Breast Cancer

Changes in 2018

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Solid Tumor Rules 2018

- Use ICD-O without publication number (not ICD-O-3)
- Use rule set based on DATE OF DIAGNOSIS
- Biomarkers influence unknown in histology
  - Do NOT use to determine multiple primaries

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MPH Major Changes

- NST (No Special Type), Mammary carcinoma NST, Carcinoma NST = NEW term for duct/ductal
- DCIS Changes
  - Code GRADE – most important info
  - Do NOT code subtype/variant
- Timing Rule
  - Recurrence may restart the clock

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More Changes

- Subtype/Variant coded ONLY when ≥ 90% of tumor
  - Based on WHO Blue Books & CAP
  - Complete WHO list in CAP notes only
  - CAP Notes under list of histologies:
  - *"Note: The histologic type corresponds to the largest carcinoma. If there are smaller carcinomas of a different type, this information should be included under "Additional Pathologic Findings."*
  - *Special type carcinomas should consist of at least 90% pure pattern."*

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Equivalent or Equal Terms

- And; with
- Behavior code /2
  - DCIS, intracystic, intraductal, noninfiltrating, noninvasive, carcinoma in situ
- De novo; new tumor; frank
- Duct; ductal; NST; mammary
- Simultaneous; existing at same time; concurrent; prior to 1st course tx
- Topography; site code
- Tumor; mass; tumor mass; lesion; neoplasm
- Type; suptype; variant

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Table 1: Primary Site Codes Sample

Terms used in mammogram, clinical diagnosis, op report, path reports

Terms and Descriptive Language	Site Term and Code
Above nipple Area extending 1 cm around areolar complex Behind the nipple Below the nipple Beneath the nipple Central portion of breast Cephalad to nipple Infra-areolar Lower central Next to areola NOS Next to nipple Paget disease with underlying tumor Retroareolar Subareolar Under the nipple Underneath the nipple	Central portion of breast C501

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Table 2: Histology Combination Codes

- Compare terms in diagnosis to terms in Column 1
- When terms match, use combo code in Column 2
- Last row is default (8255 adeno mixed subtypes)
- Use when combo codes are SINGLE tumor OR multiple tumors abstracted as SINGLE primary
- Mixed histo may be
  - "Combination of"
  - Histo 1 AND histo 2
  - Histo 1 WITH histo 2
  - MIXED histo 1 and 2

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Table 2: Histology Combination Notes

Note 1: Do **not** use Table 2 WHEN:

- Tumors both invasive and in situ
- With one of histo descried as "features" or "differentiation"
- Terms are NOS and a subtype/variant

Note 2: Some histo /2 or /3

- If just in situ term, /2 listed
- If just invasive term, /3 listed

Note 3: Table is not complete listing of histo combos

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Table 2: Histology Combo Codes Sample

Required Histology Terms	Histology Combination Term and Code
DCIS/duct carcinoma/carcinoma NST 8500 **AND** Lobular carcinoma 8520 *Note 1:* Both histologies, duct and lobular must have the same behavior code *Note 2:* 8522 is used when: • Both DCIS/duct carcinoma/carcinoma NST **AND** lobular carcinoma are present in a single tumor OR • DCIS/duct carcinoma/carcinoma NST is present in at least one tumor and lobular is present in at least one tumor in the same breast *Example:* One tumor with invasive duct CA in LOQ RT breast; second tumor with invasive lobular in UOQ RT breast *Note 3:* Do not use 8522 when the diagnosis is carcinoma NST/duct carcinoma with lobular differentiation. The diagnosis MUST be invasive carcinoma NST/duct and invasive lobular carcinoma. See Histology Rules for instructions on coding differentiation.	**Invasive** carcinoma NST/duct carcinoma **and invasive** lobular carcinoma **8522/3** *Note 1:* CAP uses the term Invasive carcinoma with ductal and lobular features ("mixed type carcinoma") *Note 2:* Carcinoma NST includes carcinoma with osteoclastic-like stromal giant cells 8035/3. DCIS **and in situ** lobular carcinoma **8522/2** *Note:* The lobular carcinoma includes pleomorphic lobular carcinoma in situ **8519/2.**

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Table 3: Specific Histologies, NOS/NST and Subyptes/Variants

- Use only when Rules tell you

Note 1: Rare histo may not be listed

- Use ICD-O with updates

Note 2: Submit question to Ask a SEER Registrar

Note 3: Behavior codes listed when only one possible (/2 or /3). Code behavior from pathology

Note 4: Only use histo code from table when diagnosis is EXACTLY the term listed

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Table 3: Specific Histologies, NOS/NST and Subyptes/Variants Sample

Specific and NOS/NST Terms and Code	Synonyms	Subtypes/Variants
Lobular carcinoma 8520	Alveolar lobular carcinoma Classic lobular carcinoma Invasive lobular carcinoma, alveolar type/variant **8520/3** Invasive lobular carcinoma, solid type **8520/3** Mixed lobular carcinoma (lobular carcinoma NOS and one or more variants of lobular carcinoma) Invasive pleomorphic lobular carcinoma **8520/3** Solid lobular carcinoma Tubulolobular carcinoma	Pleomorphic lobular carcinoma in situ **8519/2*** *Note:* 8519/2 is a new code for in situ /2 tumors only.
Medullary carcinoma 8510		Atypical medullary carcinoma **8513**

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MP Rules

- *Unk if Single or Multiple Tumors*

M1 Unknown number of tumors = single

- *Single tumor*

M2 Inflammatory carcinoma = single

M3 Single tumor = single

- *Multiple tumors*

M4 Inflammatory carcinoma = single

M5 Separate, non-contiguous tumors in sites that differ at 2nd (CXxx) or 3rd (CxXx) = multiple

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MP Rules cont.

M6 Bilateral breast CA = multiple

M7 Paget disease w/underlying in situ or invasive = single

M8 Subsequent tumor after clinically disease-free for > 5 years after dx OR recurrence = multiple

If recurrence ≤ 5 years, clock starts over!

M9 Simultaneous multiple tumors are carcinoma NST/duct and lobular = single

M10 Separate tumors 2 or more different subtypes/variants in column 3 of Table 3 = multiple

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MP Rules cont.

M11 Separate tumors on **same** row Table 3 (timing doesn't matter but must be same behavior) = single

M12 Separate tumors on **different** rows Table 3 = multiple

M13 When in situ tumor diagnosed **after** invasive = single

M14 When invasive diagnosed **≤** 60 days after in situ in same breast = single

M15 When invasive diagnosed **>** 60 days after in situ in same breast = multiple

M16 None of previous rules apply = single

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Examples

Pt has 2 tumors in the right breast. One is invasive duct carcinoma and the other is invasive lobular.

Rule M9 single primary

Patient had mammary carcinoma right breast diagnosed in June 2013. Treated with lumpectomy & RT. New NST tumor found in April 2018.

Rule M11 single primary (same histology)

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Coding Multiple Histologies in a Single Tumor

1. Two histologies

- A. <u>NOS and subtype/variant</u>
  - Code subtype when documented ≥ 90% of tumor
  - Code NST when subtype < 90% or % unknown
- B. <u>Different histologies</u>
  - Code histology that comprises **majority** of tumor
  - Code combo code using Table 2 **when majority unknown**

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Coding Multiple Histologies in a Single Tumor cont.

2. Do **NOT** code histo when documented with:

- A. Words that describe more specific histo
  - Subtype
  - Type
  - Variant
- B. Terms that do **NOT** describe majority of tumor (modifiers/descriptors)
- Ambiguous terminology

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Coding Multiple Histologies in a Single Tumor cont.

Do **not** code histology when described using any of the following **modifiers** or **ambiguous terms**.

Modifiers/Descriptors	Ambiguous Terms	
Architecture	Apparently	Most likely
Differentiation	Appears	Presumed
Features (of)	Comparable with	Probable
Foci, focus, focal	Compatible with	Suspect(ed)
Major, majority of	Consistent with	Suspicious (for)
Pattern(s)	Favor(s)	Typical (of)
Predominantly	Malignant appearing	

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Priority Order for Using Documentation to Identify Histology

1. Biomarkers
2. Tissue or path report
   - Addendum/comments
   - Final diagnosis
   - CAP protocol
3. Cytology (FNA nipple)
4. Tissue from mets site
5. Radiology – No priority order
   - Mammogram
   - Ultrasound
   - CT
   - MRI
6. Histo documented by physician in med rec
   - Tumor Board
   - Med record refers to path
   - Drs reference

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Histo: Single Tumor In Situ ONLY (Note DCIS often multifocal – use these rules)

H1: Code Paget in situ 8540/2 when no underlying tumor AND path documents in situ

H2: Code histo when only ONE histo present
- Use Table 3 first
- Use ICD-O W/updates
- Ask a SEER registrar

H3: Code DCIS & LCIS 8522/2

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HISTO: SINGLE TUMOR INVASIVE & IN SITU

H4: Code invasive when both invasive and in situ

Ignore in situ term(s)

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HISTO: SINGLE TUMOR INVASIVE ONLY

H5: Code Paget 8540/3 when diagnosis is exactly Paget (no underlying tumor)

H6: Code underlying tumor histology when diagnosis is inflammatory CA

H7: Code mucinous 8480 ONLY when

- Diagnosis exactly mucinous OR
- Multiple histologies are present & mucinous is ≥ 90%

H8: Code invasive histology when carcinoma with signet ring cell *differentiation*

Example: Invasive lobular CA with signet ring cell differentiation. Code to invasive lobular CA 8520/3.

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HISTO: SINGLE TUMOR INVASIVE ONLY CONT.

H9: Code 8201/3 when cribriform mixed with other any other carcinoma **AND**:

- Diagnosis exactly cribriform **OR**
- Multi histologies are present & cribriform is **≥** 90%

H10: Code histo when only **ONE** histo present

H11: Code duct & lobular 8522/3 when **both invasive**

H12: Code **subtype/variant** ONLY when **NST** AND **subtype/variant** documented as **≥ 90%** of tumor (use Table 3)

Example: 1.4 cm pleomorphic LCIS 8519/2 with a focus of LCIS 8520/2.
Pleomorphic is **> 90%** since LCIS is only a focus.

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HISTO: SINGLE TUMOR INVASIVE ONLY CONT.

H13: Code **NST** when NST plus subtype AND:

- Subtype **< 90%** tumor **OR**
- **%** of subtype **unknown**

H14: Code histo that = majority of tumor when 2 histo are:

- On different rows of Table 3 **OR**
- Different subtypes of same NOS

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Histo: Single Tumor Invasive ONLY cont.

H15: Code **combo code** when **2 histo** within **single** tumor and **majority** is **unknown**

- Use Table 2
- Tumors **NOT** NST and single subtype (see H14/H15)
- 2 subtypes/variants + NST; ignore the NST
- Do **NOT** use combo code when features or differentiation
- Histo may be identified as
  - Mixed or combination
  - Histo 1 AND histo 2
  - Histo 1 WITH histo 2

Table **2** for **TWO** histo. If **more than 2** histo, use **8255**

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Histo: Multiple Tumors Abstracted as Single Primary

H16: Code underlying tumor histo when diagnosis of inflammatory CA

H17: Code Paget and ductal as follows when

- Path states Paget as invasive or unk **AND**
- Underlying tumor is:
  - Invasive NST/duct CA = 8541/3
  - DCIS = 8543/3 (Ignore LCIS)

H18: Code Paget in situ & DCIS 8543/2 when Paget in situ w/ underlying DCIS

H19: Code histo when only ONE histo present in ALL tumors

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Histo: Multiple Tumors Abstracted as Single Primary

H20: Code invasive when invasive PLUS in situ

- Mixed in each tumor **OR** in separate tumors

H21: Code 8522 when NST/duct and lobular present in multi tumors

- DCIS & LCIS 8522/2
- Both invasive 8522/3

H22: Code NST when NST and subtype

- Mixed in all tumors **OR**
- Separate tumors w/different histo

H23: Code combo code when 2 histo in all tumors

(See H17 for notes)

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Example - Histology Coding

Lobular carcinoma with apocrine differentiation. "Differentiation" is a modifier. Code to **lobular carcinoma 8520**.

- Only code *differentiation* or *features* when there is a specific code for the NOS with differentiation, features or type in **Table 3** or the **ICD-O.**
- *Per General Rules (Coding Multiple Histo in Single Tumor)*

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More Examples - Histology Coding

Breast carcinoma with neuroendocrine differentiation. Code to carcinoma with neuroendocrine differentiation **(8574**), which has a specific ICD-O-3 code.

- *Per General Rules (Coding Multiple Histo in Single Tumor)*

Ductal with medullary adenocarcinoma. **Code 8523**

- *Rule H15 Combo code (NST mixed with other types)*

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Case for Working Through Topics

- 42y.o. female w/palpable left breast mass, neg axilla
- Imaging:
  - Mammograms 10:00 mass 3cm
  - Sonogram 10:00 mass 2cm; left axillary LN 1.1cm
- Pathology:
  - Lt. Breast bx @ 10: Invasive ductal, NG grade 2 w/focal high grade DCIS. Core bx Lt ALN: negative
  - ER (+) 95%, PR (+) 81-90%, Ki-67 44% (high), Her2N 3+
  - Mastectomy: No residual carcinoma (complete PR), 0/4 SLN, IHC negative
- Treatment:
  - Neoadjuvant chemo 6 cycles TCHP
  - Surgery: Bilat nipple-sparing mastectomy, SLN, tissue expander reconstruction

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AJCC Staging

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Breast Cancer

- Group of diseases with different molecular characters
  - Gene expression profile
  - IHC
  - Proteomics
  - Next generation sequencing
  - Other molecular techniques
- May mean different:
  - Prognoses
  - Patterns of recurrence
  - Dissemination after treatment
  - Different sensitivities

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Objectives of New Breast TNM

- Provide continuity to investigators to study categories over past 60 years
- Permit investigators to use standardized language
- Improve individual patient care

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WHY So Much Change?

MD Anderson (MDACC)

- 3,728 patients with no known distant metastases
- Utilized pathologic stage to derive prognostic model for disease-specific survival (DSS)
- Validated with 26,711 patients from SEER
- Adding prognostic info changes group stage about 40% of cases

34

Yi et al. J Clin Oncol. 2011
Amin MB, Edge S, Greene F, et al. AJCC Cancer Staging Manual, 8th Ed. New York, NY, Springer Publishing 2017

More Proof

National Cancer Database (NCDB)

- 238,265 patients
- Survival calculations performed on 7th edition, tumor grade, Her2, ER/PR
- Findings consistent with MDACC
- Prognostic subgroups assigned to stage according to calculated mean survival

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Yi et al. J Clin Oncol. 2011
Amin MB, Edge S, Greene F, et al. AJCC Cancer Staging Manual, 8th Ed. New York, NY, Springer Publishing 2017

How Does Treatment Affect Stage Groups?

- Most patients in industrialized countries get surgery ± RT
- Data is not available on patients w/no tx
- New 8th ed. may put patients in lower groups
  - Ex: T3N1 = Stage IIIA in 7th ed
  - Add G2 H2+ ER+ PR + = Stage IB in 8th ed
  - That presumes patient gets appropriate tx to survive ≅ to Stage IB

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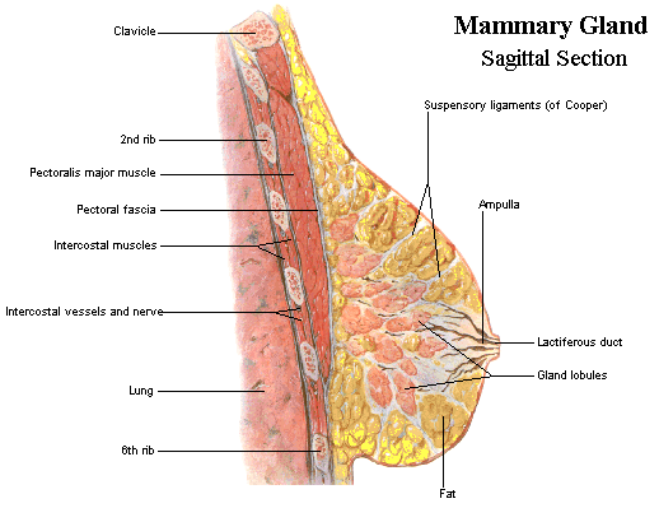

Clinical Staging

- H&P and any imaging (not required)
  - PE includes skin, mammary gland, LN (ax, SC, cervical)
  - Imaging: size of primary, chest wall invasion, regional LN or mets
    - Mammogram, sonogram, MRI, PET
- Path exam of tissue to prove dx and/or LN involvement

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Pathological Staging

- pT: cT + surg explor/resect, path exam primary
  - pT resection w/o macro margins
  - Core bx + small tumor residual may give false measure – SHOULD estimate original size from imaging (gross + micro info)
    - Do NOT add core to excision (that would over-estimate)
- pN: ≥ 1 LN exam
  - Tumor nodules in axillary fat w/o LN = pN (but must have pT)

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Post Therapy Staging

- Hope that neoadjuvant tx followed by surgery leads to pCR (complete remission)
- ypT: measure largest remainder or residual
- If cT4d then neoadj tx, stage ypT based on residual found
  - Confusing statement in breast chapter means that inflammatory cancer is still inflammatory cancer even after neoadjuvant tx by description
- ypT0 = no residual
  - If only cancer residual intravascular or LVI, still ypT0 but not pCR

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Neoadjuvant Responses

- Clinical or pathological
  - CR complete response
  - PR partial response
    - Decrease in either/both T or N with no increase in either T or N
  - NR no response, no change

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pTNM and Stage Group - Breast Case Scenario

We leave **all** of the **pTNM** fields and the **p** stage group field **blank** in the cancer registry abstract.

The STORE manual requires **either** AJCC *TNM Path Stage Group* **OR** *AJCC TNM Post Therapy Stage Group*.

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Suffixes

- cT, pT, yT – (m) multiple tumors in the same organ
  - May be written as a number, e.g. T3(4) for 4 tumors
- cN, pN, yN
  - (sn) sentinel lymph node biopsy
    - If SLN then axillary LND, remove (sn)
    - If < 6 LN w/o ALND, keep (sn)
  - (f) fine needle or core biopsy

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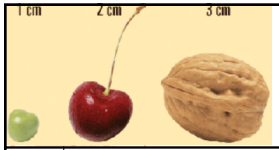

T - Size Matters

Tx	Primary tumor cannot be assessed
T0	No evidence or primary tumor
Tis	Ductal carcinoma in situ (DCIS); Paget's disease of the nipple NOT associated with invasive carcinoma and/or carcinoma in situ (DCIS) in the underlying breast parenchyma.
T1	Tumor ≤ 20 mm in greatest dimension
T1mi	Tumor ≤ 1 mm in greatest dimension
T1a	Tumor > 1 mm but ≤ 5 mm in greatest dimension (new rounding line)
T1b	Tumor > 5 mm but ≤ 10 mm in greatest dimension
T1c	Tumor > 10 mm but ≤ 20 mm in greatest dimension
T2	Tumor > 20 mm but ≤ 50 mm in greatest dimension
T3	Tumor > 50 mm in greatest dimension

Beyond Size

T4	Tumor of any size with direct extension to the chest wall and/or to the skin (ulceration or macroscopic nodules); *invasion of the dermis alone does not qualify as T4*
T4a	Extension to the chest wall; *invasion or adherence to pectoralis muscle in the absence of invasion of chest wall structures does not qualify as T4*
T4b	Ulceration and/or ipsilateral macroscopic satellite nodules and/or edema (including peau d'orange) of the skin that does not meet the criteria for inflammatory carcinoma
T4c	Both T4a and T4b are present
T4d	Inflammatory carcinoma

cT, pT and ypT - Breast Case Scenario

Clinical information: 3 cm on mammogram; 2 cm on ultrasound

- **Clinical T _____**

Pathological information: no residual carcinoma; tumor bed measured 1.6 cm

- **Pathological T _____**
- **Post Therapy T _____**

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Tis Change

- Lobular carcinoma in situ (LCIS) NOT in pTis category
  - Benign entity
  - Still reportable
- cTis (DCIS) or cTis (Paget's) allowable if a biopsy done in clinical time frame in 8th ed
  - pTis (DCIS), pTis (LCIS), pTis (Paget's) if biopsy done in **clinical timeframe** and pt diagnosed before 1/1/2018

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Tumor Size

- Rounding size – do **NOT** round down if 1.0 to < 1.5 **mm**
  - Would put the tumor in T1mi (≤ 1mm) if rounded down
  - Round any tumor >1.0 - 1.9 **up** to 2mm (T1a)
- Small microsatellites around primary don't change volume or add to size
- Multiple synchronous tumors
  - Max dimension of largest tumor or worst T
  - Do not add together

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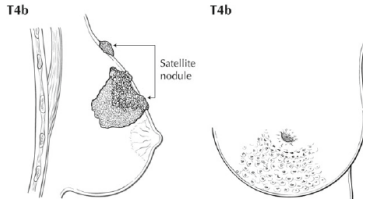
Skin Nodules "T"

- Satellite nodules in skin must be separate from primary tumor and macroscopic identified to be T4b
  - Microscopic only skin and dermal tumor nodules w/o epidermal ulceration or skin edema are NOT T4b (categorize these by size)



AJCC Staging Atlas

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Timing for Tumor Size

Clinical Size

Largest size in mm:

Before ANY treatment starts
OR
Within 4 months diagnosis date if not treatment (incl observation, supportive care)
OR
To date of cancer progression if happens before 4-month window

Pathological Size

Largest size in mm of primary tumor that has been resected (including after neoadjuvant therapy) as part of the first definitive treatment

TS Summary

Largest size in mm from surgically resected specimen when surgery is first treatment

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Recording Tumor Size
Clinical, Pathological, or Summary

Code	Tumor Size Description
000	No mass/tumor found
001	1 mm or < 1 mm
002 – 988	Exact size in mm (2 mm to 988 mm)
989	≥ 989 mm
990	Microscopic focus or foci only and no size focus given
998	Diffuse breast cancer
999	Unknown; size not stated; not documented in patient record; size tumor cannot be assessed; not applicable

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Tumor Size - Breast Case Scenario

Clinical information: 3 cm on mammogram; 2 cm on ultrasound

- **Clinical tumor size** _____

Pathological information: no residual carcinoma after neoadjuvant chemo; tumor bed measured 1.6 cm

- **Pathological tumor size** _____
- **TS Summary** _____

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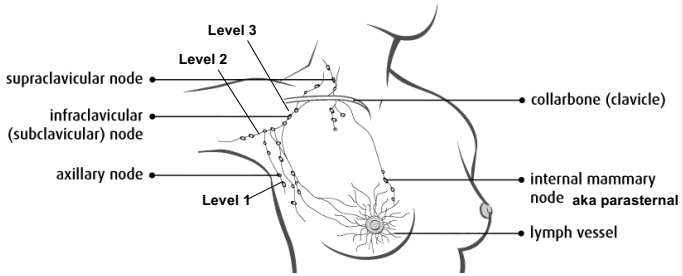
Regional Lymph Nodes



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Regional LN

- Axillary (ipsilateral)
  - Rotter's (interpectoral)
  - Level I, II, III
- Internal mammary (ipsilateral)
- Supraclavicular NOT lower cervical
- Intramammary (within the breast)

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Clinical (cN)

cNx	Regional LN cannot be assessed New version: Expert Panel cNx not valid UNLESS relevant LN basin was removed (history) and cannot be examined by imaging or PE (use cN0)
cN0	No regional LN mets (by imaging or clinical exam)
cN1	Mets to movable ipsilateral level I, II axillary LN
cN1mi	Micromets (approximately 200 cells, > 0.2mm but ≤ 2.0mm)
cN2	Mets in ipsilateral level I, II axillary LN clinically fixed or matted; OR in ipsilateral internal mammary LN in absence of axillary LN mets
cN2a	Mets in ipsilateral level I, II axillary LN fixed to one another (matted) or to other structures
cN2b	Mets only in ipsilateral IM LN in absence of axillary LN mets

Clinical (cN)

cN3	Mets in ipsi infraclavicular (level III axillary LN) w/ or w/o level I, II axillary LN OR in ipsilateral IM LN w/level I, II axillary LN mets OR mets in ipsi supraclavicular LN w/ or w/o axillary or IM LN
cN3a	Mets in ipsi infraclavicular LN
cN3b	Mets in ipsi IM LN and axillary LN
N3c	Mets in ipsi SC LN

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Pathological (pN)

pNx	Regional LN cannot be assessed (e.g. not removed for pathological study OR previously removed)
pN0	No regional LN mets or ITCs only
pN0 (i+)	ITCs only (malignant cell clusters ≤ 0.2mm) in regional LN
pN0 (mol+)	Positive molecular findings by reverse transcriptase polymerase chain reaction (RT-PCR); no ITCs detected
pN1	Micromets; OR mets in 1-3 axillary LN; OR clinically negative IM LN w/micromets or macromets by sentinel LN biopsy
pN1mi	Micromets (approximately 200 cells, > 0.2mm but ≤ 2.0 mm)
pN1a	Mets in 1-3 axillary LN, at least one met > 2.0mm
pN1b	Mets in ipsi IM SLN, excluding ITCs
pN1c	pN1a and pN1b combined

Pathological (pN)

pN2	Mets in 4-9 axillary LN; OR positive ipsi IM LN by imaging in absence of axillary LN mets
pN2a	Mets in 4-9 axillary LN (at least 1 tumor deposit > 2.0mm)
pN2b	Mets in clinically detected IM LN w/ or w/o microscopic confirmation; w/pathologically negative axillary LN
pN3	Mets in ≥ 10 axillary LN; OR in infraclavicular (level III) LN; OR positive ipsi IM LN by imaging in presence of ≥ 1 positive level I,II axillary LN OR in > 3 axillary LN and micromets or macromets by SLN bx in clinically negative ipsi IM LN; OR ipsi supraclavicular LN
pN3a	Mets in ≥ 10 axillary LN (at least 1 tumor deposit > 2.0mm); OR in infraclavicular (level III) LN
pN3b	pN1a or pN2a in presence of cN2b (positive IM LN by imaging); OR pN2a in presence of pN1b
pN3c	Mets in ipsi supraclavicular LN

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cN, pN, and ypN - Breast Case Scenario

Clinical information: axilla negative bilaterally; 1.1 cm Lt ax LN on ultrasound, negative on bx

- **Clinical N _____**

Pathological information (after neoadjv): Lt SNBx: 0/4 lymph nodes; IHC studies negative.

- **Pathological N _____**
- **Post Therapy N _____**

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Negative LN are NOT the Same

- Pathological pN0 is better than Clinical cN0
  - pN0 PROVED they are negative
  - pN0 may have lower prognostic stage group because of that proof
- Patients cT2cN0 have 25% risk of pN1-3

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M Distant Mets

- cM0 may be from PE only
  - Doesn't require imaging
- If cM1+, bx recommended if possible (then pM1+)
  - If bx done, need ER, PR, Her2 – could affect treatment
  - FNA of M1 organ: high risk of false negative and should re-bx
- +CTC (blood), + DTC (bone marrow) ≠ M1

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M Imaging

- Imaging should be done based on T or N info
  - Usually not ordered if T1-2 or N0-1
- If Stage I – IIB, imaging recommended IF:
  - Bone scan when bone pain or > alk phos
  - Abd CT/MRI when > alk phos, abnormal liver function, abd sx
  - Chest CT if pulmonary sx
- If Stage IIIA – may do M tests even if no sx
- If Stage IIIB – order PET to prove not IV

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Distant Mets (M)

M0	No clinical or radiographic evidence of distant mets
cM0 (i+)	No clinical or radiographic evidence of distant mets in presence of tumor cells or deposits ≤ 0.2 mm detected microscopically or by molecular techniques in circulating blood, bone marrow, or other non-regional nodal tissue in a patient without symptoms or signs of mets
M1	Distant mets detected by clinical and radiographic means (cM) and/or histologically proven mets > 0.2 mm (pM)

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cM, pM, and ypM - Breast Case Scenario

Clinical information: palpable left breast mass; axilla negative bilaterally

- **Clinical M** _____
- **Pathological** M _____
- **Post Therapy M** _____

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Three Stage Group Tables

- Anatomic Stage Table – NOT used in North America
  - Used where biomarker info N/A
  - Used where less money spent on testing, treatment
  - Patients usually dx stage 3 or 4, majority expire of C50
- Clinical Prognostic Stage Table
- Pathological Prognostic Stage Table

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Prognostic Stage Groups

- Clinical prognostic stage
  - cT, cN, cM + Grade, Her2, ER, PR
    - Genomic profile is not used in clinical staging
- Pathological prognostic stage
  - pT, pN, pM + Grade, Her2, ER, PR + Genomic profile
- Neoadjuvant patients
  - ypT, ypN, yM/cM recorded but NO group stage
  - 44,181 patients were studied but "not enough" to create a stage group

66

Prognostic Stage Groups

		Her2	ER	PR	
Sample from Staging Forms found on web site	G1	Positive	Positive	Positive	IB
				Negative	IIA
			Negative	Positive	IIA
				Negative	IIA
		Negative	Positive	Positive	IB
				Negative	IIA
			Negative	Positive	IIA
				Negative	IIA
T0 N1** M0 T1* N1** M0 T2 N0 M0	G2	Positive	Positive	Positive	IB
				Negative	IIA
			Negative	Positive	IIA
				Negative	IIA
		Negative	Positive	Positive	IB
				Negative	IIA
			Negative	Positive	IIA
				Negative	IIB

Prognostic Factor Timing

- If biomarkers (Her2, ER, PR) are **not** performed on the biopsy, they can be taken from the surgical resection specimen for use in assigning the clinical prognostic to stage.
- This does **NOT** apply to **grade**! The 3 grade fields MUST be taken from the appropriate timing (clinical, pathological, or post therapy).

68

Prognostic Stage Groups - Breast Case Scenario

- **Clinical** Stage Group: _____
  - cT2 cN0(f) cM0 G2, Her2+, ER+, PR+
- **Pathological** Stage Group: _____
- **Post therapy** stage group: _____
  - ypT0 yN0(sn) cM0

69

Breast Prognostic Stage Group Triple Positive (ER/PR/H2N)

Any M1 = Stage IV

T	N	M	Grade	Gp Stg
1	0	0	1,2	1a
0-1	1mi	0	1,2	1a
2	0	0	1-3	1b
1	1	0	1-3	1b
2	1	0	2	1b
0-2	2	0	1-2	1b
3	1-2	0	1-2	1b
2	1	0	1	2b
0-2	2	0	3	2b
3	1-2	0	3	2b
4	0-2	0	1-3	3b
Any	3	0	1-3	3b

70

Breast Prognostic Stage Group Triple Negative (ER/PR/H2N) *may include PR=Any*

Any M1 = Stage IV

T	N	M	Grade	Gp Stg
1	0	0	Any	2a
0-1	1mi	0	Any	2a
2	0	0	1	2b
0-1	1	0	1	2b
0-1	1	0	2,3	3a
2	0	0	2,3	3a
2	1	0	1-2	3b
3	0	0	1-2	3b
2	1	0	3	3c
0-2	2	0	2,3	3c
3	0	0	3	3c
3	1-2	0	2,3	3c
4	0-2	0	1,2	3c
Any	3	0	1,2	3c

71

Regional Lymph Nodes Examined

Record the number of RLNs that were removed and examined by the pathologist.

00: No LN examined

01-89: 1-89 LN examined (code exact number)

90: ≥ 90 LN examined

95: Aspiration or core bx W/O LN removed

96: LN removal documented as sampling, number unk

97: LN removal documented as dissection, number unk

98: LN surgically removed but number unk, not documented as sampling or dissection

99: Unk if LN examined; N/A; not documented in med record

72

Regional Lymph Nodes Positive

Record the # of positive RLNs per pathology (includes after neoadjuvant).

00: All LN examined negative
01-89: 1-89 LN + (code exact number)
90: ≥ 90 + LN
95: Aspiration or core bx + LN
97: LN +, number unk
98: No LN examined
99: Unk if LN +; N/A; not documented in med record

73

RLNs Positive and Examined - Breast Case Scenario

- How many RLNs were positive/examined?
  - Core bx of AxLN during workup plus 4 SLNs at time of surgery

RLNs Positive _____

RLNs Examined _____

74

Sentinel Lymph Nodes Examined

Record the number of SLNs that were removed and examined by the pathologist.

00: No SLN examined
01-90: 1-90 SLN examined (code exact number)
95: Aspiration or core bx W/O SLN removed
98: SLN biopsied, but number is unknown
99: Unk if SLN examined; N/A; not documented in med record

75

Sentinel Lymph Nodes Positive

Record the # of positive SLNs per pathology (includes after neoadjuvant).

00: All SLN examined negative
01-90: 1-90 SLN + (code exact number)
97: SLN +, number unk (SLN and RLND) occurred during same procedure
98: No SLN biopsied
99: Unk if SLN positive; N/A; not documented in med record

76

Sentinel Lymph Node Fields

Core bx of AxLN during workup plus 4 SLNs at time of surgery

SLNs Positive _____

SLNs Examined _____

Date RLN Dissection _____

77

Lymph-vascular Invasion

- ONLY from path report

0 LVI not present, not identified
1 LVI present/identified, NOS
2 Lymphatic & small vessel invasion only (L)
3 Venous (large vessel) invasion only (V)
4 BOTH lymphatic & small vessel AND venous large vessel invasion
9 Presence of LVI unknown

78

Lymph-vascular Invasion

In our case, LVI was not addressed in the path report.

LVI _____

79

Tumor Grade

- Highest grade from primary tumor during appropriate staging time [c), p), y)]
- Priority order
  - Invasive cancer: codes 1-3 take priority over A-D
  - In situ: codes L,M,H take priority over A-D
  - *A-D mean unknown grade when assigning AJCC group*
- Nottingham system used for grade
- If only one grade noted, unk if c), p) or y), code as c) grade, but 9 for p), blank for y)

80

Nottingham System

- aka Bloom-Richardson, Nottingham modification of Bloom-Richardson score, Nottingham modification of Scarff-Bloom-Richardson, Nottingham-Tenovus grade, or Nottingham grade
- Assigning morphologic features of:
  - Tubule formation — points 1 (favorable) to
  - Nuclear pleomorphism — 3 (unfavorable)
  - Mitotic count — Need ALL 3
- Combined score 3-5 points = grade 1, 6-7 points = grade 2, 8-9 points = grade 3

81

Grade Clinical

- Must NOT be blank
- Assign highest from clinical time frame
- Code 9 when:
  - Grade from primary site not documented
  - Clinical workup not done
  - Grade checked "N/A" on CAP protocol
- Grade required for AJCC stage group
  - Codes A-D = unknown grade

82

Grade Pathological

- Must NOT be blank
- If clinical higher than pathological, use clinical
- Code 9 when:
  - Grade from primary site not documented
  - No resection primary site
  - Neoadj tx followed by resection
  - Clinical case only
  - Grade checked "N/A" on CAP protocol
- Grade required for AJCC stage group
  - Codes A-D = unknown grade

83

Grade Post Therapy

- May be blank when:
  - No neoadj tx; clinical or pathological case only
- Code 9 when:
  - Surgical resection done after neoadj tx and grade from primary not documented
  - Grade checked "N/A" on CAP protocol
- Grade required for AJCC stage group
  - Codes A-D = unknown grade

84

Breast Grades (Grade Table 12)

1 G1: low, favorable, SBR 3-5 pts
2 G2: intermediate, SBR 6-7 pts
3 G3: high (unfavorable), SBR 8-9 pts
L Nuclear grade I (Low, in situ only)
M Nuclear grade II (interMediate, in situ only)
H Nuclear grade III (High, in situ only)

A Well differentiated
B Moderately differentiated
C Poorly differentiated
D Undifferentiated, anaplastic
9 Grade not assigned (GX), unknown

85

Tumor Grades - Breast Case Scenario

- **Clinical information**: Lt breast mass bx: invasive ductal carcinoma, Nottingham grade 2: focal high grade DCIS
- **Pathological information**: neoadjuvant tx
- **Post-therapy information**: no residual

Grade Clinical _____

Grade Pathological _____

Grade Post-therapy _____

86

Breast SSDI

87

SSDI LN Positive Axillary Level I – II CoC, NPCR, SEER

- Include only Level I & II OR INTRAmammary axillary LN
- Do NOT count ITC+ LN

Code	Description
00	All ipsi ax LN neg
01 - 99	EXACT number + ax LN
X1	≥ 100 ax LN
X5	+ ax LN, number unk
X6	+ aspiration or needle core bx ax LN
X8	N/A, info not collected
X9	Not documented in med record, unk if ax LN assessed

88

SSDI LN Positive Axillary Level I – II: Breast Case Scenario

- Core bx of AxLN during workup plus 4 SLNs at time of surgery

Number positive Ipsilateral Axillary Level I-II LNs _____

89

SSDI: Estrogen Receptor (ER) Summary CoC, NPCR, SEER

- Doctor statement can be used if no other info
- Result from primary here
- Result from LN or mets may be used ONLY if no primary results
- If ER from > 1 specimen, record highest
  - If any sample positive, record that one
    - EXCEPTION: ER positive on in situ specimen but negative on all invasive, code ER as negative
- If neoadjuvant tx given, record assay from specimens PRE neoadj tx
- If ER positive, LN negative, multigene test may be performed
  - Do NOT record ER from multigene test

0 ER negative

1 ER positive

7 Test done, results not in chart

9 Not documented in med record; ER unknown

90

SSDI: ER % Positive CoC, NPCR

- Code drs statement of ER positive % or range
  - Actual % takes precedence over range

Code	Description
000	ER negative or < 1%
001 – 100	Exact percent/%
XX7	Test done, results not in chart
XX8	N/A Info not collected
XX9	Not documented in med record. % or Range unk

Code	Description
R10	Stated as 1 – 10%
R20	Stated as 11 – 20%
R30	Stated as 21 – 30%
R40	Stated as 31 – 40%
R50	Stated as 41 – 50%
R60	Stated as 51 – 60%
R70	Stated as 61 – 70%
R80	Stated as 71 – 80%
R90	Stated as 81 – 90%
R99	Stated as 91 – 100%

91

SSDI: ER Allred Score CoC

- Use same report as ER Summary
- Allred looks at % cells test positive along with how well receptors show up after staining ("intensity")

Code	Description
00	Total ER Allred score 0
01	Total ER Allred score 1
02	Total ER Allred score 2
03	Total ER Allred score 3
04	Total ER Allred score 4
05	Total ER Allred score 5
06	Total ER Allred score 6
07	Total ER Allred score 7
08	Total ER Allred score 8
X8	N/A, Info not collected
X9	Not documented in med record. ER Allred not assessed or unk if done

92

SSDI ER FIELDS: BREAST CASE SCENARIO

ER positive (95%)

ER Summary _____

ER % Positive _____

ER Allred Score _____

93

SSDI: PROGESTERONE RECEPTOR (PR) SUMMARY CoC, NPCR, SEER

- Doctor statement can be used if no other info
- Result from primary here
- Result from LN or mets may be used ONLY if no primary results
- If ER from > 1 specimen, record highest
  - If any sample positive, record that one
    - EXCEPTION: ER positive on in situ specimen but negative on all invasive, code ER as negative
- If neoadjuvant tx given, record assay from specimens PRE neoadj tx
- If PR positive, LN negative, multigene test may be performed
  - Do NOT record PR from multigene test

0 PR negative

1 PR positive

7 Test done, results not in chart

9 Not documented in med record; PR unknown

94

SSDI: PR % POSITIVE CoC, NPCR

- Code drs statement of PR positive % or range
  - Actual % takes precedence over range

Code	Description
000	PR negative or < 1%
001 – 100	Exact percent/%
XX7	Test done, results not in chart
XX8	N/A Info not collected
XX9	Not documented in med record. % or Range unk

Code	Description
R10	Stated as 1 – 10%
R20	Stated as 11 – 20%
R30	Stated as 21 – 30%
R40	Stated as 31 – 40%
R50	Stated as 41 – 50%
R60	Stated as 51 – 60%
R70	Stated as 61 – 70%
R80	Stated as 71 – 80%
R90	Stated as 81 – 90%
R99	Stated as 91 – 100%

95

SSDI: PR ALLRED SCORE CoC

- Use same report as PR Summary
- Allred looks at % cells test positive along with how well receptors show up after staining ("intensity")

Code	Description
00	Total PR Allred score 0
01	Total PR Allred score 1
02	Total PR Allred score 2
03	Total PR Allred score 3
04	Total PR Allred score 4
05	Total PR Allred score 5
06	Total PR Allred score 6
07	Total PR Allred score 7
08	Total PR Allred score 8
X8	N/A, Info not collected
X9	Not documented in med record. PR Allred not assessed or unk if done

96

SSDI PR Fields: Breast Case Scenario

PR positive (81-90%)

PR Summary _____

PR % Positive _____

PR Allred Score _____

97

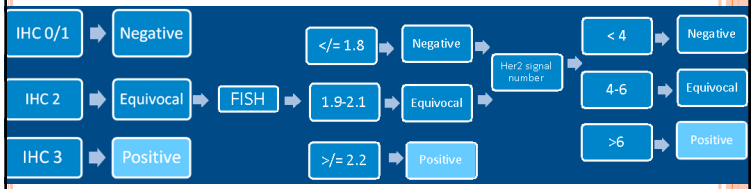
SSDI: HER2 Overall Summary CoC, NPCR, SEER

- Doctor statement can be used if no other info
- Result from primary here
- Result from LN or mets may be used ONLY if no primary results
- If HER2 from > 1 specimen, record highest
  - If any sample positive, record that one
    - EXCEPTION: HER2 positive on in situ specimen but negative on all invasive, code HER2 as negative
- If neoadjuvant tx given, record assay from specimens PRE neoadj tx
- If HER2 positive, LN negative, multigene test may be performed
  - Do NOT record HER2 from multigene test

0 HER2 negative
1 HER2 positive
7 Test done, results not in chart
9 Not documented in med record; HER2 unknown

98

HER2 Test Sequence



99

SSDI: HER2 IHC Summary CoC, SEER

0 Negative (Score 0)
1 Negative (Score 1+)
2 Equivocal (Score 2+) or stated as equivocal
3 Positive (Score 3+) or stated as positive
4 Stated as negative, but score not negative
7 Test done, results not in chart
8 N/A, info not collected
9 Not documented in med record, HER2 IHC unknown

- Same notes as ER, PR, etc.
- Note 7: A 2+ (equivocal) should result in additional testing by ISH

100

SSDI HER2 Summary and HER2 IHC Fields - Breast Case Scenario

HER-2/neu (3+)

HER2 Summary _____

HER2 IHC Summary _____

101

SSDI: HER2 ISH Summary CoC, SEER

0 Negative (not amplified)
2 Equivocal
3 Positive (amplified)
7 Test done, results not in chart
8 N/A, info not collected
9 Not documented in med record, HER2 ISH unknown

- Same notes as ER, PR, etc.
- Note 4: Any type ISH test can be used

102

SSDI: HER2 ISH Dual Probe Ratio CoC, SEER

- A dual probe test will report results for both HER2 and CEP17 (used for control)
- Any type of ISH test can be used
- ISH may be called ERBB2
- Code to nearest tenth decimal
  - Do NOT round

Code	Description
0.0 – 99.9	Ratio of 0.0 to 99.9
XX.2	Less than 2.0
XX.3	Greater than or equal 2.0
XX.7	Test ordered, results not in chart
XX.8	N/A, Info not collected
XX.9	Not documented in med record. Results can't be determined. HER2 ISH dual probe ratio not assessed or unk if

103

SSDI: HER2 ISH Dual Probe Copy # CoC, SEER

- A dual probe test will report average number or mean signals per cell for both HER2 and CEP17 (control)
- Registrars do NOT calculate
- Any type of ISH test can be used
- Code to nearest tenth decimal
  - Do **NOT** round

Code	Description
0.0 – 99.9	Reported HER2 copy number of 0.0 – 99.9
XX.1	Reported HER2 copy number 100 or greater
XX.7	Test ordered, results not in chart
XX.8	N/A, Info not collected
XX.9	Not documented in med record. Results can't be determined. HER2 ISH dual probe copy number not assessed or unk if

104

SSDI: HER2 ISH Single Probe Copy # CoC, SEER

- A single probe test will report average number or mean signals per cell for HER2
- Any type of ISH test can be used
- ISH may be called ERBB2
- Registrars do NOT calculate
- Code to nearest tenth decimal
  - Do **NOT** round

Code	Description
0.0 – 99.9	Reported HER2 copy number of 0.0 – 99.9
XX.1	Reported HER2 copy number 100 or greater
XX.7	Test ordered, results not in chart
XX.8	N/A, Info not collected
XX.9	Not documented in med record. Results can't be determined. HER2 ISH single probe copy number not assessed or unk if

105

SSDI HER2 ISH Fields

No ISH Test documented.

HER2 ISH Dual Probe Ratio _____

HER2 ISH Dual Probe Copy # _____

HER2 ISH Single Probe Copy # _____

106

SSDI: Ki-67 (MIB-1) CoC

- Ki-67 marker of cell proliferation
- Reported as % cell nuclei that stain positive

Code	Description
0.0 – 100.0	0.0 to 100.0 percent positive; enter % positive
XX.7	Test ordered, results not in chart
XX.8	N/A, Info not collected
XX.9	Not documented in med record. Ki-67 (MIB-1) not assessed or unk if

107

SSDI: Ki-67 (MIB-1) - Breast Case Scenario

Ki-67 high (44%)

Ki-67 (MIB-1) _____

108

SSDI: Oncotype DX Recur Score – Invasive CoC, NPCR, SEER

- Doctor statement can be used if no other info
- Oncotype Dx recurrence score reported as whole number 0 – 100. Actual score takes precedence over XX4 and XX5
- Record only results from Oncotype DX; if some other test done, code XX9
- Score < 11 used in AJCC staging
- If only info is Oncotype Dx-Invasive Risk Level, assign XX7

Code	Description
000 - 100	Record actual recurrence score
XX4	Stated as < 11
XX5	Stated as ≥ 11
XX6	N/A, in situ case
XX7	Test ordered, results not in chart
XX9	Not documented in med record, score unknown

109

Oncotype < 11 is Magic

- Multi-Gene Panel < 11 = Prognostic Stage IA
  - IF T1-T2, N0, M0, any grade, Her2 neg
  - ER+, PR any,

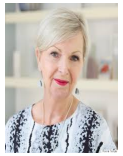
110

Genomic Profile Impact on Stage for ER positive, HER2 negative


Stage IB


Stage IIA


Stage IIB


Stage IIIB

(Group stage under pictures comes from the original 8th ed. printing.)

- T1 G1 PR -
- T1 G3 PR+
- T2 G1 PR+
- T2 G2 PR+
- T1 G3 PR-
- T2 G1 PR-
- T2 G3 PR+
- T2 G2 PR-
- T2 G3 PR-

When RS <11, all these patients are classified as Stage 1A

111

SSDI: Oncotype Dx Risk Level – Invasive CoC, NPCR

- Doctor statement can be used if no other info
- Oncotype Dx risk stratifies score into low, intermediate, high risk of recurrence

Code	Description
0	Low risk (recurrence score 0 – 17)
1	Intermediate risk (recur score 18 – 30)
2	High risk (recur score ≥ 31)
6	N/A, DCIS case
7	Test ordered, results not in chart
8	N/A, info not collected
9	Not documented in med record, risk level unknown

112

SSDI: Oncotype DX Recur Score – DCIS CoC

- Doctor statement can be used if no other info
- Oncotype Dx recurrence score reported as whole number 0 – 100.
- Record only results from Oncotype DX - DCIS; if some other test done, code XX9
- Score < 11 used in AJCC staging
- If only info is Oncotype Dx-Invasive Risk Level, assign XX7

Code	Description
000 - 100	Record actual recurrence score
XX6	N/A, invasive case
XX7	Test ordered, results not in chart
XX8	N/A, info not collected
XX9	Not documented in med record, Oncotype DX recurrence score DCIS unknown

113

SSDI: Oncotype Dx Risk Level – DCIS CoC

- Doctor statement can be used if no other info
- Oncotype Dx risk stratifies score into low, intermediate, high risk of recurrence

Code	Description
0	Low risk (recurrence score < 39)
1	Intermediate risk (recur score 39 - 54)
2	High risk (recur score > 54)
6	N/A, invasive case
7	Test ordered, results not in chart
8	N/A, info not collected
9	Not documented in med record, risk level unknown

114

SSDI: Multigene Signature Method CoC, SEER

- Doctor statement can be used if no other info
- Multigene signatures or classifiers are assays of a panel of genes from tumor
- Do not code Oncotype here

Code	Description
1	Mammaprint
2	PAM50 (Prosigna)
3	Breast Cancer Index
4	EndoPredict
5	Test performed, unk type
6	Multiple tests, any codes 1-4
7	Test ordered, results not in chart
8	N/A, info not collected
9	Not documented in med record, multigene test unknown

115

SSDI: Multigene Signature Result CoC, SEER

- Doctor statement can be used if no other info
- Multigene signatures or classifiers are assays of a panel of genes from tumor
- Do not code Oncotype here
- PAM50 is a single number score 1-100; if score available, record that; else record risk
- Mammaprint, EndoPredict, and Breast CA Index, record risk level

Code	Description
00 – 99	Actual recurrence score
X1	Score 100
X2	Low risk
X3	Moderate (intermediate) risk
X4	High risk
X7	Test ordered, results not in chart
X8	N/A, info not collected
X9	Not documented in med record, multigene test results unknown

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SSDI: Response to Neoadjuvant Therapy CoC, NPCR, SEER

- Doctor statement MUST be used
- Response will be documented by physician based on path report, imaging, and clinical findings.

Code	Description
0	Neoadjuvant therapy not given
1	Stated as complete response (CR)
2	Stated as partial response (PR)
3	Stated as response to treatment, but not noted if complete or partial
4	Stated as no response
8	N/A, info not collected
9	Not documented in med record, response to neoadjuvant therapy unknown

117

LCIS Treatment after Biopsy

- Wide excision
  - May find invasive or DCIS – requires more tx
- Surveillance alone (mx, sono)
- Surveillance plus raloxifene (Evista)
- Tamoxifen
- Bilateral prophylactic mastectomy
  - Usually worried patients or strong FH
- *5% 5-year risk, 20-30% lifetime risk of invasive breast cancer*

118

DCIS Treatment after Biopsy

- Lumpectomy w/o ALND + whole breast RT
  - If low risk for recurrence, may not get RT
- Total mastectomy W/ or W/O SLN
  - W/ or W/O breast reconstruction
- Lumpectomy W/O LN surgery and W/O RT
- Hormones if ER+

119

INVASIVE treatment after BX (Stage 1, 2A, 2B, 3A)

- Surgery
  - Lumpectomy (neg margin) + RT OR mastectomy OR mastectomy w/reconstruction
  - SNB ± ALND
- Chemo
- Immuno – if Her2+
- RT
  - Include Ax & SC LN if ≥ 4 LN
  - Neg LN – may use partial breast irradiation (PBI)

120

WHEN NEOADJUVANT CHEMO?

- cT3-4 disease
- LN+ disease
- ER negative disease
- Her2+ disease
- Large tumors that need downsizing

121

WHEN TO LOOK FOR MORE TREATMENT? (USUAL DUCTAL/MAMMARY HISTOLOGY)

- If ER is +, where is the hormone treatment?
  - If ER/PR is negative, where is the chemo?
- If lumpectomy only surgery done, where is the radiation therapy?
- If ≥ 4 LN are +, where is the radiation therapy? [should include breast/chest wall and LN area(s)]
- If even 1 LN is +, where is the chemo?
- If HER2 is +, where is the immunotherapy?
- If tumor size > 2 cm, where is the chemo?

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