



## **NPCR Education and Training Series (NETS)**

### **Module 7: Colorectal Malignancies**

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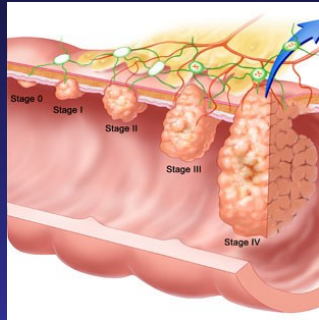
Centers for Disease Control and Prevention  
National Program of Cancer Registries  
Atlanta, Georgia  
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# Advanced Abstracting Colorectal Cancer

## III. EXTENT OF DISEASE Staging Systems and Documentation



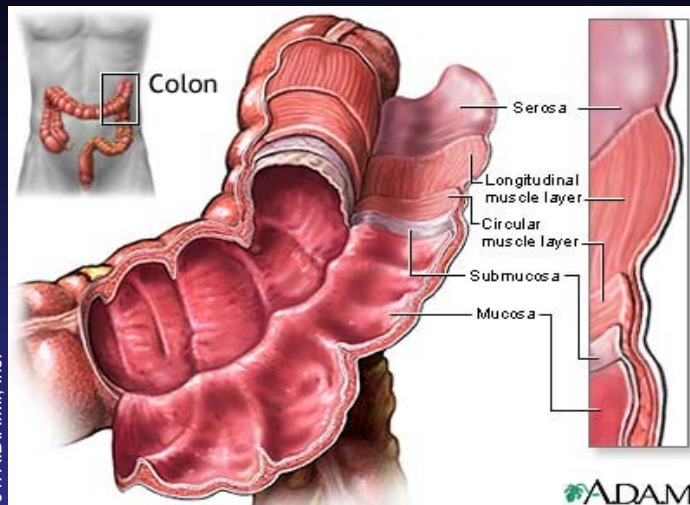
National Cancer Institute

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Section III of this advanced abstracting module discusses staging rules, documentation of the extent of disease, and other aspects of determining how far the cancer has spread from its point of origin.

## Depth of Invasion



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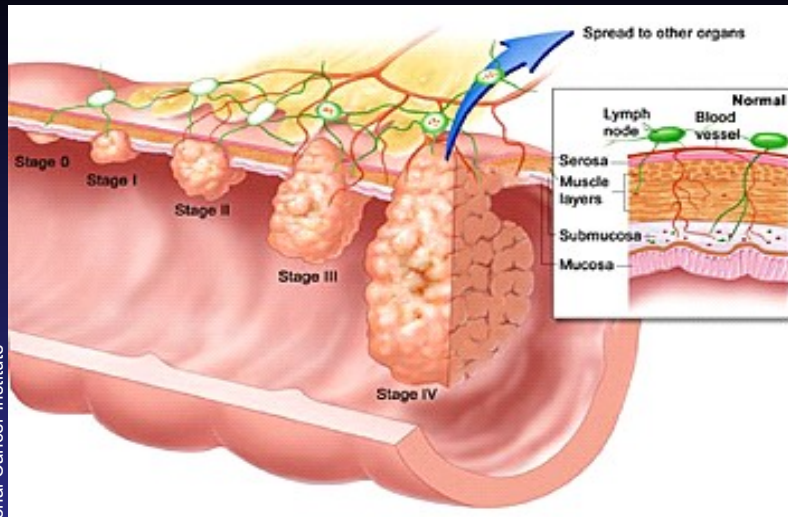
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Now that we have determined the site, histology, behavior, and grade of the cancer we are reporting, we must code the extent of disease. Colorectal cancers are coded based on the extent the cancer has moved through the colorectal wall. It is important to know the layers of the colon wall. In this section of the presentation, we will review the extent of disease and how to apply Collaborative Stage and AJCC Stage based on this extension.

# Extension of Colorectal Cancer



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This is a diagram that illustrates the AJCC stage of a colorectal cancer through the wall. The cancer cells start to grow in the mucosa or inner layer, extend through the layers of the colon or rectum wall, and spread to lymph nodes and other organs. AJCC TNM stages range from stage 0 (in situ) to stage IV (metastatic).

## Differences in SEER and AJCC Mapping

- ◆ Differences are the result of historical definitions and biology of colon cancers

◆ CS Extension	SEER	AJCC T
Code 10 <i>(Mucosa, NOS/Intramucosal, NOS)</i>	Local	Tis
Code 11 <i>(Confined to lamina propria)</i>	Local	Tis
Code 12 <i>(Confined to muscularis mucosae)</i>	Local	Tis

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It is important to make note of differences in SEER and AJCC mapping for staging extent of disease. Stage according to the rules of the staging system that you are using (CS, AJCC, SS 2000), and do not try to make them compatible with each other. As the slide demonstrates, this isn't always possible. Stromal invasion in other sites is considered extremely important because of possible metastasis via the stromal lymphatics or blood vessels. However, for colorectal cancers this is not as significant. According to AJCC pathologists, cancers that invade the mucosal stroma (intramucosal carcinomas) are coded to pTis because colonic mucosa is biologically unique compared to mucosa elsewhere in the body. In the colon, tumor invasion of the lamina propria has no associated risk of regional nodal metastasis; therefore the category of pTis is justified.

In contrast, for Summary Stage, any invasion of the basement membrane and lamina propria is localized.

# Layers of Colon Wall



1. [Lumen—inside]
2. **Mucosa**
  - Surface epithelium
  - Lamina propria (basement membrane)
  - Muscularis mucosae
1. **Submucosa**
2. **Muscularis propria**
  - Circular layer
  - Longitudinal layer
3. **Subserosa** (subserosal fat)
4. **Serosa** (visceral peritoneum, mesothelium)
5. [Retroperitoneal fat (pericolonic fat)]

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The extent of disease coding of colorectal cancer is based on the extension of the tumor through the colon wall. This is a schematic drawing of the layers of the colon. The mucosa is the inner most lining of the colon, otherwise known as the epithelium. The mucosa layer is very irregular, not smooth. The task of this layer is to remove water and nutrients as “food” goes by.

The mucosa includes the lamina propria and muscularis mucosa layer.

The submucosa is beneath the mucosa, and contains the lymph channels and blood vessels.

The muscularis propria has a circular and longitudinal layer of muscles, but they are generally considered as a single layer of the colon. The job of this layer is peristalsis that keeps the “food” moving.

The subserosa contains subserosal fat, and it can vary in thickness.

The serosa is the outside layer, otherwise known as the visceral peritoneum or mesothelium.

Outside the serosa is the retroperitoneal or pericolonic fat.

## Extent of Disease

CS Extension	Description	T Mapping
00-12	In situ; non-invasive; intramucosal; lamina propria	Tis
13-16; 30	Submucosa	T1
20	Muscularis propria	T2
40-46	Through wall; subserosal fat; adjacent connective tissue	T3
50-80	Through serosa; to contiguous adjacent organs	T4
95	No primary tumor found	T0
99	Primary tumor cannot be assessed; unknown extension	TX

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CS extension 0 – 12 applies to in situ carcinoma, Tis. This is non invasive carcinoma confined to the mucosa (intramucosal) or lamina propria.

Codes 13 – 16 involve the head/stalk of a polyp and/or submucosa invasion. These map to AJCC T1.

Code 20 is tumor involvement of the muscularis propria, but not through the muscularis propria. Code 20 maps to AJCC T2.

Codes 40 – 46 describe tumor invasion through the wall into subserosal fat or adjacent connective tissue. These codes map to AJCC T3.

Codes 50 – 80 describe invasion of/through the serosa and/or involvement of adjacent organs or structures. These codes map to AJCC T4.

Code 95, which maps to AJCC T0, can be used when no primary tumor is found.

Code 99 is used when the primary tumor cannot be assessed or extension is unknown. Code 99 maps to AJCC TX.

## Extent of Disease

CS Ext	T mapping	SS77	SS2000
00-05	Tis	IS	IS
10-12	Tis	L	L
13-16; 30	T1	L	L
20	T2	L	L
40	T3	L	L
42-46	T3	RE	RE
50-60; 65, 66	T4	RE	RE
70-80	T4	D	D
95	T0	U	U
99	TX	U	U

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This table shows the CS Extension code with AJCC T stage mapping and SEER Summary Stage 1977 and 2000.

As mentioned previously, there are some differences within the codes 10 – 12 between the T mapping and SEER Summary Stage. Also of note is that T3 stage can be Summary Stage localized or regional, and T4 can be Summary Stage regional or distant.

It is important to note that intraluminal extension to adjacent segment(s) of colon/rectum should be ignored; instead, code depth of invasion or extracolonic spread as indicated in the record.

Codes 60 – 80 are used for contiguous extension from the site of origin.

Discontinuous involvement is coded in CS Mets at DX.

## Colon Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
00	None; no reg LNs involved	N0	None	None
10	Reg LNs for all colon sites: Colic NOS; Epicolic; Mesocolic NOS; para/pericolic; Nodule(s) foci in pericolic fat	*	RN	RN

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The next few slides show the coding of regional lymph nodes for colon primaries. Code only regional lymph nodes in this field. Distant nodes are coded in Mets at Diagnosis field.

Inferior mesenteric nodes are coded in CS Mets at DX for cecum, appendix, ascending colon, transverse colon, and hepatic flexure. Superior mesenteric nodes are coded in CS Mets at DX for all colon sites.

Let's look at the table for Colon regional lymph nodes.

Code 00 is no lymph node involvement.

Code 10 describes the regional lymph nodes along the edges of the colon. These terms are nonspecific to site.

The AJCC N classification is based on the number of nodes involved. One to three nodes involved is classified as N1, and four or more nodes involved is classified N2. The reason there is an asterisk in the TNM mapping column is because the number of positive lymph nodes must also be known. The appropriate AJCC N category will be assigned by the CS computer mapping algorithm, based on the number of nodes recorded in the regional lymph nodes positive field.

## Colon Regional Lymph Nodes

- ◆ **Tumor nodules in pericolic adipose tissue**
  - Smooth or NOS – code in CS Lymph Nodes
  - Irregular – code as CS Extension 45

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A tumor nodule in the pericolic adipose tissue of a primary carcinoma without histologic evidence of residual lymph node structure in the nodule is classified as a regional lymph node metastasis if the nodule has the form and smooth contour of a lymph node or if the contour is not described. If the nodule has an irregular contour, it should be coded in CS Extension as Code 45.

## Colon Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
20	Regional lymph nodes, for specific sites: Cecum and appendix: Cecal; Ileocolic; Right colic Ascending colon: Ileocolic; Middle and Right colic Transverse colon: Inferior mesenteric; Left colic; Middle and Right colic Descending colon: Inferior mesenteric; Left colic; Sigmoid Sigmoid colon: Inferior mesenteric; Sigmoidal; Superior hemorrhoidal; Superior rectal	*	RN	RN

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Code 20 is site specific, based on which segment of the colon the primary site is in. Refer to your CS manual for all terms for this site code. These lymph nodes are along specific named blood vessels that serve the various segments of the colon. Cases coded to 20 in CS Lymph Nodes also require knowing the number of positive nodes in order to map to the correct N category.

## Colon Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
30	Regional lymph nodes for all colon sites: Mesenteric, NOS Regional lymph node(s), NOS	*	RN	RN
80	Lymph nodes, NOS	*	RN	RN
99	Unknown; Not stated Regional lymph nodes cannot be assessed	NX	U	U

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Code 30 describes regional lymph nodes or mesenteric lymph nodes not otherwise specified. It is important to understand that “mesenteric” simply means regional lymph nodes in the mesentery that supports the colon. If the lymph nodes are specified as inferior mesenteric, they are regional for the left side of the colon and the left half of the transverse colon, and distant for the right side of the colon and the right half of the transverse colon. If the lymph nodes are specified as superior mesenteric, they are distant for all segments of the colon.

Use Code 80 only when lymph nodes are not specified as regional or distant within the pathology report. (Lymph nodes removed as part of a colectomy or segmentectomy are regional even if not specified). Code 99 is unknown if regional lymph nodes are involved.

## Rectal Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
00	None; no regional lymph node involvement	N0	None	None
10	Regional lymph nodes: Rectosigmoid: Paracolic/Pericolic Perirectal/Rectal Nodules in pericolic fat Rectum: Perirectal Rectal, NOS Nodules in perirectal fat	*	RN	RN


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This table shows codes for rectal or rectosigmoid primaries. Code 00 means no lymph node involvement. Code 10 is subdivided by primary site (rectosigmoid or rectum), and describes the lymph nodes that lie along the edges of these segments.

## Rectal Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
20	Regional lymph node(s): Rectosigmoid Colic, NOS; Left colic; Hemorrhoidal; Inferior mesenteric; Middle rectal Sigmoidal; Superior rectal Rectum Hemorrhoidal; Inferior mesenteric; Internal iliac Rectal; Sacral, NOS Sigmoidal	*	RN	RN

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Code 20 is also subdivided by the location of the primary. Code 20 identifies the regional nodes for each segment that lie along the blood vessels that serve these areas. Again, refer to your CS coding manual for all specific lymph node regions.

## Rectal Regional Lymph Nodes

Code	Description	TNM	SS77	SS2000
30	Mesenteric, NOS Regional lymph node(s), NOS	*	RN	RN
80	Lymph nodes, NOS	*	RN	RN
99	Unknown; not stated Regional lymph node(s) cannot be assessed	NX	U	U

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Code 30 is for mesenteric or regional lymph nodes not otherwise specified. Code 80 is for lymph nodes, unknown if regional or distant. Code 99 for unknown if regional lymph nodes are involved or regional lymph nodes cannot be assessed.

## Colon CS Mets at DX

Code	Description	TNM	SS77	SS2000
00	None	M0	None	None
08	Cecum, appendix, ascending, hepatic flexure and transverse colon; Superior mesenteric LNs	M1	RN	D
10	Distant Lymph Nodes other than code 08 (See CS manual)	M1	D	D
40	Distant mets except distant LNs (codes 08-10); Carcinomatosis	M1	D	D
50	(40)+(08) or (10)	M1	D	D
99	Unknown if distant mets; cannot be assessed	MX	U	U

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Colon Mets at diagnosis codes are as follows:

- Code 00 indicates no metastatic disease at diagnosis.
- Code 08 is used for metastases from the cecum, appendix, ascending colon, hepatic flexure and transverse colon to the superior mesenteric lymph nodes.
- Code 10 is for distant lymph nodes other than those listed in Code 08. See CS manual for more specific information.
- Code 40 is used for distant metastases except for distant lymph nodes listed in code 08 or 10 and carcinomatosis.
- Code 50 is for any combination of distant metastasis and distant lymph nodes.
- Code 99 is used when it is unknown if there are distant metastases.

## Rectal CS Mets at DX

Code	Description	TNM	SS77	SS2000
00	None	M0	None	None
10	Distant lymph node(s), NOS	M1	D	D
11	Rectosigmoid: Internal iliac, Obturator	M1	RN	D
12	Other distant lymph node(s), including ext iliac/common iliac	M1	D	D
40	Distant mets except distant LNs codes 10-12; distant LNs, NOS; Carcinomatosis	M1	D	D
50	(40) + any of (10 or 12); distant LNs plus other distant mets	M1	D	D
99	Unknown; cannot be assessed	MX	U	U

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For rectal Mets at DX the codes are as follows:

- Code 00 is used when no metastatic disease is noted.
- Code 10 is used for distant lymph nodes not otherwise specified.
- Code 11 is used for a rectosigmoid primary when metastases are found in internal iliac or obturator lymph nodes.
- Code 12 is used when other distant lymph nodes are involved, including external iliac or common iliac lymph nodes.
- Code 40 is used for distant mets other than distant lymph nodes listed in codes 10-12. It is also appropriate to use code 40 when there is a reference to carcinomatosis.
- Code 50 is a combination of distant metastases and distant lymph nodes.
- Code 99 is unknown if metastatic disease or metastatic disease cannot be assessed.
- Codes 10 – 50 map to AJCC M1 and are distant in SEER Summary Stage 2000.

## Colorectal CS SSF 1 (CEA)

Code	Description
000	Test not done
010	Positive/elevated
020	Negative/normal; within normal limits
030	Borderline, undetermined whether positive or negative
080	Ordered; results not in chart
999	Unknown; no information Not documented in patient record

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Colorectal cancer uses one Site Specific Factor, carcinoembryonic antigen, otherwise known as the CEA. The CEA or SSF 1 is not used to derive the AJCC stage, but is useful as a baseline value to monitor recurrence. Generally, a CEA will be performed following a positive biopsy of a colorectal cancer and is performed periodically following first course treatment to assess disease-free status. This is not a nationally accepted practice. Code the CEA as appropriate using the definitions in the SSF 1 table. According to materials provided by the Collaborative Staging Task Force, the normal CEA value for a non-smoker is less than 2.5 nanograms per milliliter, and less than 5 ng/milliliter for smokers. The normal range for a laboratory should be given with the test value and recorded on the abstract. Code the physician's interpretation of the test or use the normal range listed for the test when provided. Use the 2.5 or 5 ng/ml value as a guide only when a physician does not interpret the lab value or provide a normal range.

SSF 2 is the "Clinical Assessment of Regional Nodes". SSF 3 – 6 are not used and are always coded 888 for both colon and rectal cancers.

## **CS TS/Ext Eval, CS Reg Nodes Eval, CS Mets Eval**

- ◆ **Standard tables for colon and rectum**
- ◆ **General codes**
  - 0 – Clinical only**
  - 1 – Invasive techniques; no biopsy or  
needle  
biopsy**
  - 2 – Autopsy (known/suspected)**
  - 3 – Pathology**
  - 5 – Pre-op treatment – clinical info**
  - 6 – Pre-op treatment – pathologic info**

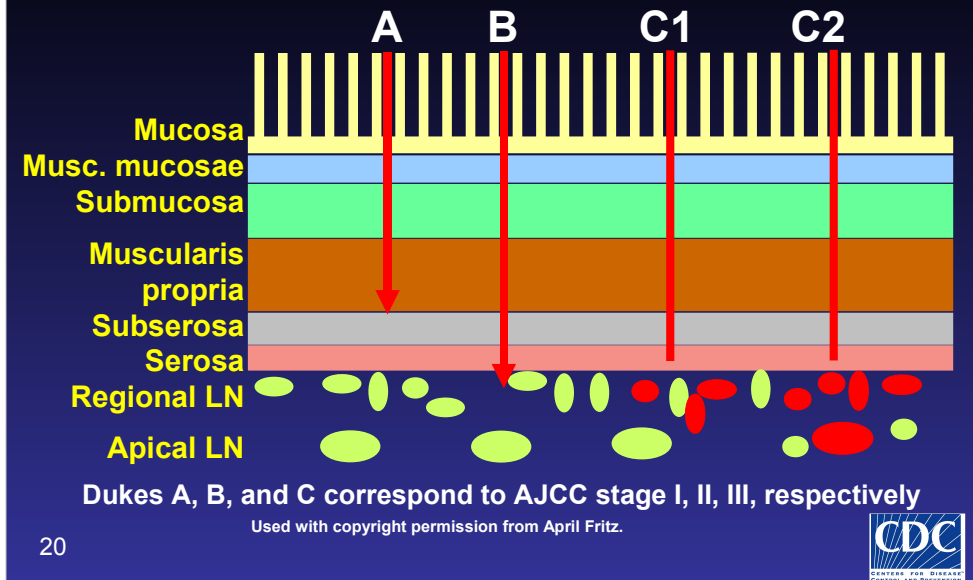
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Collaborative stage tumor size and extension evaluation field, CS regional lymph nodes evaluation field and CS Mets at diagnosis evaluation fields are coded as follows:

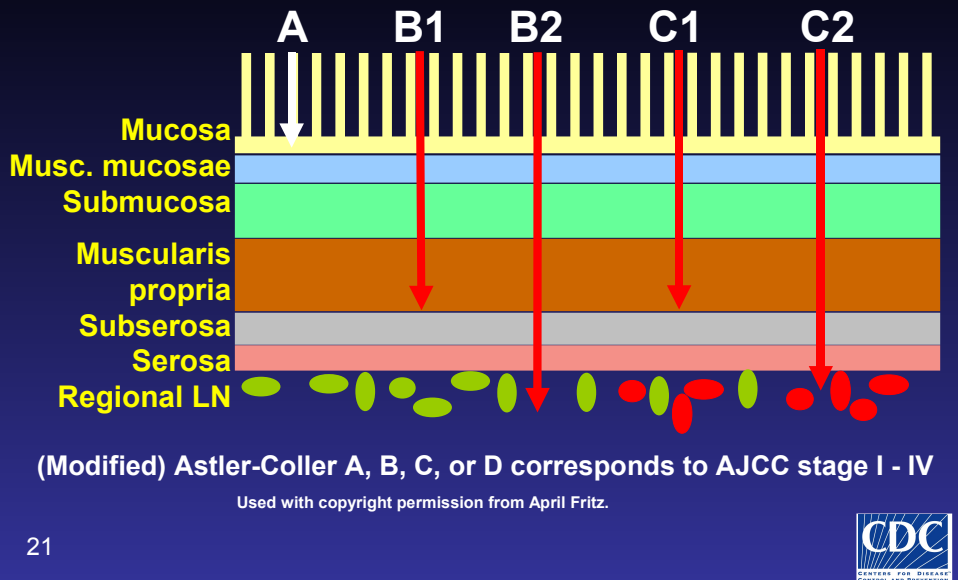
- Code 0 is for clinical findings only. These include physical examination and all imaging tests, such as X-rays, MRI, CT, and PET scans. Also included here are physician statements and observations about the presence or absence of metastases.
- Code 1 is for evaluation based on endoscopic exam, diagnostic biopsy, including fine needle aspiration, or other invasive techniques including surgical observation without biopsy. This code does not meet the criteria for AJCC pathologic stage.
- Code 2 is for autopsy cases only with known or suspected disease.
- Code 3 is used when surgical resection is performed without pre surgical systemic treatment or radiation, or if it is unknown if there was pre-surgical systemic treatment or radiation. Cases coded with this eval code meet the criteria for AJCC pathologic stage.
- Code 5 is used when a surgical resection is performed but the patient had pre-surgical systemic treatment or radiation. The information coded is based on clinical findings.
- Code 6 is used when a surgical resection is performed and the patient had pre-surgical treatment or radiation. The information coded is based on pathologic findings.
- Code 8 is used with autopsy-only cases and the tumor was unsuspected.
- Code 9 is information unknown; not assessed.

## Other Staging – Dukes (1932)



Dukes' staging is still used by some pathologists and managing physicians in the assignment of extent of disease in colorectal staging. Here is an illustration of Dukes' staging. Dukes' A classification is tumor to the muscularis propria, but not through it and corresponds to TNM Stage Group I. Dukes B' classification is invading through the muscularis propria into the subserosa or non-peritonealized pericolic or perirectal tissues; or tumor directly invading other organs or structures and/or perforates the visceral peritoneum. Dukes' B corresponds to Stage II in the TNM system. Dukes' C classification (Stage III) is spread to the regional lymph nodes. There is no Dukes' stage that corresponds to distant or Stage IV disease.

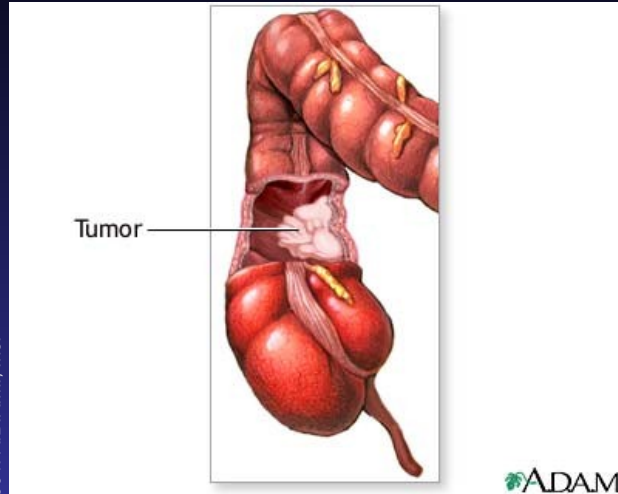
## Other Staging – Astler-Coller (1954)



Astler Coller follows the same pattern as Dukes' classification but splits the B category and adds the "D" classification which is M1, Stage IV, or metastatic disease.

# Extent of Disease

## Tumor within Cecum



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This is an illustration of a tumor within the cecum. It is important to know the depth of invasion of the tumor, as we have discussed, because it will assist in predicting survival and local and distant recurrence. The treatment of the patient will be determined based on the extent of the tumor within the colon or rectal wall and the involvement of lymph nodes and/or metastatic disease. Once the extent of disease is determined, treatment can begin. We have reviewed the extent of disease thoroughly, and are ready to code the treatment modalities.

**NEXT**

# **IV. TREATMENT**

## **Surgery and Adjuvant Therapy**

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(No Notes)

## Resources

1. Dryden M and Brogan K. Quality Control. Chapter 20 in Menck H et al., *Central Cancer Registries: Design, Management and Use, second edition*. Kendall Hunt Publishing Co., 2007.
2. Unpublished materials provided by National Program of Cancer Registries

**The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.**

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