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Issues in Assigning TNM

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I think we can all agree there is a lot of information to review when preparing to assign TNM on a case. Occasionally, the data item explanations in the manual don't easily translate to real-world examples. Below you'll find guidance for some of the common challenges we face when applying TNM rules to abstracts.

Assigning cN0 in the Pathological N Field

It's important to understand when to keep the Clinical and Pathological staging elements separate, and when you can combine information to correctly assign a TNM Stage Group. In most situations, if regional lymph nodes are not removed with a primary site resection specimen, pNX should be assigned for pathologic N. For the following case types you can assign cN0 in the pathologic N field if the case also meets the pathologic staging criteria:

- Behavior = In situ
- Stage 1A skin melanoma
- Bone
- Soft Tissue Sarcoma
- Malignant GIST

Always refer to the site-specific chapters and instructions to determine how to code the Pathological N field.

Example: Assume a melanoma skin primary is assigned cT1a and pT1a based on a shave

An Overview for Coding Laboratory Values
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The biggest challenges to accurately coding lab values are rounding the test result numbers and knowing how to infer decimal point placement when coding lab results. The type and number of errors made will impact the usefulness and applicability of both hospital and central registry data, which relies heavily on the quality of data analysis and its users' ability to accurately interpret results.

Lab tests for a number of site-specific factors are often repeated multiple times before and/or after a patient's diagnosis of cancer. In order to code lab values correctly, we first need to decide which test result applies for that specific data item when given multiple values for the same test. The Collaborative Stage Data Collection System Coding Instructions, Part I, Section 2 helps us determine the priority for the most common lab tests. In general, unless there are specific instructions for a lab test, we code test results obtained before any cancer-directed treatment is given and no earlier than approximately three months before diagnosis.

The table below includes information regarding a couple of the most common lab values collected and instructions for how to choose the correct value to code.

Lab Test	Complete Name	Sites Performed	Priority Value
PSA	Prostate Specific Antigen	Prostate	Highest value prior to and closest to diagnostic biopsy and treatment
CEA	Carcinoembryonic Antigen	Appendix, Colon, Rectum, Small Intestine	Highest value prior to treatment

Once we know the correct value to code, we need to pay attention to the implied placement of the decimal point for a given value. For most lab tests, including PSA and CEA, the value is recorded in nanograms per milliliter (ng/ml) to the nearest tenth (i.e., we can only code one digit after the decimal point even if the lab value we abstract has more than one digit following the decimal point). For example, a lab value of 20.0 ng/ml is coded to 200, a lab value of 11.22 ng/ml is coded to 112, and a lab value of 5.31 ng/ml is coded to 053. (The decimal point is implied to be between the 5 and 3 given the way the value was coded.)

The 5.31 ng/ml example can be commonly miscoded to 531, which results in these patients having among the highest lab values coded rather than some of the lowest lab values! It's easy to inadvertently fill in a three-digit field when a three-digit number is staring back at us from the abstract rather than inserting the leading zero. Recently, SEER required us to review PSA values coded for prostate cases diagnosed 2004 through 2015 because many cases appeared to have errors associated with not including the leading zero. Ouch!

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biopsy followed by a re-excision. No regional lymph nodes are examined pathologically and the case is staged as cN0 by the physician. Melanoma skin primaries categorized as Pathological Stage 0 and T1a allow for cN0 to be coded in both the Clinical and Pathological N fields per the AJCC. Therefore, both the Clinical and Pathological N fields would be coded as cN0.

Example: A partial gastrectomy is positive for a malignant gastrointestinal stromal tumor (GIST). No regional lymph nodes are removed with the resection specimen and the case is staged as cN0 by the physician. The Pathological N field can be be assigned code cN0 rather than pNX because, per the GIST chapter-specific information, only a N0 or N1 value should be used for this histology. This is one of the few exceptions in which cN0 can be used in the Pathological N field for an invasive primary.

Coding the M Subcategory if a Biopsy is Performed

Since pathological examination of distant metastatic disease during the clinical timeframe can be assigned in both the Clinical and Pathological M fields, it is important to assign the correct M subcategory. When there are distant metastases in multiple sites clinically but pathologic confirmation for only one of the sites, the highest M subcategory can be assigned. Any pathological evidence of M1 disease is assigned as the highest pM1 subcategory, even if there is only clinical evidence of the highest M category.

Example: A patient is diagnosed with right upper lobe (RUL) adenocarcinoma. A CT scan identified metastatic disease to the adrenal glands and pleural effusion. The pleural effusion was pathologically confirmed to

The next important step to coding lab values is to apply accurate number rounding rules. Determine what our rounding digit is and check the number to the right of it. If that digit is 0, 1, 2, 3, or 4 do not change the rounding digit. If the digit is 5, 6, 7, 8, or 9, the rounding digit is incremented up by one number.   Most registry lab values are coded to the nearest tenth in our data items (i.e., one digit to the right of the decimal point). However, many lab values are recorded in the medical record with two digits to the right of the decimal.

• A lab value of 25.42 ng/ml is rounded down to 254.

If we have to report the value to the nearest tenth, the rounding digit is 4. The number to the right of it is 2, which is between 0-4, so the rounding digit is unchanged.

• A value of 25.48 is rounded up to 255.

The rounding digit is 4. The number to the right of it is 8, which is between 5-9, so the rounding number is incremented and becomes 5.

An exception to the rounding rules applies when coding lab values of 0.1 or less. These should be rounded up to code 001 because coding 000 would mean a zero value for that lab test. For example, a lab value of 0.03 ng/ml is coded to 001. Also, due to the three-digit coding limitation, any values greater than 97.9 ng/ml are coded to 980; therefore, 123.0 ng/ml is coded to 980.

The lab test interpretation (i.e., positive, borderline, negative) is coded along with the lab test value. A clinician's interpretation of a lab test (e.g., a statement the test is positive) takes priority over a registrar's interpretation of the result after checking the lab's reference range on the lab report. However, if a clinical interpretation is not provided, we should use the reference ranges provided by the lab to help determine whether the results are positive or not. When a clinician's interpretation and the reference range for an ordered test is not provided, the value must be coded to 999 (Unknown or no information; not documented in patient record). Therefore, it is important to document the normal reference range used by the performing lab whenever possible to reduce the number of cases with unknown values in these site-specific fields.

While it can be tricky to code data for lab tests correctly, paying close attention to where the decimal point is placed and when to round up or down will help improve coding accuracy.

be positive for metastatic disease. The Clinical and Pathological M fields are assigned to pM1b even though only pM1a disease was pathologically confirmed. A higher subcategory (cM1b) was clinically confirmed on the CT scan. This information can be used to supplement the pathological findings (pM1a) and the higher subcategory (pM1b) is assigned in both fields.

Example: A CT scan identified a transverse colon primary and metastatic disease in the liver. No other sites of distant metastatic disease were identified by imaging. The liver is biopsied and is found to be positive for metastatic disease, so the Clinical M field is assigned to pM1a. The patient underwent a hemicolectomy, a liver wedge resection, and a biopsy of a peritoneal nodule identified during surgery. Both the liver and the peritoneal nodule were positive for metastatic carcinoma. The Pathological M field is assigned to pM1b because evidence of the higher subcategory was only identified during the pathological staging timeframe.