GRADE

2021 Updates

OUTLINE AND OBJECTIVES

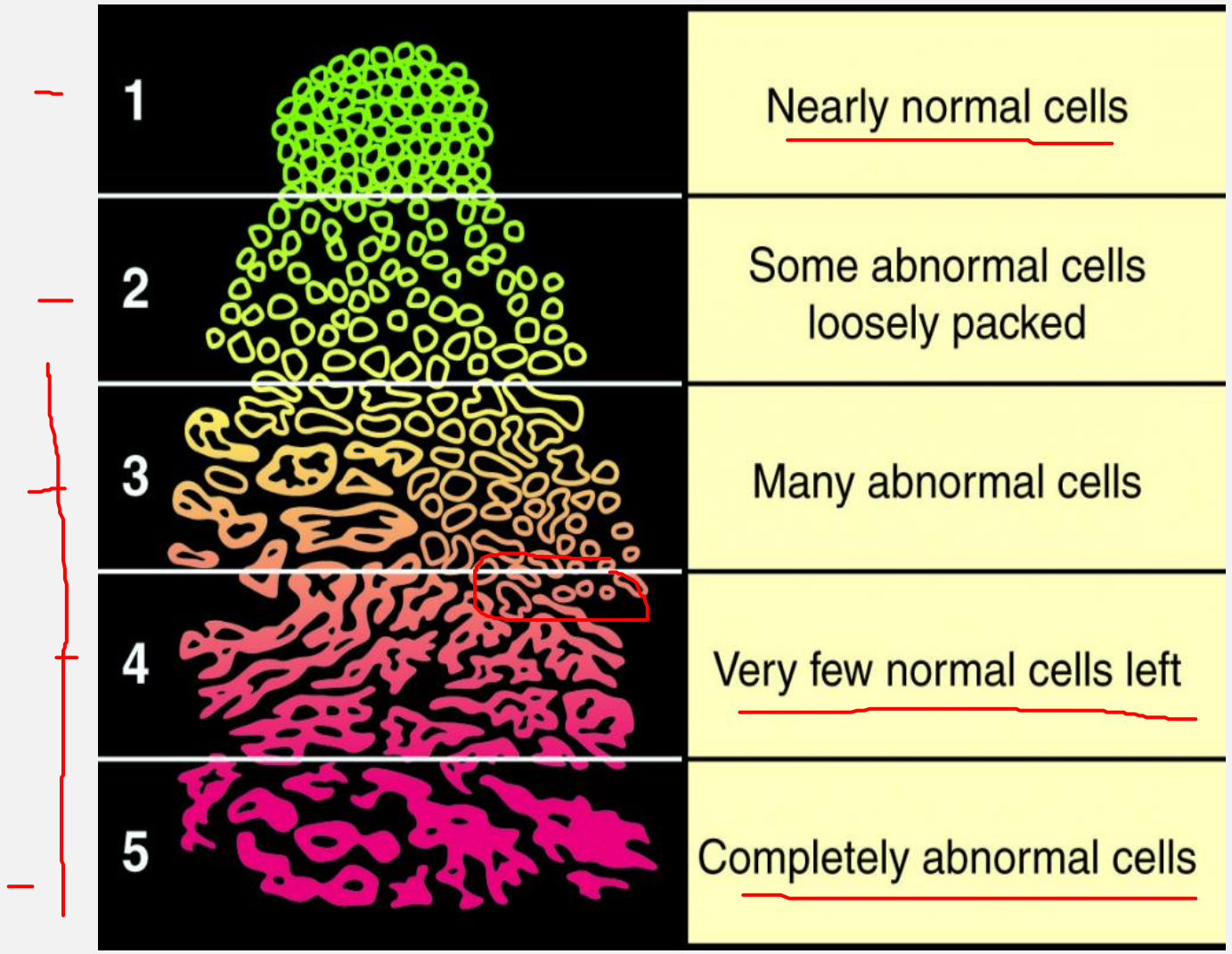
- What is Grade
- Changes and Updates for 2021
- Coding Scenarios and Quizzes
- Take home Points

WHAT IS GRADE?

Grade:

Microscopic examination of tumor tissue determines the grade of the tumor.

- The most common way to define grade is an assessment of how closely the tumor cells resemble the normal cells of the parent tissue (organ of origin), often referred to as "differentiation."



Grade is a measure of the aggressiveness of the tumor.

- It may be used to determine:
  - AJCC stage group for certain sites
  - Treatment
  - Prognostic indicator for many tumors
  - Overall survival

Grade is assessed differently for different sites/histologies.

These similarities/differences may be based on pattern (architecture), cytology, nuclear features, or a combination of these elements, depending upon the grading system that is used.

- Some grading systems use only pattern (example: Gleason grading in prostate).
- Others use only a nuclear grade (usually size, amount of chromatin, degree of irregularity, and mitotic activity).
- Most systems use a combination of pattern and cytologic and nuclear features. (example: Nottingham's for breast is based on characteristics of pattern, nuclear size and shape, and mitotic activity).

With the 2018 changes:

- AJCC Chapter specific grading systems incorporated into the 2018 Grade
- Site-specific grades were harmonized with the CAP cancer protocol checklist
- Based on site and/or chapter, the cancer registry grade categories or another definition of grade may be use
- Historical grade definitions still apply when specific grading system not applicable for site, or preferred grade are not available.

2021 UPDATES

GENERAL RULES

1. **Code the grade from the primary tumor only:**
   - Do ***NOT*** code grade based on metastatic tumor or recurrence.
   - In the rare instance that tumor tissue extends contiguously to an adjacent site and tissue from the primary site is not available, code grade from the contiguous site.
   - If primary site is unknown, code grade to 9.

2. **If there is more than one grade available for an individual grade data item (i.e. within the same time frame):**

   - Priority goes to the recommended AJCC grade listed in the applicable AJCC chapter. If none of the specified grades are from the recommended AJCC grade system, record the highest grade. *If the site table allows*.
   - If there is no recommended AJCC grade, code the highest grade

3. In situ and/or combined in situ/invasive components:

- If a grade is given for an in situ tumor, code it. Do ***NOT*** code grade for dysplasia such as high-grade dysplasia.
- If there are both in situ and invasive components, code ***only*** the grade for the invasive portion even if its grade is unknown.

4. Systemic treatment and radiation can alter a tumor's grade.

- Code clinical grade based on information ***prior*** to neoadjuvant therapy even if grade is unknown during the clinical timeframe.
- Grade can now be collected in grade post-therapy cases when grade is available from post-neoadjuvant surgery

FOR ALL SITES

Results from Consultation

If results from the consultation differ from the original grade

- Results from the consultation take priority
- Results must be from the same timeframe

NEW

For all Grade Tables

New Note:

- If there are multiple tumors with different grades abstracted as one primary, code the highest grade.
- This has been confirmed with the CAP Cancer Committee

ALL GRADE DATA ITEMS:

Due to the addition of new notes, note number have changed.

- Please pay attention to the note numbers.
- Note number changes were not always documented in the change log.

These updates can be applied to cased diagnosed 2018+

- Registrars are not required to update grade information on cases that have already been completed prior to January 1, 2021.

GRADE DATA ITEMS

For solid tumors diagnosed 2021 and forward:

- Grade will be collected in four different points of patient care.
    - Grade Clinical
    - Grade Pathological
    - Grade Post Therapy Clinical (yc)
    - Grade Post Therapy Pathological (yp)
- The codes and coding instructions will depend on the type of cancer.
- The revised grade codes are based on the recommended grading systems specified in the relevant chapters of the AJCC 8th edition (9th edition for cervix) staging manuals and/or the CAP cancer protocols (when applicable).

Grade Clinical:

- Collects grade during clinical time frame – usually from a biopsy or FNA and ***BEFORE*** any treatment such as surgical resection or neoadjuvant therapy, etc.
- Will be defined most of the time - unless no Dx until surgery
- Can never be blank

Grade Pathological:

- Collects grade from the primary tumor which **has been resected** (unless microscopic Grade Clinical is higher or surgical resection grade is unknown), and neoadjuvant therapy was ***NOT*** administered.
- If Grade Pathological is recorded, then Grade Post-Therapy Clinical and Grade Post-Therapy Pathological will ***ALWAYS*** be **BLANK.**
- If AJCC TNM stage is being assigned, the "surgical resection" must meet AJCC criteria for the cancer site.
- Can never be blank

Grades Post Therapy

If AJCC TNM stage is being assigned, the neoadjuvant treatment being administered must meet AJCC criteria for the cancer site.

NEW

- **Grade Post Therapy Clinical (yc)**
  - The highest known grade ***after*** neoadjuvant treatment but ***before*** surgery of the primary tumor.

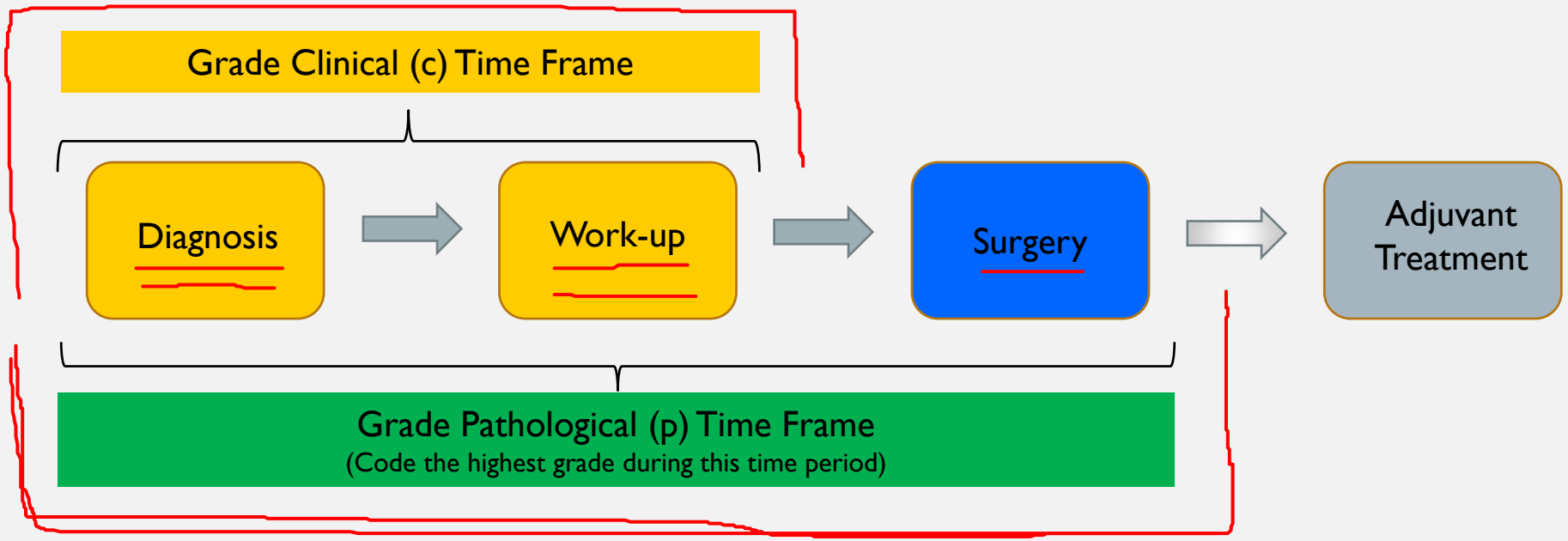
- **Grade Post Therapy Pathological (yp)**
  - The highest known grade ***after*** neoadjuvant treatment and ***after*** surgery to the primary tumor (total resection or attempted resection), ***unless*** microscopic Grade Clinical is higher or surgical resection grade is unknown.

How the Grade Data Items Interact:

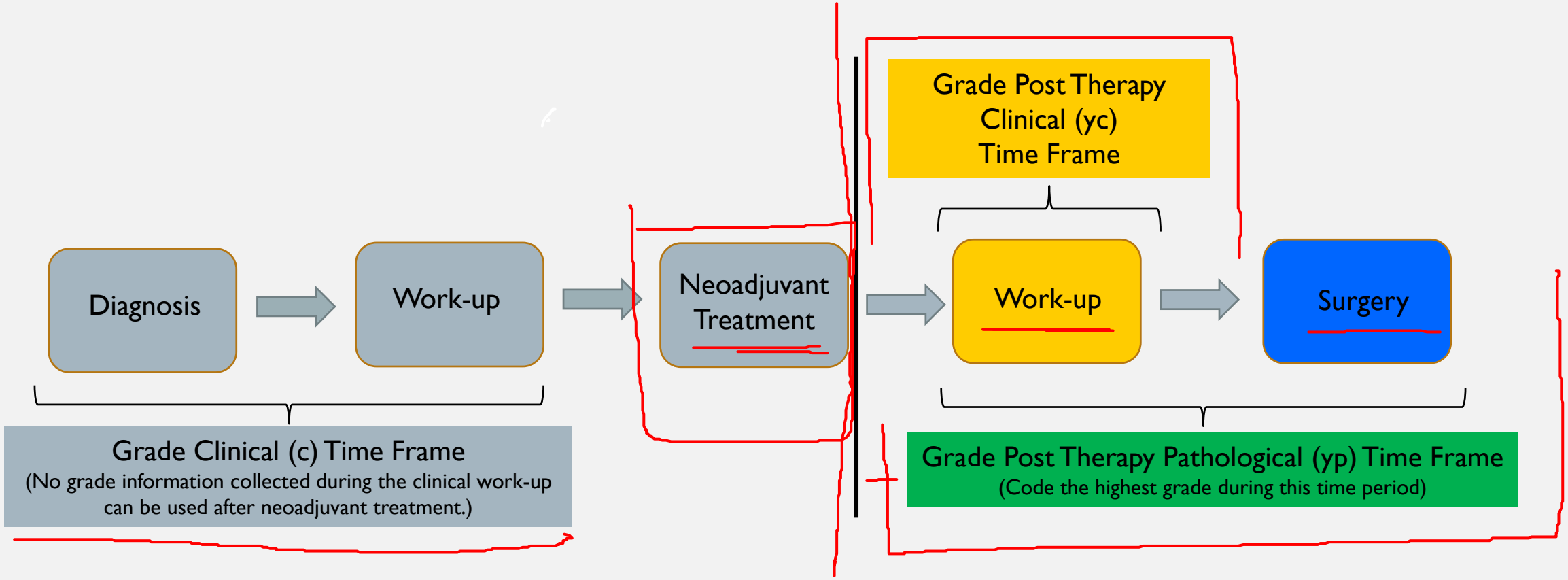
The relationship between Grade Post Therapy Clinical (yc) and Post Therapy Pathological (yp) is the same as the relationship between Grade Clinical and Grade Pathological.

Let's take a closer Look!

Grade Clinical vs Grade Pathological



Grade Post Therapy Clinical (yc)
vs
Grade Post Therapy Pathological (yp)



GRADE POST THERAPY CLINICAL(yc)

For cases diagnosed January 1, 2021, and later.

- Record the grade of a solid primary tumor that has been microscopically sampled following neoadjuvant therapy or primary systemic/radiation therapy.
- Follows the same guidelines as the other AJCC (yc) data items.

If AJCC TNM stage is being assigned, the neoadjuvant treatment being administered must meet AJCC criteria for the cancer site.

GRADE POST THERAPY CLINICAL CODING GUIDELINES

Note 1: Leave grade post therapy clinical (yc) blank when:

- No neoadjuvant therapy
- Clinical or pathological case only
- There is only one grade available and it cannot be determined if it is clinical, pathological, or post therapy.
- No microscopic examination of the primary tumor ***after*** neoadjuvant therapy.
- After neoadjuvant therapy is completed, no microscopic exam is done before surgery/resection of primary tumor.

Note 2: Assign the highest grade from the microscopically sampled specimen of the primary site *following* neoadjuvant therapy or primary systemic/radiation therapy.

Note 3: If there are multiple tumors with different grades abstracted as one primary, code the highest grade.

Note 4: Code 9 when:

- Microscopic exam is done after neoadjuvant therapy and grade from the primary site is not documented.
- Microscopic exam is done after neoadjuvant therapy and there is no residual cancer.
- Grade checked "not applicable" on CAP Protocol (if available) and no other grade information is available.

Also Remember from the General Coding Instructions:

Code 9 when:

- There is a preferred grading system for a schema and the term used to describe grade is not allowable and the Generic Grade Categories does not apply to this grade table

****See the individual site-specific Grade Post Therapy Clin (yc) tables for additional notes.**

Example

Patient had a routine mammogram revealing a 2cm at the 11:00 o'clock position of the left breast. Biopsy was positive for invasive ductal carcinoma, Nottingham score of 8. Patient underwent neoadjuvant treatment followed by imaging and a partial mastectomy. Imaging revealed a 1.1cm mass and the Pathology report: 1.2cm tumor of invasive ductal carcinoma, Nottingham score of 5. Code the 4 data items.

Grade Clinical: 3 (Nottingham score of 8 = grade 3)

Grade Pathological: 9 (patient received neoadjuvant therapy, Grade Pathological cannot be blank = 9)

Grade Post-Therapy Clinical: blank (Neoadjuvant therapy followed by imaging workup only = blank)

Grade Post-therapy Pathological: 1 (Neoadjuvant therapy, followed by mastectomy, Nottingham score of 5)

GRADE POST THERAPY PATHOLOGICAL (yp)

Note 1: Leave Grade Post Therapy Path (yp) blank when:

- No neoadjuvant therapy
- Clinical or pathological case only
- Neoadjuvant therapy completed, but surgical resection not done
- There is only one grade available and it cannot be determined if it is clinical, pathological, post therapy clin or post therapy path

Note 2: There is a preferred grading system for this schema. If the clinical grade post therapy given uses the preferred grading system and the grade post therapy pathological does not use the preferred grading system, do not record the Grade Post Therapy Clin (yc) in the Grade Post Therapy Path (yp) field. Assign Grade Post Therapy Path (yp) 9.

- *Example*: Biopsy of primary site after neoadjuvant therapy shows a moderately differentiated adenocarcinoma. The surgical resection states a high grade adenocarcinoma.
  - Code Grade Post Therapy Clin (yc) as 2 since Moderately differentiated (G2) is the preferred grading system
  - Code Grade Post Therapy Path (yp) as 9 since the preferred grading system was not used and the Generic Grade Categories do not apply to this grade table

Note 3: Assign the highest grade from the resected primary tumor assessed after the completion of neoadjuvant therapy.

- If the post-therapy clinical grade is higher than the post-therapy pathological grade, use the post-therapy clinical grade to code this field. (see note 2 and 5)

Note 4: If there are multiple tumors with different grades abstracted as one primary, code the highest grade.

Note 5: Use the grade from the *post therapy clinical* work up from the primary tumor in different scenarios based on behavior or surgical resection

- **Behavior post neoadjuvant therapy**
  - Tumor behavior for the clinical post therapy and the pathological post therapy diagnoses are the same AND the clinical grade post therapy is the highest grade.
  - Tumor behavior for clinical grade post therapy diagnosis is invasive, and the tumor behavior for the pathological post therapy diagnosis is in situ.
    - You would not use the grade from the post therapy clinical work up for pathological post therapy in cases where the tumor behavior for clinical grade post therapy diagnosis is in situ, and the tumor behavior for the pathological post therapy diagnosis is invasive.

- **Surgical resection post neoadjuvant therapy**
  - Surgical resection is done post neoadjuvant therapy of the primary tumor and there is no grade documented from the surgical resection.
  - Surgical resection is done of the primary tumor post neoadjuvant therapy and there is no residual cancer.
  - Surgical resection of the primary tumor has not been done, but there is positive microscopic confirmation of distant metastases during the Post Therapy Clinical time frame.

Example

Patient had a routine mammogram revealing a 2cm at the 11:00 o'clock position of the left breast. Biopsy was positive for invasive ductal carcinoma, Nottingham score of 8. Patient underwent neoadjuvant treatment. Post neoadjuvant biopsy revealed invasive ductal carcinoma, Nottingham score of 6 followed by a partial mastectomy. Pathology report: 1.1cm tumor of invasive ductal carcinoma, Nottingham score of 5. Code the 4 data items.

Grade Clinical: 3 (Nottingham score of 8 = grade 3)

Grade Pathological: 9 (patient received neoadjuvant therapy, Grade Pathological cannot be blank = 9)

Grade Post-Therapy Clinical: 2 (Post neoadjuvant biopsy, Nottingham score of 6 = grade 2)

Grade Post-therapy Pathological: 2 (post neoadjuvant clinical grade = 2 and is higher than post pathological grade 1)

Note 6: Code 9 (unknown) when

- Surgical resection is done after neoadjuvant therapy and grade from the primary site is not documented
- Surgical resection is done after neoadjuvant therapy and there is no residual cancer
- Grade checked "not applicable" on CAP Protocol (if available) and no other grade information is available

Also Remember from the General Coding Instructions:

Code 9 when:

- There is a preferred grading system for a schema and the term used to describe grade is not allowable and the Generic Grade Categories does not apply to this grade table

Blanks vs 9 (Unknown)

Grade Post Therapy Clinical (yc)

Grade Post therapy Pathological (yp)

		Grade yc	Grade yp
No Noadjuvant Therapy		Blank	Blank
Neoadjuvant Therapy Administered			
No bx of primary tumor	No resection of primary tumor	Blank	Blank
Bx of primary tumor, but no grade information	No resection of primary tumor	9	Blank
No bx of primary tumor	Reseaction of priamry tumor, but no grade information	Blank	9
Bx of primary tumor, but no grade information	Reseaction of priamry tumor, but no grade information	9	9

GRADE PATHOLOGICAL

NEW NOTE 2

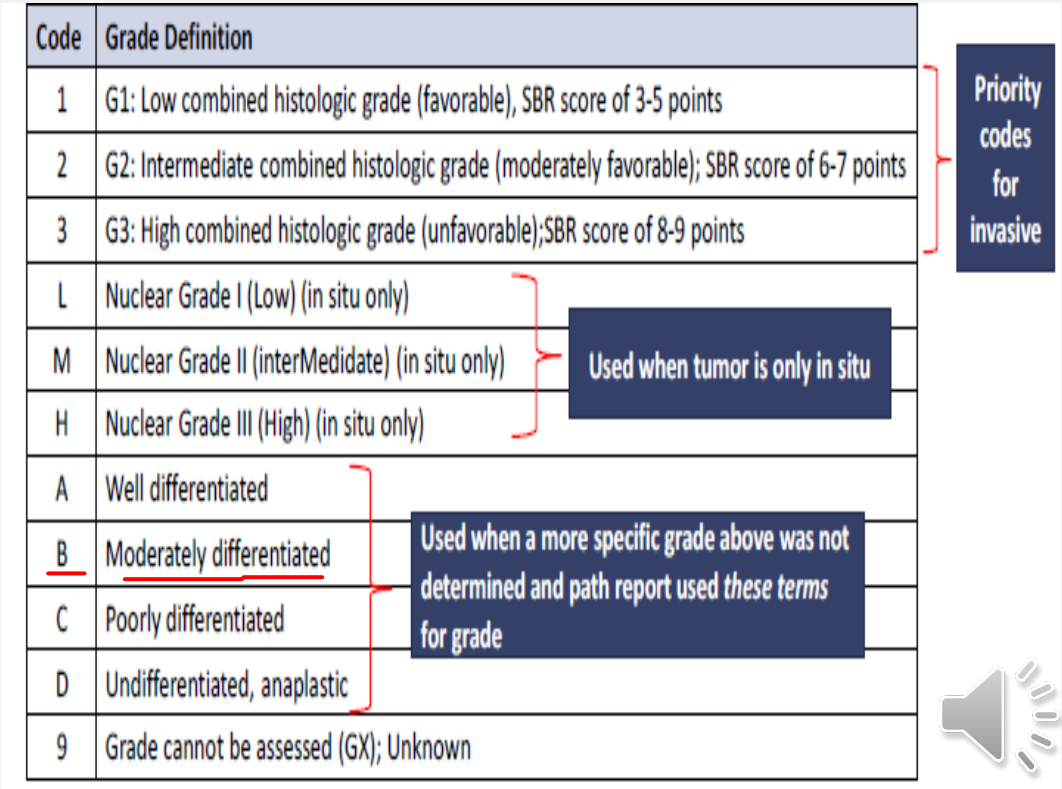
Schemas that have both the preferred AJCC grading system and generic grading system available on their grade table.

Note 2: There is a preferred grading system for this schema. If the clinical grade given used the preferred grading system and the pathological grade does not use the preferred grading system, do not record the Grade Clinical in the Grade Pathological field. Assign Grade Pathological using the applicable generic grade code (A-D)

Example

Biopsy performed on a breast mass. Path report: invasive carcinoma, Grade 2 (Scarff-Bloom-Richardson (SBR) score 6). Patient undergoes lumpectomy. With LN dissection. Path results results were moderately differentiated invasive carcinoma, all LN negative for invasive carcinoma.

Grade Clinical: 2
Grade Pathological: B
Grade Post-therapy Clinical: Blank
Grade Post-therapy Pathological: Blank



Code	Grade Definition
1	G1: Low combined histologic grade (favorable), SBR score of 3-5 points
2	G2: Intermediate combined histologic grade (moderately favorable); SBR score of 6-7 points
3	G3: High combined histologic grade (unfavorable);SBR score of 8-9 points
L	Nuclear Grade I (Low) (in situ only)
M	Nuclear Grade II (interMedidate) (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 cannot be assessed (GX); Unknown

GRADE PATHOLOGICAL

NEW NOTE 2

Schemas that AJCC grading system only (1-4)

Note 2: There is a preferred grading system for this schema. If the clinical grade given used the preferred grading system and the pathological grade does not use the preferred grading system, do not record the Grade Clinical in the Grade Pathological field. Assign Grade Pathological to code 9.

Example:

Colonoscopy revealed a right colon lesion. Biopsy was taken and the final diagnosis is: Moderately differentiated adenocarcinoma. Patient underwent hemicolectomy. Final Pathological diagnosis: High grade adenocarcinoma. Patient is a candidate for adjuvant chemotherapy. Code the 4 data items:

Grade Clinical: 2 (Biopsy Stated Moderately Differentiated)
Grade Pathological: 9 (High grade is not an allowable term on the site-specific table)
Grade Post-therapy Clinical: Blank (no neoadjuvant treatment)
Grade Post-therapy Pathological: Blank (no neoadjuvant treatment)

GRADE PATHOLOGICAL

NEW NOTE

Note number will vary by schema

Use the grade from the **clinical work up** from the primary tumor in different scenarios based on behavior or surgical resection.

- **Behavior**
  - Tumor behavior for the clinical and the pathological diagnoses are the same AND the clinical grade is the highest grade.
  - Tumor behavior for clinical grade diagnosis is invasive, and the tumor behavior for the pathological diagnosis is in situ.
    - You would not use the grade from the clinical work up for pathological in cases where the tumor behavior for clinical grade diagnosis is in situ, and the tumor behavior for the pathological diagnosis is invasive.

Examples:

Patient with a left, upper outer quadrant mass measuring 1.0cm. Breast biopsy is positive for invasive ductal carcinoma with the Nottingham Grade 1, total score of 5). Patient underwent lumpectomy. Final pathology; residual DCIS 0.3cm, intermediate grade. No remaining invasive tumor. 0/1 sentinel LN positive and margins clear. Code the 4 data items.

Grade Clinical: 1 (Invasive ductal carcinoma; Nottingham Score 5, Grade 1)
Grade Pathological: 1 (Insitu carcinoma, intermediate grade; however clinical was invasive and grade 1)
Grade Post-therapy Clinical: Blank
Grade Post-therapy Pathological: Blank

Patient with a left, upper outer quadrant mass measuring 1.0cm. Breast biopsy is positive for DCIS, intermediate grade. Patient underwent lumpectomy. Final pathology; invasive ductal carcinoma with the Nottingham Grade , total score of 5. 0/1 sentinel LN positive and margins clear. Code the 4 data items.

Grade Clinical: M (Insitu carcinoma, intermediate grade)
Grade Pathological: 1 (invasive carcinoma, Nottingham score 5, grade 1; clinical was insitu and intermediate)
Grade Post-therapy Clinical: Blank
Grade Post-therapy Pathological: Blank

GRADE PATHOLOGICAL

NEW NOTE

Note number will vary by schema

New Note: Use the grade from the clinical work up from the primary tumor when:

- **Surgical Resection**
  - Surgical resection is done of the primary tumor and there is no grade documented from the surgical resection.
  - Surgical resection is done of the primary tumor and there is no residual cancer.
  - Surgical resection of the primary tumor has not been done, but there is positive microscopic confirmation of distant metastases during the clinical time frame.

Pathologically Confirmed Distant Mets

Clinical Grade

- Pathologically confirmed distant mets does not change the clinical grade
- Grade must come from the primary tumor
- Grade must be based on information available before any treatment

Pathologically Confirmed Distant Mets Continued

Pathological Grade

- If the patient does not have resection of the primary tumor

  and

- If the patient has grade information from a biopsy of the primary tumor less than full resection

  and

- If the patient has pathologic confirmation of distant mets

  then

- Grade Clinical (bx of the primary tumor) may be used to code the pathological grade data item.

***Remember:** Never use the grade from a metastatic site to code grade. So even if the grade of the metastatic site is given, you would still use the clinical grade of the primary tumor to code this data item.

Example

Patient presents for routine colonoscopy. Biopsy reveals poorly differentiated adenocarcinoma. CT reveals a liver mass. Liver biopsy is positive for moderately differentiated adenocarcinoma, consistent with colon origin. Patient not a surgery candidate . Code the 4 data items.

Grade Clinical: 3 (Colon bx is poorly differentiated)

Grade Pathological: 3 (although liver bx is moderately differentiated, you use the bx from the primary site to code)

Grade Post-Therapy Clinical: Blank (no resection planned)

Grade Post-therapy Pathological: Blank (no resection planned)

SPECIFIC GRADE TABLE CLARIFICATIONS

BRIAN, CNS OTHER

For Benign Tumors ONLY (/0)

- Code 1 (Edits have been written to enforce this)
- Applied to ALL histologies in the Brain/CNS Other with a (/0)
- Confirmed by the CAP Cancer Committee

For Borderline Tumors (/1)

- Can be either a 1 or 2, no default for these tumors
- If histologies and behavior are not listed for a specific grade and no grade is available, code to 9.
- Confirmed by the CAP Cancer Committee

BRAIN, CNS OTHER

Code the WHO grading system for selected tumors of the CNS as noted in the AJCC 8th edition Table 72.2 where WHO grade is not documented in the record.

- A list of the histologies that have a default grade can also be found in the Brain/Spinal Cord CAP Protocol in:
  - Table 1: WHO Grading System for Some of the More Common Tumors of the CNS.
  - Table 2: WHO Grading System for diffuse Infiltrating Astrocytomas
  - Table 3: WHO Grading Meningiomas
    https://www.cap.org/protocols-and-guidelines/cancer-reporting-tools/cancerprotocol-templates
- These are also listed on the CAP Protocols
- List of histologies and grade are also available in the Solid Tumor Rules

BREAST

- **Note 8:** Grade from nodal tissue may be used ***ONLY*** when there was ***never any evidence of the primary tumor (T0)***. Grade would be coded using G1, G2 or G3, even if the grading is not strictly Nottingham, which is difficult to perform on nodal tissue. Some of the terminology may include differentiation terms without some of the morphologic features used in Nottingham (e.g., well differentiated (G1), moderately differentiated (G2), or poorly /undifferentiated (G3)).

Note: This ***does not*** apply to a tumor ***when here is evidence*** clinically and found to have no residual tumor on surgical resection.

CORPUS CARCINOMA

Confirmation received from CAP Cancer Committee that the following is ALWAYS G3:

- Serous, clear cell, undifferentiated/de-differentiated carcinomas, carcinosarcomas and mixed mesodermal tumors
- (Mullerian/MMMT are high risk (high grade)
- At this time, a list of specific histology codes as not been developed
- Added to the notes for the Corpus Carcinoma grade table

http://cancerbulletin.facs.org/forums/forum/site-specific-data-items-grade2018/101914-coding-pathologic-grade-for-dedifferentiated-endometrioidadenocarcinoma

OVARY, FALLOPIAN TUBE, PRIMARY PERITONEAL CARCINOMA

Note 4, first bullet:

- Immature teratomas and serous carcinomas: Use code L, H or 9. This include the following ICD-03 codes: 8441/2, 8441/3, 8460/3, 8461/3, 8474/3

- Confirmed by the CAP Cancer Committee

Take Home Points:

- Grade now has 4 data items:
  - Clinical
  - Pathological
  - Post-therapy Clinical and
  - Post-therapy Pathological
- The relationship between Post-therapy Clinical and Post-therapy Pathological behaves the same way as the relationship between clinical and pathological.
- The Clinical timeframe stops when neoadjuvant is initiated, so no information abstained during the clinical time frame can be used to code Post-therapy Clinical or Post-therapy Pathological.

- In coding Grades Pathological or Post-therapy Pathological:
  - If AJCC TNM stage is being assigned, the "surgical resection" must meet AJCC criteria for the cancer site.

- In coding grades Post-therapy Clinical and Post-therapy Pathological:
  - If AJCC TNM stage is being assigned, the neoadjuvant treatment being administered must meet AJCC criteria for the cancer site.

IMPORTANT:

- It is important to read the manual and review the General Coding instructions.
- Not all coding instructions are mentioned on the coding instructions on each of the tables.
- Read the coding notes and guidelines for each table to ensure you are following the correct coding guideline.

TOOLS

- Grade Manual
  - https://apps.naaccr.org/ssdi/list/

- SSDI/Grade Webpages
  - https://apps.naaccr.org/ssdi/list/
  - https://staging.seer.cancer.gov/eod_public/list/1.7/

- Software
  - (CPDMS)

IMPORTANT!!!

Use versions 1.7 until January 1, 2021!!!

QUESTIONS?

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