
  - Registrar can code Mets at Dx 00 unless distant mets are identified and classified as cM1 or pM1

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### CS Data Elements: CS Mets at Dx

- **Inferring distant metastases from stated M category**
- **Use of NOS categories**
- **CTCs and DTCs: Breast only: code as 05**
- **Code 98: Lymphoma, heme-retic, and some other sites**
Mets at Dx-Metastatic Sites

- 4 fields
  - Bone excluding marrow
  - Brain excluding spinal cord and other CNS
  - Lung excluding pleura and pleural fluid
  - Liver
- Code 0 when CS Mets at Dx is 00
- Code structure
  - 0 – No
  - 1 – Yes
  - 8 – Not applicable
  - 9 – Unknown

Lymph-Vascular Invasion

- Coding instructions
  - Based on all pathology reports or information available
  - Priority given to positive results
  - Includes lymphatic invasion, vascular invasion, or lymph-vascular invasion
  - Do not use for perineural invasion
  - Use CAP checklist as primary source
  - Other sources may be used in the absence of a checklist

Lymph-Vascular Invasion (con’t)

- Code structure
  - 0 – Lymph-vascular invasion not present (absent)/Not identified
  - 1 – Lymph-vascular invasion present/identified
  - 8 – Not applicable
  - 9 – Unknown/Indeterminate
Grade Path Value

• New item
  – In addition to Grade Differentiation (#440)
• Record grade specified in Grade Path System
• Code structure
  – 1 Recorded as Grade I or 1
  – 2 Recorded as Grade II or 2
  – 3 Recorded as Grade III or 3
  – 4 Recorded as Grade IV or 4
  – Blank No 2-, 3-, or 4-grade system available; unknown

Grade Path Value (con’t)

• Coding instructions
  – Record grade reported in patient record
  – Based on same tissue as Grade/Differentiation field
  – Do not use for site-specific grading systems
    • Part of the SSF fields
  – If grade is described as a fraction (x/y)
    • This data field is the numerator
  – Histologic grade is another name for overall grade or grade NOS
    • Takes priority over a nuclear or architectural grade

Grade Path System

• New item
  – In addition to Grade Differentiation (#440)
• Record stated grade system
• Used in conjunction with “Grade Path Value”
• Code Structure
  – 2 Two-grade system
  – 3 Three-grade system
  – 4 Four-grade system
  – Blank Not a 2-, 3- or 4-grade system; unknown
Grade Path System (con’t)

- Coding instructions
  - Record grade system reported in patient record
  - Based on same tissue as Grade/Differentiation field
  - Do not use for site-specific grading systems
  - Part of the SSF fields
  - If grade is described as a fraction (x/y)
    - This data field is the denominator

Site-Specific Factors

- 25 SSFs available
  - Needed for TNM mapping
    - Number of positive axillary nodes, extracapsular extension; thickness of melanoma
  - Tumor markers and lab values
    - CA 125, CA 19-9, AFP, HCG, KRAS, Ki-67
  - Prognostic/predictive
    - Gleason tertiary pattern, IPI, FLIPI, IPS (lymphomas), HER2
  - Future research/special interest
    - Microsatellite instability (OIL cancers), CTCs and DTCs (breast), TILs (Merkel cell)
  - Associated diseases and conditions
    - History of asbestos exposure (pleural mesothelioma), retinoblastoma gene mutation

Conclusion

- Coding Instructions Part I
  - Have been greatly expanded
  - More examples

- Part I Section 1
  - General information

- Part I Section 2
  - Site-specific factors including lab tests and tumor markers
CAnswer Forum

- Submit questions to CS Forum
  - Located within the CAnswer Forum
  - Provides information for all
  - Allows tracking for educational purposes
  - Includes archives of Inquiry & Response System

- CS Forum: http://cancerbulletin.facs.org/forums/
- CS Web Site: www.cancerstaging.org/cstage