Coding Clinical Grade (NAACCR data item #3843) for Malignant and Non-malignant Brain Tumors

Overview

Grade Clinical (NAACCR data item #3843)[1,2]:

- Is required by NPCR, CoC, and SEER**.**
- Is applicable for diagnosis years 2018 and forward.
- Records the grade of a solid tumor before any treatment (surgical resection or initiation of any treatment including neoadjuvant).
- Along with Grade Pathological (NAACCR data item #3844) and Grade Post-Therapy Path (NAACCR data item #3845), replaces Grade (NAACCR data item #440).
- Includes the WHO grading system specifically for brain and central nervous system (CNS) tumors, which is based on the microscopic characteristics of the tumor cell.
- Measures the tumor's aggressiveness as an important prognostic indicator for many cancers, including the brain.

Valid Codes[3]

Code	Grade Description
1	WHO Grade I: Circumscribed tumors of low proliferative potential associated with the possibility of cure following resection.
2	WHO Grade II: Infiltrative tumors with low proliferative potential with increased risk of progression or recurrence.
3	WHO Grade III: Tumors with histologic and/or molecular genetic evidence of malignancy that are associated with an aggressive clinical course.
4	WHO Grade IV: Tumors that are cytologically malignant, mitotically active, and associated with rapid clinical progression and potential for dissemination.
L	Stated as "low grade," not otherwise specified (NOS).
H	Stated as "high grade," NOS.
A	Well differentiated.
B	Moderately differentiated.
C	Poorly differentiated.
D	Undifferentiated, anaplastic.
9	Grade cannot be assessed; unknown.

Problem

For **malignant brain tumors**, the overall accuracy proportion of clinical grade was 85.9% (908/1057), ranging from 74.0% to 95.3%, with a mean of 89.0% across 15 registries based on NPCR evaluation of tumors diagnosed in 2019 (Table 1).

- Cases were **miscoded as 9** when histology and grade were revealed during a stereotactic biopsy procedure or imaging report, or they were coded using specific histology and table 72.2 in the AJCC manual.
- Failed to code cases as **9** when no clinical grade or microscopic confirmation from pathologic resection was noted.

For **non-malignant brain tumors**, the overall accuracy proportion of clinical grade was 79.9% (729/912), ranging from 66.3% to 100.0%, with a mean of 79.4% across 12 registries based on NPCR evaluation of tumors diagnosed between 2018 and 2020 (Table 1).

- Cases were **miscoded as 9** instead of 1 when tumors with behavior 0 can be automatically coded per grade coding instructions, or grade was not available in text fields, but could be assigned from Table 72.2 in the AJCC manual or Solid Tumor Rules (STR) 2018 Table 1.
- Failed to code cases as **9** when tumor was stated as neoplasm or tumor and no specific histology was stated on imaging, tumor had a differential diagnosis that included multiple histologies with different grades, or no clinical grade was available from the clinical timeframe.
- Cases were miscoded as **1** instead of "L" when the only information available was that the tumor was low grade.

Table 1: Accuracy Proportion of Clinical Grade for Malignant and Non-malignant Brain Tumors

Characteristic	Malignant (gliomas and embryonal tumors only)	Non-malignant
Diagnosis years	2019	2018–2020
Number of registries	15	12
Number of cases evaluated	1057	912
Number of cases with major errors	149	183
Accuracy proportion		
Overall	85.9%	79.9%
Minimum	74.0%	66.3%
Mean	89.0%	79.4%
Maximum	95.3%	100.0%

Resources

Per Grade Coding Instructions and Tables[3]

- Note 5: Codes 1–4 take priority over A–D, L, and H.
- Note 6: CNS WHO classifications use a grading scheme that is a "malignancy scale" ranging across a wide variety of neoplasms rather than a strict histologic grading system that can be applied equally to all tumor types.
    - Code the WHO grading system for selected tumors of the CNS as noted in the AJCC 8th edition Table 72.2 when WHO grade is not documented in the record.
        - o 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, and Table 3: WHO Grading Meningiomas (https://www.cap.org/protocols-and-guidelines/cancer-reporting-tools/cancer-protocol-templates).
        - o For benign tumors ONLY (behavior 0), code 1 can be automatically assigned for all histologies.
- Note 7: Code 9 when grade from primary site is not documented, clinical workup is not done (for example, cancer is an incidental finding during surgery for another condition), or grade checked "not applicable" on CAP Protocol (if available) and no other grade information is available.

[1] Version 24 - Data Item #3843: Grade Clinical | NAACCR Data Dictionary. https://apps.naaccr.org/data-dictionary/data-dictionary/version=24/data-item-view/item-number=3843/. Accessed March 11, 2025.
[2] Standards for Oncology Registry Entry (STORE), Clinical Grade, released 2018, page 139. https://www.facs.org/media/0ksm02ka/store_manual_2018.pdf. Accessed March 11, 2025.
[3] Grade Coding Instructions and Tables. Grade ID 24-Clinical Grade Instructions. Pages 196-197. https://www.naaccr.org/wp-content/uploads/2023/10/Grade-Coding-Instructions-and-Tables-v3_printed.pdf?v=1718169321. Accessed March 11, 2025.