

Arkansas Central Cancer Registry



Basic Course for AJCC TNM Staging

Gigi White, CTR

Program Director

Arkansas Central Cancer Registry

February 13, 2008



American Joint
Commission on Cancer
Cancer Staging Manual

6th Edition

Course Objectives

- Understand the purpose of staging and why it is important
- Identify and learn the components of the TNM system
- Learn the general rules of the TNM staging system
- Review the AJCC staging book and its content layout
- Understand the use of additional descriptors/suffixes and prefixes
- Apply learned skills by completing exercises using the AJCC staging forms.

Purposes and principles of staging

- Aids the physician in planning treatment
- Gives some indication of prognosis
- Assists in evaluating the results of treatment
- Facilitates the exchange of information between treatment centers
- Contributes to the continuing investigation of human cancers.

What does staging involve?

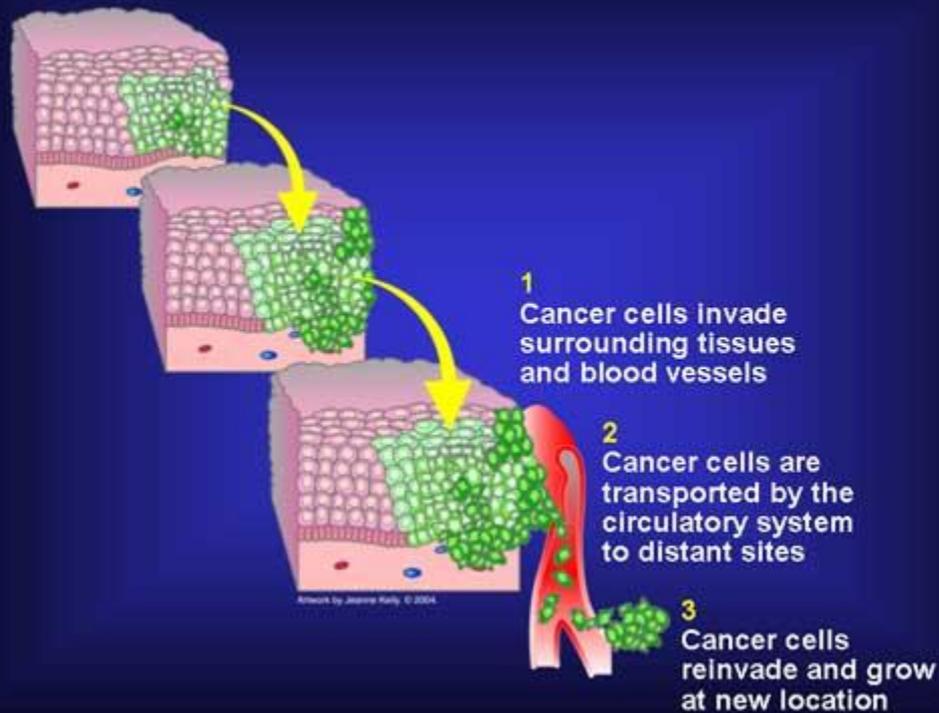
- **Physical exams** provide clues as to the extent of the cancer. The physical exam may determine the location and size of the tumor (s) and the spread of the cancer to the lymph nodes and/or to other organs.
- **Imaging tests** such as x-rays, CT scans, and MRI scans produce pictures of areas inside the body and can show the location of the cancer, the size of the tumor, and whether the cancer has spread.
- **Laboratory tests** are studies of blood, urine, other fluids and tissues removed from the body. These tests can also provide information about the cancer.

What does staging involve?

Cont.

- **Pathology reports** may include information about the size of the tumor, the growth into other tissues and organs, the type of cancer cells, and the grade of tumor (how closely the cancer cells resemble normal tissue). Removing tumors or pieces of tumors and looking at them under the microscope often confirms the diagnosis of cancer, and can also stage the cancer.
- **Surgical reports** tell what is found during surgery. Samples are removed during surgery to determine the size and appearance of the tumor and often include observations about lymph node and organ involvement.

Invasion and Metastasis



Adapted by Joanne Kelly, © 2004

The TNM Staging System

The TNM staging system shows the anatomic extent of disease and is based on three components:

- T – Extension of primary tumor
- N – Absence or presence and extent of regional lymph node metastasis
- M – Absence or presence of distant metastasis

Numerical Subsets of TNM

Definitions of T

Extension of Primary Tumor

- TX Primary tumor cannot be assessed
- T0 No evidence of primary tumor
- Tis Carcinoma in situ
- T1-4 Increasing size and/or local extent of the primary tumor

Numerical Subsets of TNM

Definitions of N

Involvement of Regional Nodes

- NX Regional lymph nodes cannot be assessed
- N0 No regional lymph node metastasis
- N1-3 Increasing involvement of regional lymph nodes

Numerical Subsets of TNM

Definitions of M

Distant Metastasis

- MX Distant metastasis cannot be assessed
- M0 No distant metastasis
- M1 Distant metastasis

Stage Grouping

- Group TNM into a stage
- Assignment is based on values of T,N,M
- Each site has a different stage grouping

Ex. Prostate Grouping

I	T1a	N0	M0
II	T1a	N0	M0
	T1b	N0	M0
	T1c	N0	M0
	T1	N0	M0
	T2	N0	M0
III	T3	N0	M0
IV	T4	N0	M0
	Any T	N1	M0
	Any T	Any N	M1

4 Classification Categories

Clinical (cTNM)

Pathologic (pTNM)

Retreatment (rTNM)

Autopsy (aTNM)

Clinical Classification

Clinical (cTNM)

- Based on evidence acquired prior to first definitive treatment
- Includes, but is not limited to, physical examination, imaging, endoscopy, biopsy, and surgical exploration
- Assigned prior to receipt of any cancer-directed treatment

Pathologic Classification

Pathologic (pTNM)

Based on evidence acquired before treatment and supplemented by evidence acquired during and from surgery

- Includes pathologic evidence from surgery
- Assessment of primary tumor entails resection of primary tumor sufficient to evaluate the highest T category
- Assessment of regional lymph nodes entails removal of sufficient number of nodes to evaluate the highest N category
- Assessment of metastases may be either clinical or pathologic

Retreatment Classification

Retreatment (rTNM)

- Assigned when further treatment (systemic) is planned for a recurrence
- All information available at time of retreatment should be used to determine the stage of the recurrent tumor

Autopsy Classification

Autopsy (aTNM)

- Used when stage is assigned using pathologic information from the autopsy report

Other Descriptors

- **Lymphatic Vessel Invasion (L)**

LX - Lymphatic vessel invasion cannot be assessed

L0 - No lymphatic vessel invasion

L1 - Lymphatic vessel invasion

Other Descriptors cont.

■ Venous Invasion (V)

VX – Venous invasion cannot be assessed

V0 – No venous invasion

V1 – Microscopic venous invasion

V2 – Macroscopic venous invasion

Other Descriptors cont.

■ Residual Tumor (R)

RX – Presence of residual tumor cannot be assessed

R0 – No residual tumor

R1 – Microscopic residual tumor

R2 – Macroscopic residual tumor

GENERAL RULES FOR TNM

1. All cases should use the following time guidelines for evaluating stage: through the first course of surgery or 4 months, whichever is longer
2. All cases should be confirmed microscopically
3. Four Classifications are described for each site:
Clinical, pathologic, retreatment and autopsy

GENERAL RULES FOR TNM

cont.

4. **Stage Grouping.** After assigning TNM categories, these may be grouped into stages. The TNM classification and stage grouping, once established, must remain unchanged in the medical records. The clinical stage is essential to select and evaluate therapy, and the pathologic stage provides the most precise data to estimate prognosis and calculate results.

GENERAL RULES FOR TNM

cont.

5. Multiple Tumors. In the case of multiple, simultaneous tumors in one organ, the tumor with the highest T category should be identified and the multiplicity, or the number of tumors, indicated in parentheses; for example, T2(m) or T2(5). In simultaneous bilateral cancers of paired organs, each tumor is classified independently.

GENERAL RULES FOR TNM

cont.

6. Subsets of TNM. Definitions of TNM categories and stage grouping may be telescoped or expanded for clinical or research purposes as long as basic definitions as recommended are not changed. For instance, any TNM can be divided into subgroups.

Site-Specific Chapter Outline

- TNM 6th ed. is listed in accordance with ICD-0-3 (site code)
- Introduction
- Anatomy
- Rules for classification
- Definitions of TNM for each specific anatomic site
- Stage Grouping
- Histopathologic types
- Histologic grades

TNM Staging Form

- Used to record TNM classification and stage of cancer

Exercises!



Acknowledgements

Arkansas Central Cancer Registry is in association with the
Arkansas Department of Health and is funded by
CDC/NPCR



Department of Health and Human Services

Centers for Disease Control and Prevention



Colon Case Answer

Clinical TX N0 M0 Stage Group 99

Ct shows mass in splenic flexure and colonoscopy shows a small tumor, cannot assess extent of invasion; CT no LAD or distant mets

Pathologic T3 N0 M0

Through muscularis propria; 0/12 lns; for M0, use clinical info from CT to complete pathologic staging to derive stage group

Prostate Case Answer

Clinical T1c N0 M0 Stage Group II

Elevated PSA with a negative DRE w/positive biopsy; CT abdomen: no significant findings.

Pathologic TX NX MX Group 99 (unknown)

Total prostatectomy-vesiculectomy; including regional node specimen not performed; cannot stage pathologically because the TURP is a clinical finding.

Breast Case Answer

Clinical T2 N0 M0 Group IIA

PE shows tumor size, 5cm; no lymph nodes involved (no enlarged nodes bilaterally); no mets by CT, bone scan, or CXR

Pathologic T3 N0 M0 Group IIB

Tumor size, 5.5cm; no lymph nodes involved (no enlarged nodes bilaterally); no mets (use clinical info from CT, bone scan and CXR to derive stage group)

Lung Case Answer

Clinical T3 N0 M0 Stage Group IIB

CXR shows partial destruction of the chest wall; CXR shows no noted lymphadenopathy; bone scan and pelvic sonogram neg for mets

Pathologic T4 N0 M0 Stage Group IIIB

Thoracoscopy; case should be staged pathologically, pleural effusion cells swabbed and positive for ca; no enlarged lymph nodes at thoracoscopy; for M0, use clinical info from bone scan and pelvic sonogram to complete pathologic stage to derive a stage group.

