Genitourinary Neoplasms

Updated for 2012 Requirements and CSv02.04

FCDS Educational Webcast Series

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Steven Peace, BS, CTR

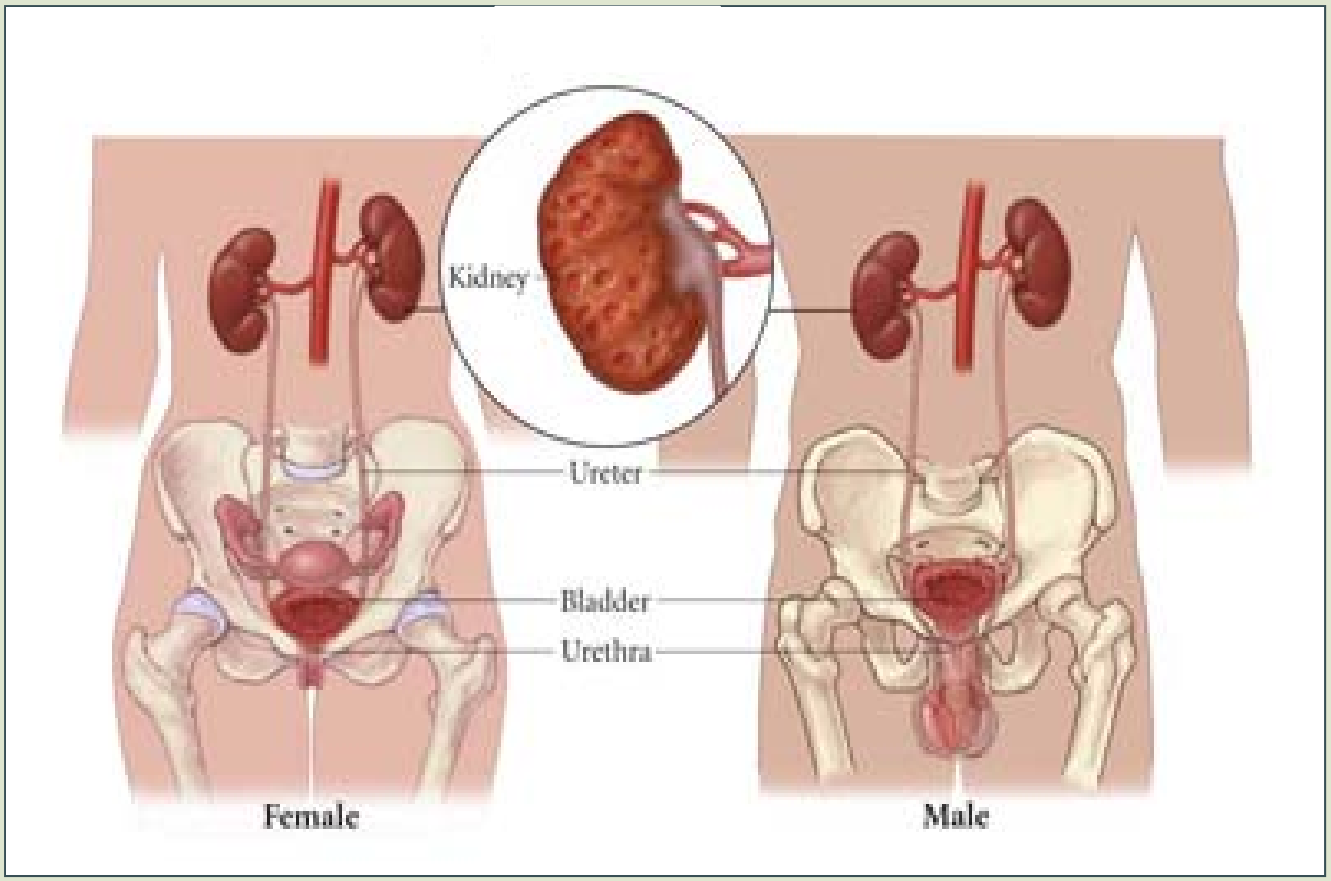
Susan Smith Pierce, CTR

Gema Midence, MBA, CTR

Presentation Outline

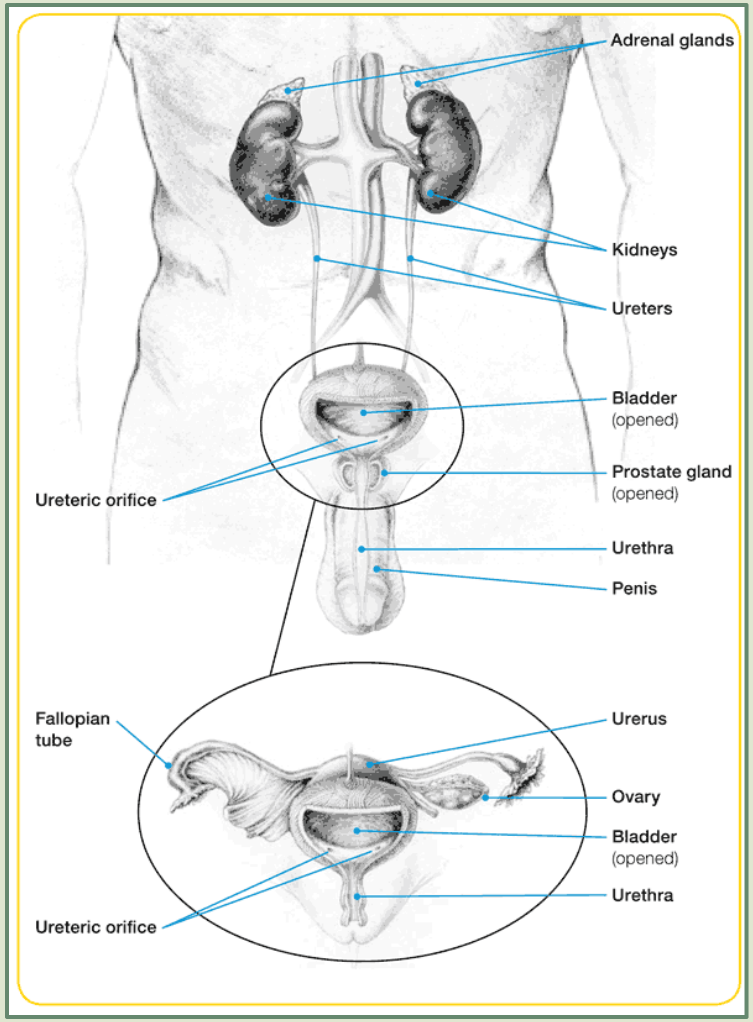
- General Information and Anatomy
  - Kidney – Renal Parenchyma
  - Kidney – Renal Pelvis
  - Ureters
  - Bladder
  - Prostate
- Multiple Primary and Histology Coding Rules (MPH)
- Collaborative Stage Data Collection System (CSv02.04)
- FCDS Required Site Specific Factors (SSFs)
- NCCN Treatment Guidelines
- Text Documentation

Genitourinary System



Source: http://medicaltrue.com/urinary-tract

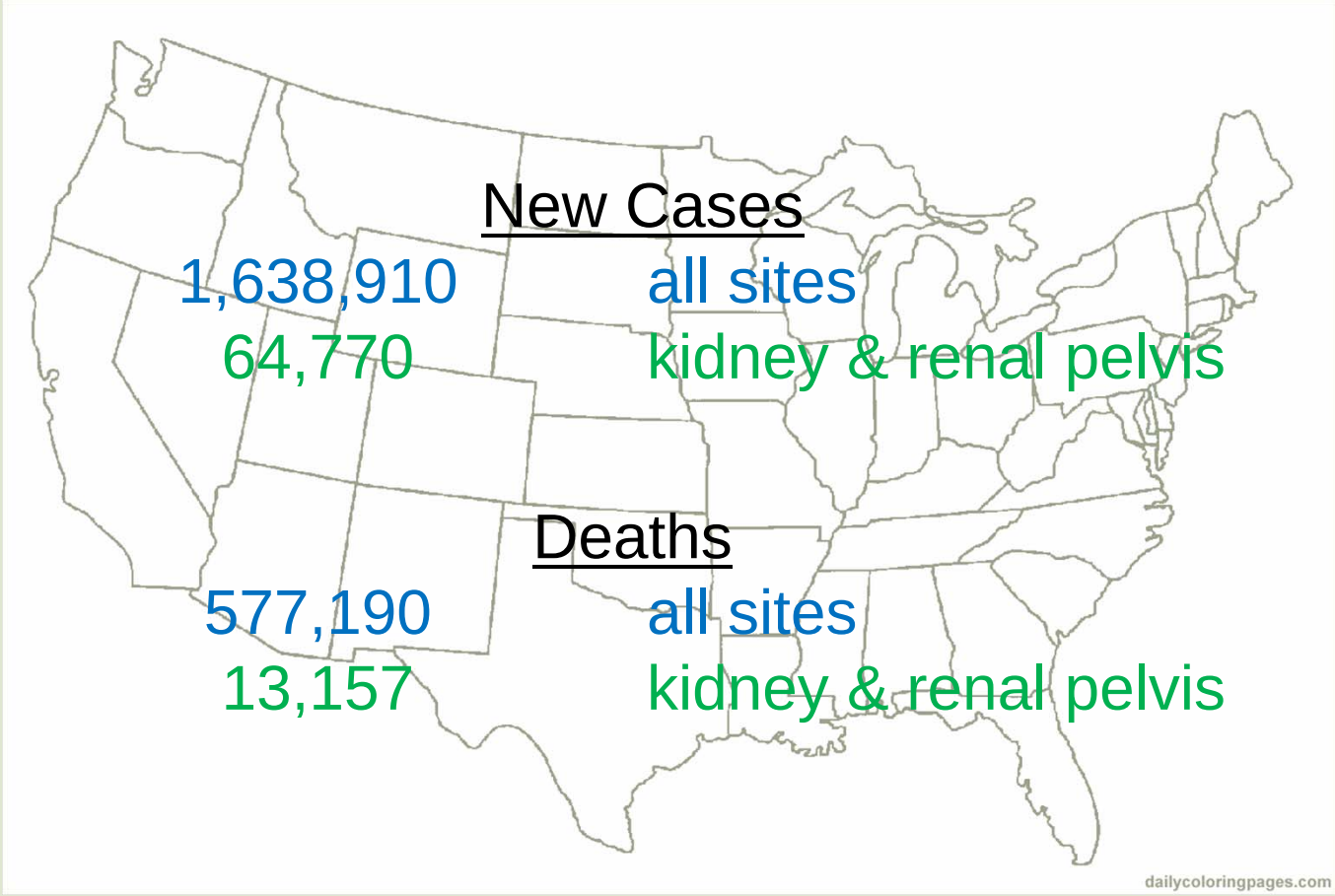
Genitourinary System



Source: http://cancervic.org.au/bladder_cancer

Kidney

U.S. Incidence/Mortality

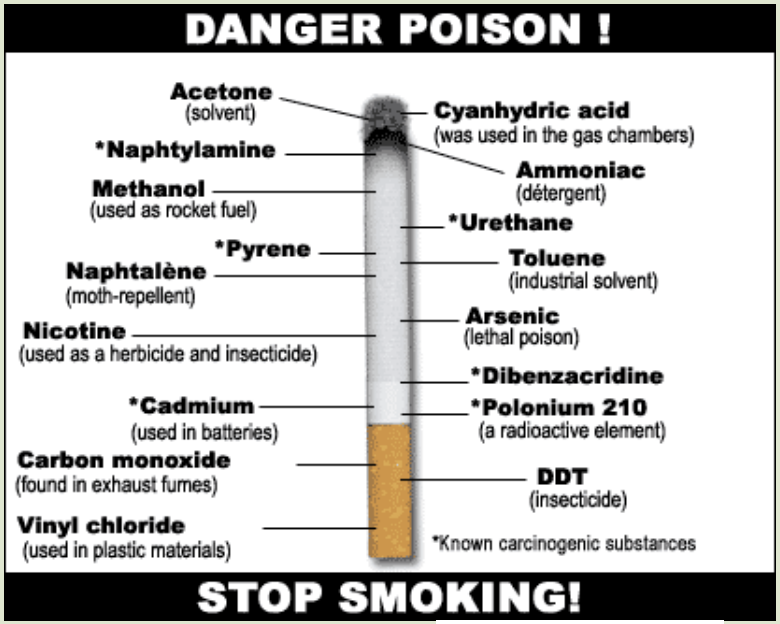


Source: American Cancer Society Cancer Facts and Figures 2012

Risk Factors/Screening

Risk Factors

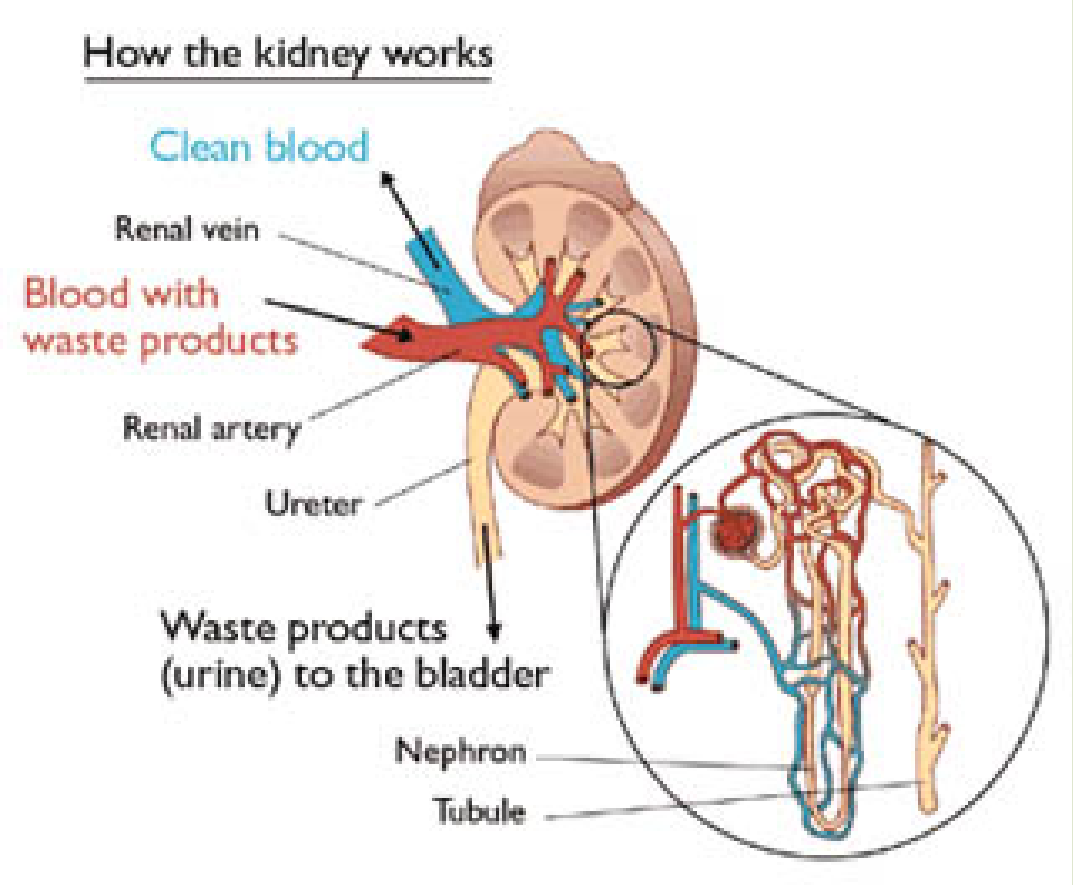
- Cigarette Smoking
- First-degree relative
- Long-term PCB exposure
- Long-term use of medicines
- Obesity



Screening

- None
- CT Scan
- Ultrasound
- Incidental Finding

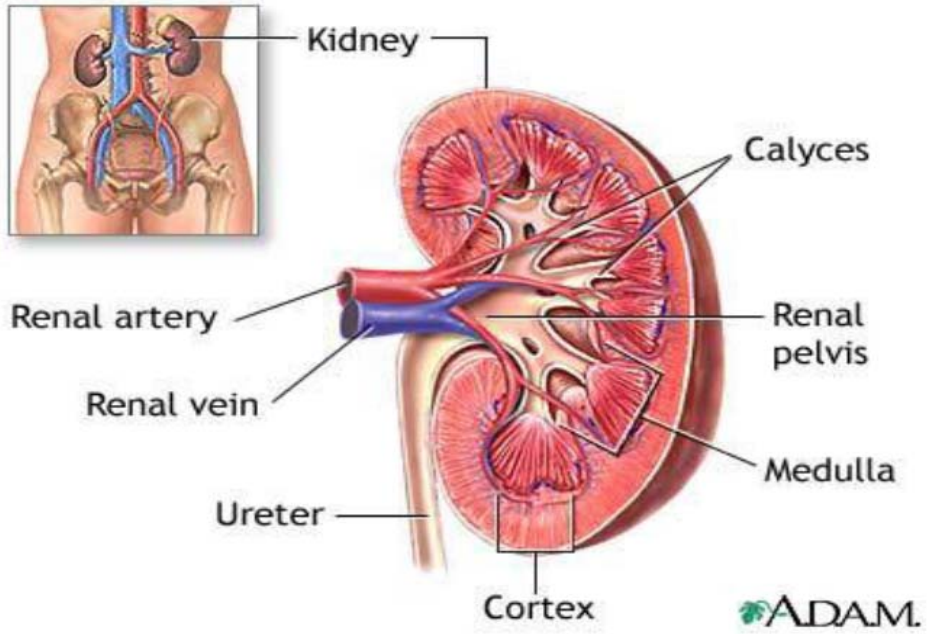
Kidney - Anatomy



Source: http://foxriverwatch.com/kidney_cancer

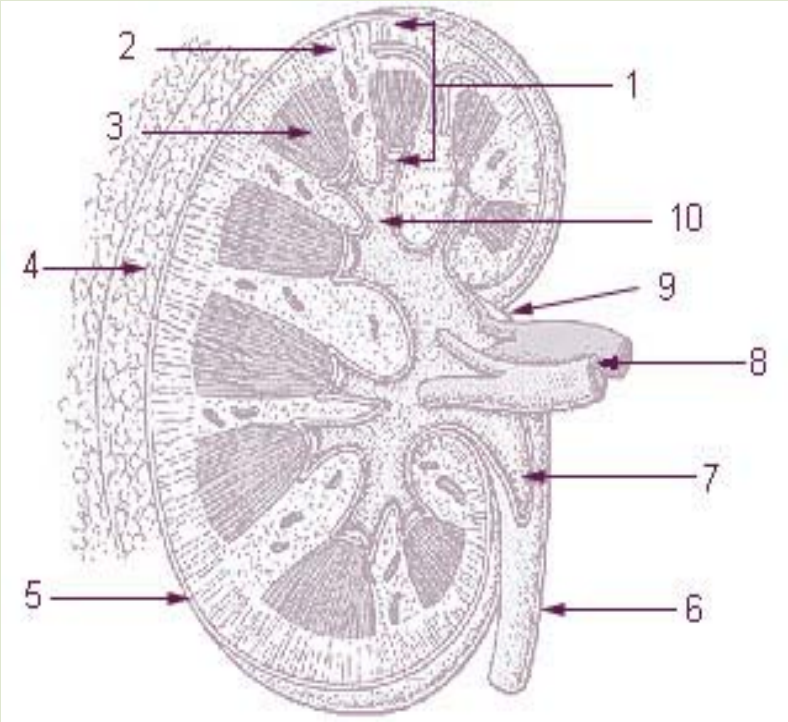
Kidney - Anatomy

Kidney Equivalent Terms, Definitions, Tables and Illustrations
C649
(Excludes lymphoma and leukemia – M9590 – 9989 and Kaposi sarcoma M9140)



Source: 2007 Multiple Primary and Histology Coding Rules

Kidney - Anatomy



1. Parenchyma
2. Cortex
3. Medulla
4. Perirenal fat
5. Capsule
6. Ureter
7. Pelvis of kidney
8. Renal vessels
9. Hilum
10. Calyx

Source: http://training.seer.cancer.gov

Kidney - Anatomy

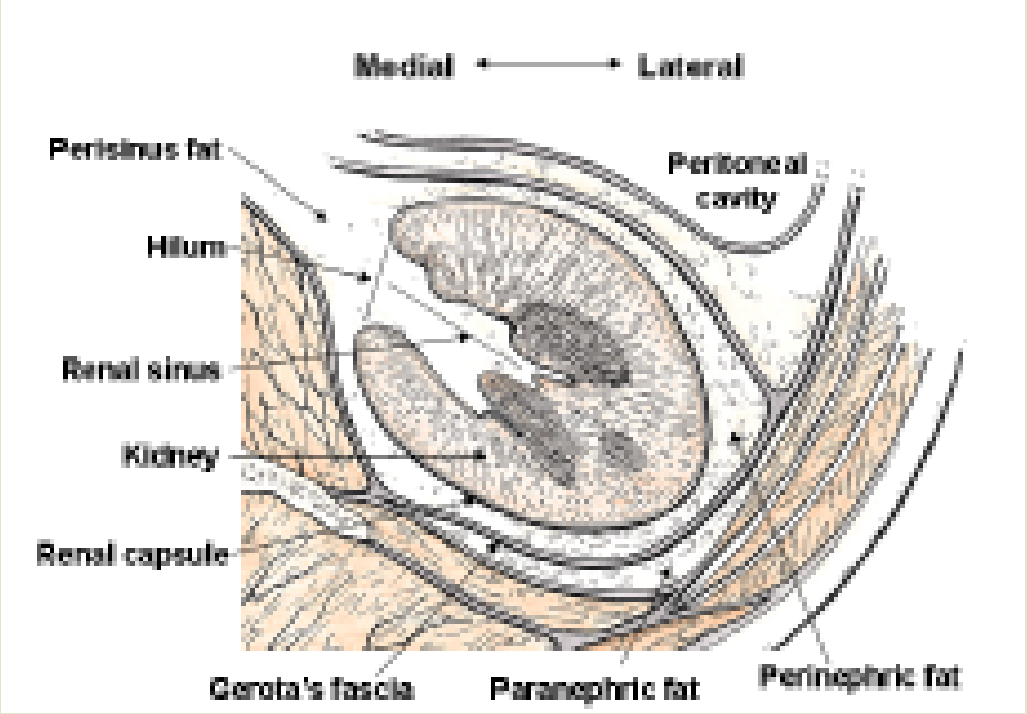


Figure I-2-13. Structures Adjacent to Kidney

Source: Collaborative Stage Data Collection System, Part I, Section 2

Kidney - Histology

Renal Cell Carcinoma and Renal Cell Carcinoma Subtypes

- **8312** **Renal cell carcinoma is a GROUP term for glandular (adeno) carcinoma of the kidney**

- 8255 Adenocarcinoma with mixed subtypes**
- 8260 Papillary (Chromophil)*
- 8310 Clear Cell
- 8316 Cyst associated, cystic
- 8317 Chromophobe*
- 8318 Sarcomatoid (Spindle cell)
- 8319 Collecting duct type (Bellini duct)
- 8320 Granular cell
- 8510 Medullary carcinoma, NOS; medullary adenocarcinoma
- 8959 Malignant cystic nephroma

Source: 2007 Multiple Primary & Histology Coding Rules

Kidney - MPH Rules

Kidney MPH Includes:

- Kidney Parenchyma
- Renal Parenchyma (C649)

Kidney Equivalent Terms, Definitions, Tables and Illustrations
C649
(Excludes lymphoma and leukemia – M9590 – 9989 and Kaposi sarcoma M9140)

INTRODUCTION

Renal cell carcinoma (8312) is a group term for glandular (adeno) carcinomas of the kidney. Approximately 85% of all malignancies of the kidney are renal cell and specific renal cell types.

Transitional cell carcinoma rarely arises in the kidney parenchyma (C649). Transitional cell carcinoma found in the upper urinary system usually arises in the renal pelvis (C659). Only code transitional cell carcinoma to kidney in the rare instance when pathology confirms the tumor originated in the parenchyma of the kidney.

Equivalent or Equal Terms

- **Multifocal** and **multicentric**
- **Renal cell carcinoma (RCC)** and **hypernephroma (obsolete term)**
- **Tumor, mass, lesion,** and **neoplasm**

Definitions

Adenocarcinoma with mixed subtypes (8255): A mixture of two or more of the specific renal cell carcinoma types listed in Table 1.

Carcinoma of the collecting ducts of Bellini/collecting duct carcinoma (8319) is a malignant epithelial tumor. There is controversy about the relationship between medullary carcinoma and collecting duct carcinoma; some advocate that there is a relationship, others are not convinced. Genetic studies are ongoing. We will code medullary carcinoma originating in the kidney to 8510 so we can differentiate between the medullary and the collecting duct carcinoma.

Chromophobe RCC (8317) is a rare form of kidney cancer. Chromophobe is a renal carcinoma characterized by large pale cells with prominent membranes.

Clear cell RCC (8310) is the most common type of RCC. Clear cell is composed of clear or eosinophilic cytoplasm. Clear cell is architecturally diverse, with solid alveolar and acinar patterns the most common.

Kidney Equivalent Terms, Definitions, Tables and Illustrations
C649
(Excludes lymphoma and leukemia – M9590 – 9989 and Kaposi sarcoma M9140)

Table 1 - Renal cell carcinoma and specific renal cell types

Table Instructions: Use this table to identify specific renal cell carcinoma types.
Note: Renal cell carcinoma, NOS (8312) is the non-specific term under which the specific renal cell carcinoma types are listed. This table is **a complete listing** of specific renal cell carcinoma types.

Column 1: Code	Column 2: Specific Renal Cell Carcinoma Types
8260	Papillary (Chromophil) *
8310	Clear Cell
8316	Cyst associated, cystic
8317	Chromophobe *
8318	Sarcomatoid (Spindle cell)
8319	Collecting duct type (Bellini duct)
8320	Granular cell
8510	Medullary carcinoma, NOS; medullary adenocarcinoma
8959	Malignant cystic nephroma; malignant multilocular cystic nephroma
* *Note:* Chromophil and chromophobe are different histologies	

Kidney Multiple Primary Rules - Flowchart

(C649)

(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

* Prepare one abstract. Use the histology coding rules to assign the appropriate histology code.

** Prepare two or more abstracts. Use the histology coding rules to assign the appropriate histology code to each case abstracted.

UNKNOWN IF SINGLE OR MULTIPLE TUMORS	DECISION	NOTES
		Tumor(s) not described as metastasis.
M1 Is it impossible to determine if there is a single tumor or multiple tumors? YES → SINGLE Primary*	End of instructions for Unknown if Single or Multiple Tumors	Use this rule only after all information sources have been exhausted.
NO → Go to Single Tumor or Multiple Tumors		
SINGLE TUMOR	**DECISION**	**NOTES**
		1. Tumor not described as metastasis. 2. Includes combinations of in situ and invasive
M2 Is there a single tumor? YES → SINGLE Primary*	End of instructions for Single Tumor.	The tumor may overlap onto or extend into adjacent/contiguous site or subsite.
NO → Go to Multiple Tumors.		

Kidney Multiple Primary Rules - Flowchart

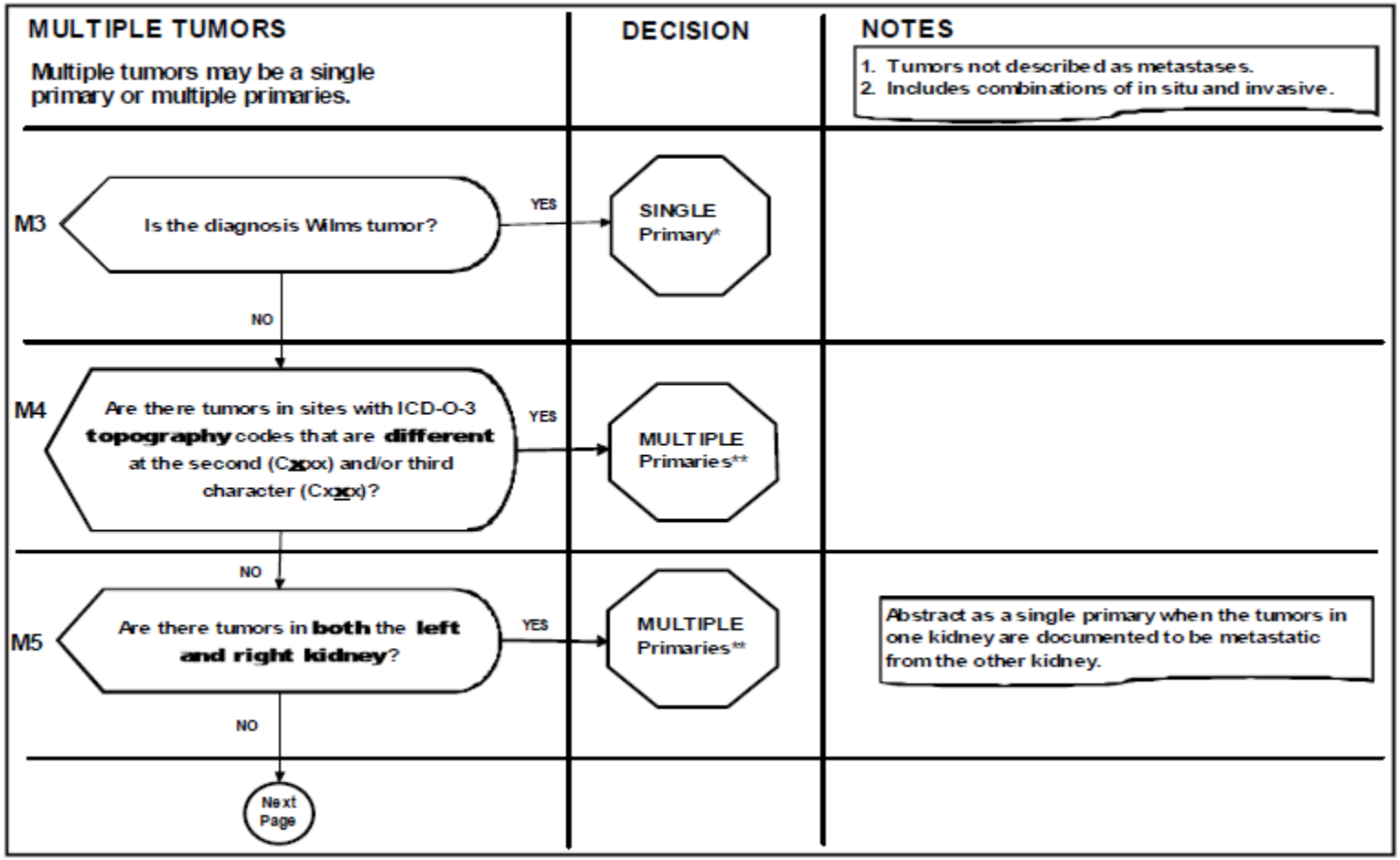
(C649)

(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

Flowchart Key: question | Decision | Note | Flow Direction

* Prepare one abstract. Use the histology coding rules to assign the appropriate histology code.

** Prepare two or more abstracts. Use the histology coding rules to assign the appropriate histology code to each case abstracted.



Kidney Multiple Primary Rules - Flowchart

(C649)

(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

* Prepare one abstract. Use the histology coding rules to assign the appropriate histology code.

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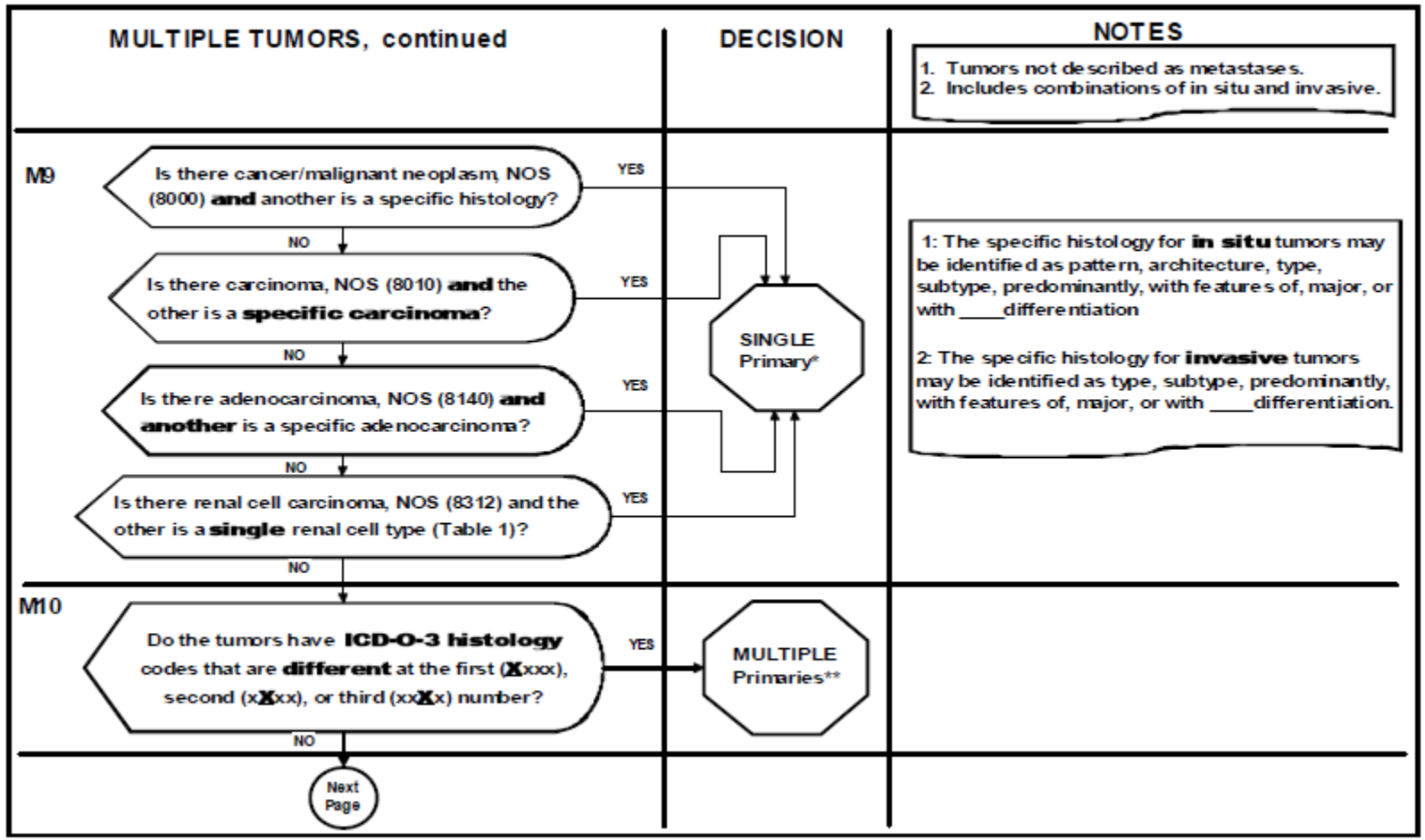
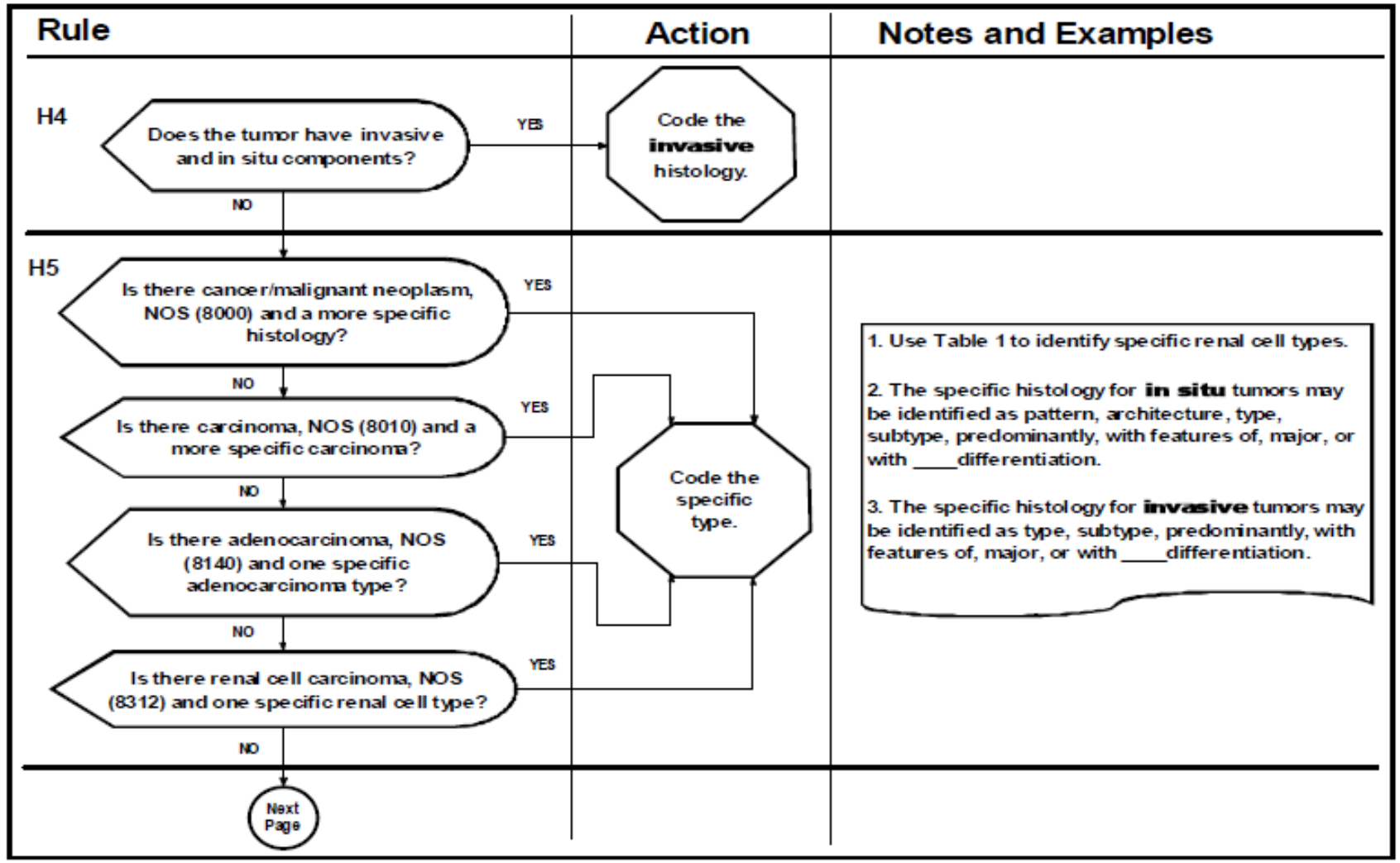


Kidney Histology Coding Rules - Flowchart

(C649)
(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

SINGLE TUMOR



Kidney Histology Coding Rules - Flowchart

(C649)
(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

SINGLE TUMOR

Rule	Action	Notes and Examples
H6 Are there **two or more specific** renal cell carcinoma types? YES	Code 8255 (adeno-carcinoma with mixed subtypes).	Use Table 1 to identify specific renal cell types. ***Example:*** Renal cell carcinoma, papillary and clear cell types. Assign code 8255.
NO H7	Code the **numerically higher** ICD-O-3 histology code.	

This is the end of instructions for Single Tumor.
Code the histology according to the rule that fits the case.

Kidney MPH Rules - Example 1

- Patient has two tumors in upper pole of left kidney.
- Both are T1a neoplasms (small tumor size)

- Histology 1: RCC, NOS (8312/3)
- Histology 2: RCC papillary type (8260/3)

- One Primary or Two Primaries ?
  - One Primary per Rule M9
  - RCC, NOS and an RCC Subtype in two tumors

- Histologic Type/Code ?
  - 8260/3 – Rule H12 - code the specific type

Kidney MPH Rules - Example 2

- Patient has two tumors in upper pole of left kidney.
- Both are T1a neoplasms (small tumor size)

- Histology 1: RCC papillary type (8260/3)
- Histology 2: RCC tubulocystic type (8316/3)

- One Primary or Two Primaries ?
  - Two Primaries per Rule M10
  - Two different subtypes of RCC – not RCC and a subtype

- Histologic Type/Histology Code ?
  - 8260/3 – RCC papillary type
  - 8316/3 – RCC cystic type

Kidney MPH Rules - Example 3

- Patient has one tumor in upper pole of right kidney.
- Histology: RCC with papillary and cystic features
- One Primary or Two Primaries ?
  - One Primary = One Tumor
- Histologic Type/Histology Code ?
  - 8255/3 – adenocarcinoma with mixed subtypes
  - Per Rule H6

Kidney – Collaborative Stage

V02.04

Collaborative Stage Version 2

TNM 7 Schema List (v.02.04)

Version v.02.04

Natural Order • **Alphabetical Order**

AdnexaUterineOther	GISTSmallIntestine	MelanomaLarynxGlottic	PalateHard
AdrenalGland	GISTStomach	MelanomaLarynxOther	PalateSoft
AmpullaVater	GumLower	MelanomaLarynxSubglottic	PancreasBodyTail
Anus	GumOther	MelanomaLarynxSupraglottic	PancreasHead
Appendix	GumUpper	MelanomaLipLower	PancreasOther
BileDuctsDistal	HeartMediastinum	MelanomaLipOther	ParotidGland
BileDuctsIntraHepat	HemeRetic	MelanomaLipUpper	Penis
BileDuctsPerihilar	Hypopharynx	MelanomaMouthOther	Peritoneum
BiliaryOther	IllDefinedOther	MelanomaNasalCavity	PeritoneumFemaleGen
Bladder	IntracranialGland	MelanomaNasopharynx	PharyngealTonsil
Bone	KaposiSarcoma	MelanomaOropharynx	PharynxOther
Brain	KidneyParenchyma		
Breast	KidneyRenalPelvis		
BuccalMucosa	LacrimalGland	MelanomaPharynxOther	Prostate
CarcinoidAppendix	LacrimalSac	MelanomaSinusEthmoid	Rectum
Cervix	LarynxGlottic	MelanomaSinusMaxillary	RespiratoryOther
CNSOther	LarynxOther	MelanomaSinusOther	Retinoblastoma
Colon	LarynxSubglottic	MelanomaSkin	Retroperitoneum
Conjunctiva	LarynxSupraglottic	MelanomaTongueAnterior	SalivaryGlandOther
CorpusAdenosarcoma	LipLower	MelanomaTongueBase	Scrotum
CorpusCarcinoma	LipOther	MerkelCellPenis	SinusEthmoid
CorpusSarcoma	LipUpper	MerkelCellScrotum	SinusMaxillary
CysticDuct	Liver	MerkelCellSkin	SinusOther
DigestiveOther	Lung	MerkelCellVulva	Skin
EndocrineOther	Lymphoma	MiddleEar	SkinEyelid
EpiglottisAnterior	LymphomaOcularAdnexa	MouthOther	SmallIntestine
Esophagus	MelanomaBuccalMucosa	MycosisFungoides	SoftTissue
EsophagusGEJunction	MelanomaChoroid	MyelomaPlasmaCellDisorder	Stomach
EyeOther	MelanomaCiliaryBody	NasalCavity	SubmandibularGland

KidneyParenchyma

KidneyParenchyma

Kidney (Renal Parenchyma)

C64.9

- C64.9 Kidney, NOS (Renal parenchyma)
- Note: Laterality must be coded for this site.

CS Tumor Size	CS Site-Specific Factor 7
CS Extension	Size of Metastasis in Lymph Nodes
CS Tumor Size/Ext Eval	CS Site-Specific Factor 8
CS Lymph Nodes	Extranodal Extension of Regional Lymph Nodes
CS Lymph Nodes Eval	CS Site-Specific Factor 9 = **988**
Regional Nodes Positive	CS Site-Specific Factor 10 = **988**
Regional Nodes Examined	CS Site-Specific Factor 11 = **988**
CS Mets at DX	CS Site-Specific Factor 12 = **988**
CS Mets Eval	CS Site-Specific Factor 13 = **988**
CS Site-Specific Factor 1	CS Site-Specific Factor 14 = **988**
Invasion Beyond Capsule	CS Site-Specific Factor 15 = **988**
CS Site-Specific Factor 2	CS Site-Specific Factor 16 = **988**
Vein Involvement	CS Site-Specific Factor 17 = **988**
CS Site-Specific Factor 3	CS Site-Specific Factor 18 = **988**
Ipsilateral Adrenal Gland Involvement	CS Site-Specific Factor 19 = **988**
CS Site-Specific Factor 4	CS Site-Specific Factor 20 = **988**
Sarcomatoid Features	CS Site-Specific Factor 21 = **988**
CS Site-Specific Factor 5	CS Site-Specific Factor 22 = **988**
Histologic Tumor Necrosis	CS Site-Specific Factor 23 = **988**
CS Site-Specific Factor 6	CS Site-Specific Factor 24 = **988**
Fuhrman Nuclear Grade	CS Site-Specific Factor 25 = **988**

KidneyParenchyma

CS Tumor Size

- Note 1: Code the tumor size as documented in the medical record.
- Note 2: The assignment of T1 and T2 categories for tumors limited to the kidney is based on tumor size. A physician's statement of the T category may be used to code CS Tumor Size and/or CS Extension if this is the only information in the medical record regarding one or both of these fields. However the two fields are coded independently: for example the record may document size but not extension, other than the physician's statement of the T category. Use codes 994, 996-998 as appropriate to code CS Tumor Size based on a statement of T when no other size information is available.

Code	Description
000	No mass/tumor found
001-988	001 - 988 millimeters (mm) (Exact size to nearest mm)
989	989 millimeters or larger
990	Microscopic focus or foci only and no size of focus given
991	Described as "less than 1 centimeter (cm)"
992	Described as "less than 2 cm," or "greater than 1 cm," or "between 1 cm and 2 cm"
993	Described as "less than 3 cm," or "greater than 2 cm," or "between 2 cm and 3 cm"
994	Described as "less than 4 cm," or "greater than 3 cm," or "between 3 cm and 4 cm" Stated as T1a with no other information on tumor size

KidneyParenchyma

CS Extension

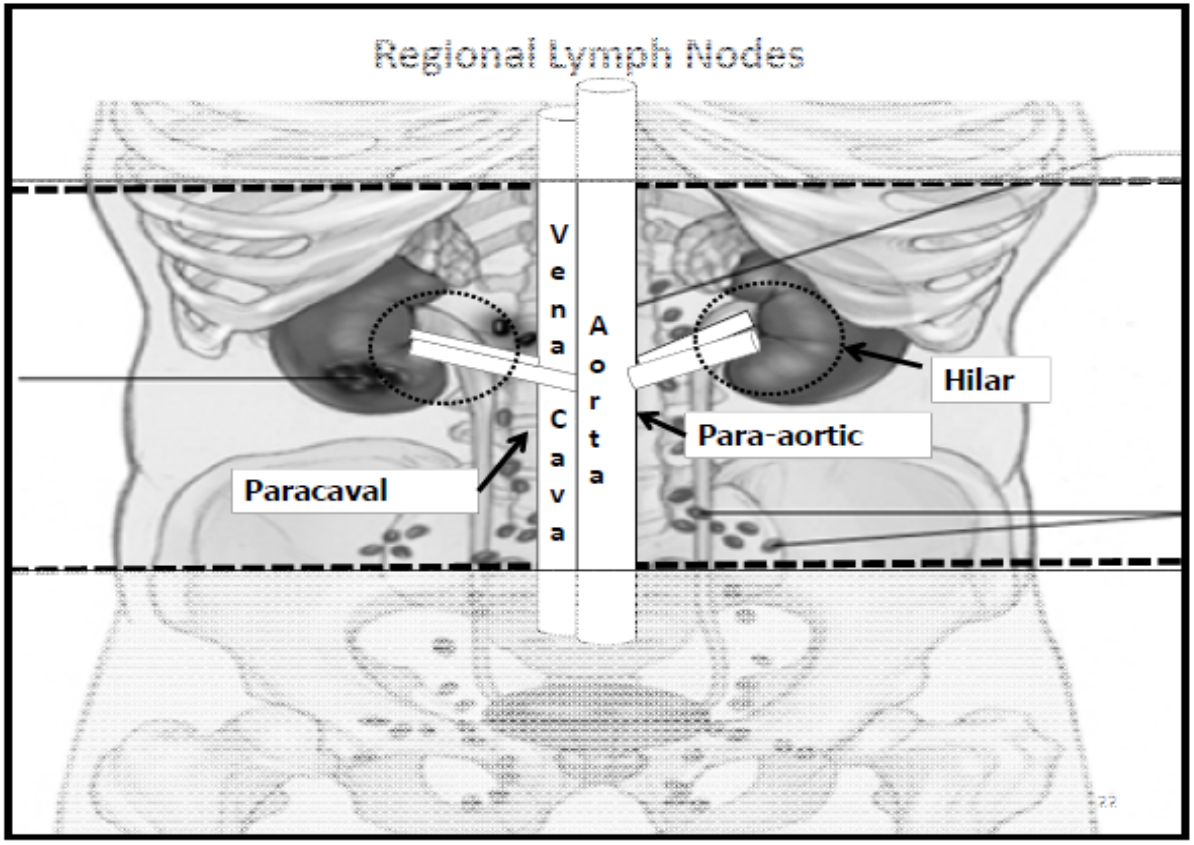
- Note 1: The parenchyma of the kidney includes the following structures: cortex (outer layer of kidney), renal columns; medulla, medullary rays, renal pyramids, and renal papillae; nephrons (renal corpuscle, loops of Henle, proximal and distal tubules, collecting duct); glomerulus and surrounding Bowman's capsule. The most common site for renal parenchymal cancer to develop is in the proximal convoluted tubule. Tumor extension from one of these structures into another is coded 100 in the absence of further involvement.
- Note 2: Gerota's fascia is a fibrous tissue sheath surrounding the kidney and suprarenal or adrenal gland. The perirenal fat, renal capsule, and renal parenchyma lie below the fascia.
- Note 3: Information about invasion beyond the capsule, venous involvement, and ipsilateral adrenal gland involvement is collected in this field for anatomic staging. This information is also collected in CS Site-Specific Factors 1, 2, and 3 as these factors may have an independent effect on prognosis.
- Note 4: AJCC considers "in situ carcinoma of the renal parenchyma" an impossible diagnosis. Any case so coded is mapped to TX for AJCC stage and in situ Summary Stage.
- Note 5: Use code 300 (Localized, NOS) only when no further information is available to assign code 100, 200, or 310-360.
- Note 6: The assignment of T1 and T2 categories for tumors limited to the kidney is based on tumor size. A physician's statement of the T category may be used to code CS Tumor Size and/or CS Extension if this is the only information in the medical record regarding one or both of these fields. However the two fields are coded independently: for example the record may document size but not extension, other than the physician's statement of the T category. Use codes 310-360, 605-625 or 810 as appropriate to code CS Extension based on a statement of T when no other extension information is available.
- Note 7: Direct extension to or other involvement of structures considered M1 in AJCC staging is coded in the data item CS Mets at DX. This includes: contralateral kidney; contralateral ureter; liver from left kidney; spleen from right kidney.

Code	Description	TNM 7 Map	TNM 6 Map	SS77 Map	SS2000 Map
000	In situ, intraepithelial, noninvasive	TX	TX	IS	IS
100	Invasive cancer confined to kidney cortex and/or medulla	^	*	L	L
200	Invasion of renal capsule Renal pelvis or calyces involved Separate focus of tumor in renal pelvis/calyx	^	*	L	L
300	Localized, NOS	^	*	L	L
310	Stated as T1a with no other information on extension	^	*	L	L
320	Stated as T1b with no other information on extension	^	*	L	L
330	Stated as T1 [NOS] with no other information on extension	^	*	L	L
340	Stated as T2a with no other information on extension	^	*	L	L
350	Stated as T2b with no other information on extension	^	*	L	L
360	Stated as T2 [NOS] with no other information on extension	^	*	L	L

CS Extension

610	Inferior vena cava (IVC) below diaphragm Stated as T3b with no other information on extension	T3b	T3b	RE	RE
620	IVC above diaphragm or invades wall of IVC Stated as T3c with no other information on extension	T3c	T3c	RE	RE
625	IVC, NOS Stated as T3 [NOS] with no other information on extension	T3NOS	T3NOS	RE	RE
630	Ipsilateral adrenal (suprarenal) gland (Noncontiguous ipsilateral adrenal gland involvement coded in CS Mets at DX)	T4	T3a	RE	RE
640	630 + (601 and/or 610) Ipsilateral adrenal gland plus blood vessels listed in code 601 and/or IVC below diaphragm	T4	T3b	RE	RE
645	630 + 620 Ipsilateral adrenal gland plus IVC above diaphragm or wall of IVC	T4	T3c	RE	RE
650	Extension beyond Gerota's fascia to: Ascending colon from right kidney Descending colon from left kidney Diaphragm Duodenum from right kidney Peritoneum Tail of pancreas Ureter, including implant(s), ipsilateral Beyond Gerota's fascia, NOS	T4	T4	RE	RE
660	Retroperitoneal soft tissue	T4	T4	RE	RE
665	660 + any of (460, 601, 610, 620, 625, 630, 640, 645, 650)	T4	T4	RE	RE

CS Lymph Nodes



Source: AJCC Cancer Staging Atlas

CS Mets at Dx

Code	Description
00	No distant metastasis
10	Distant lymph node(s)
20	Extension to: Contralateral kidney Contralateral ureter Liver from left kidney Spleen from right kidney
40	Noncontiguous ipsilateral adrenal (suprarenal) gland metastasis (Contiguous involvement coded in CS Extension) Distant metastasis except distant lymph node(s) Carcinomatosis
50	OBSOLETE DATA CONVERTED V0203 See code 55 40 + 10 Distant metastasis plus distant lymph node(s)
55	(40 or 20) + 10 Distant metastasis or extension coded in 20 plus distant lymph node(s)
60	Distant metastasis, NOS Stated as M1 with no other information on distant metastasis
99	Unknown; distant metastasis not stated Distant metastasis cannot be assessed Not documented in patient record

CS Site-Specific Factors

SSF1: Invasion Beyond Capsule

SSF2: Vein Involvement

SSF3: Ipsilateral Adrenal Gland Involvement

SSF4: Sarcomatoid Features

SSF5: Histologic Tumor Necrosis

Not Required

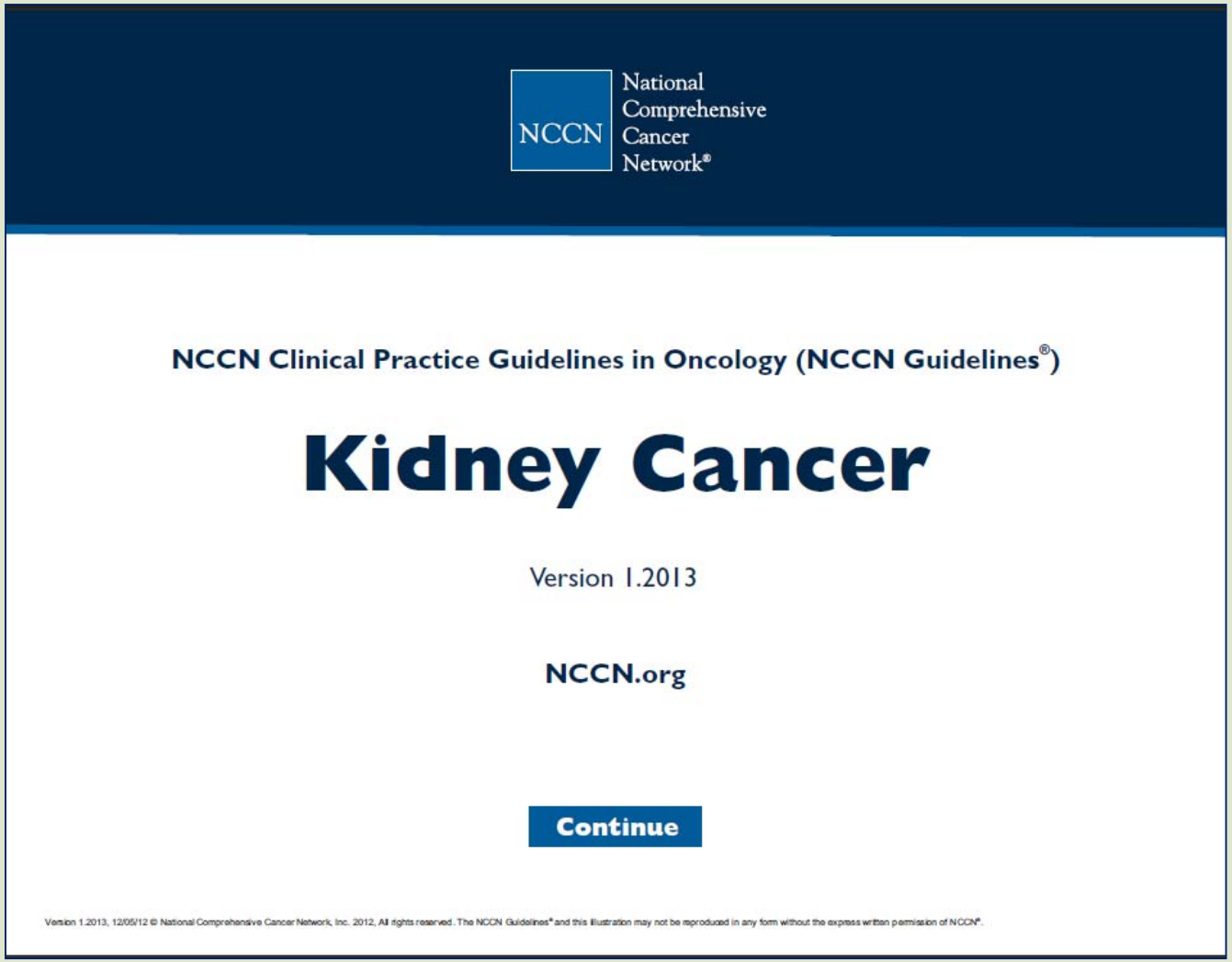
SSF6: Fuhrman Nuclear Grade

SSF7: Size of Metastasis in Lymph Nodes

Not Required

SSF8: Extranodal Extension

Kidney Cancers - Treatment


NCCN
National
Comprehensive
Cancer
Network®
NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)
Kidney Cancer
Version 1.2013
NCCN.org
Continue
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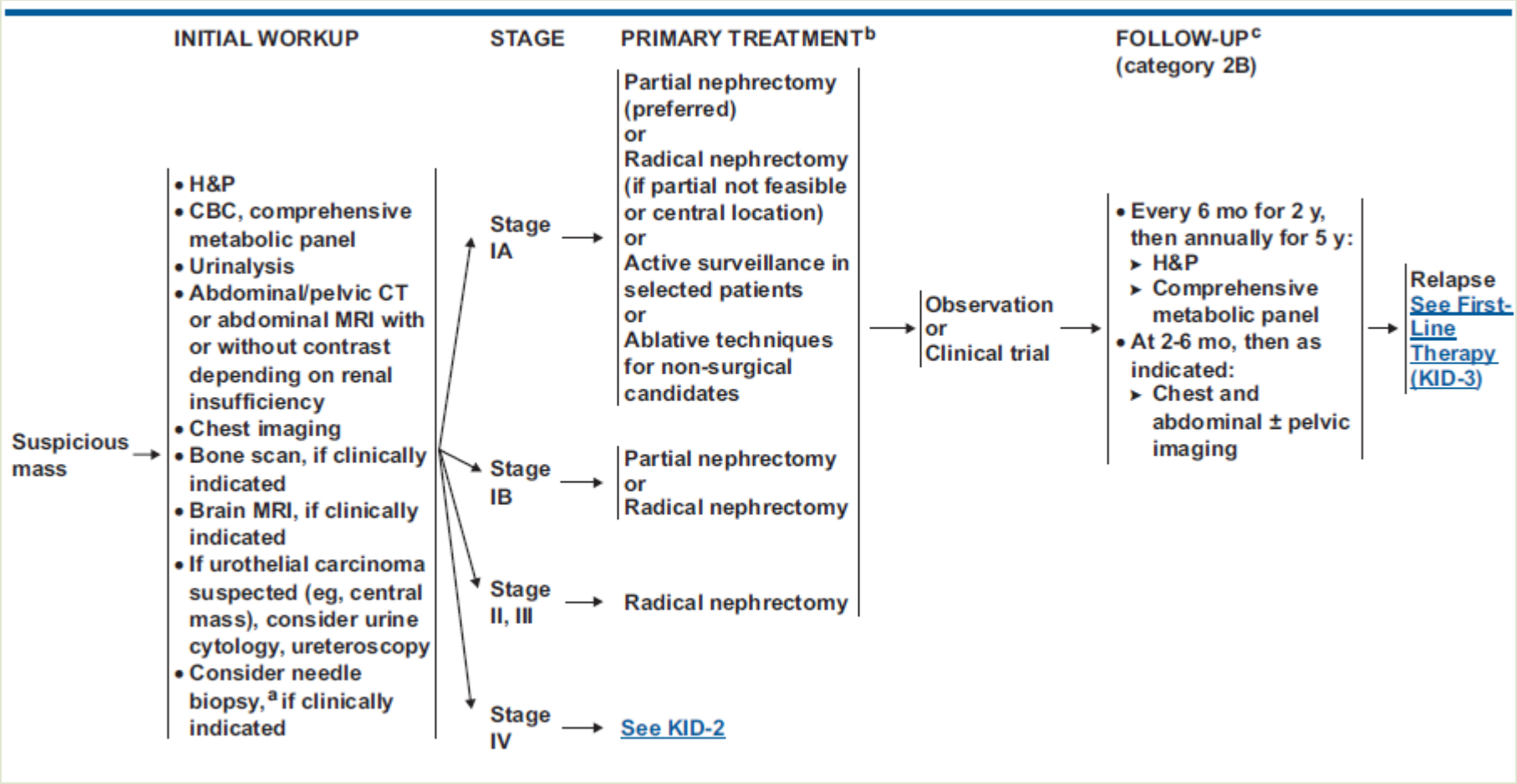
Kidney – Early Stage

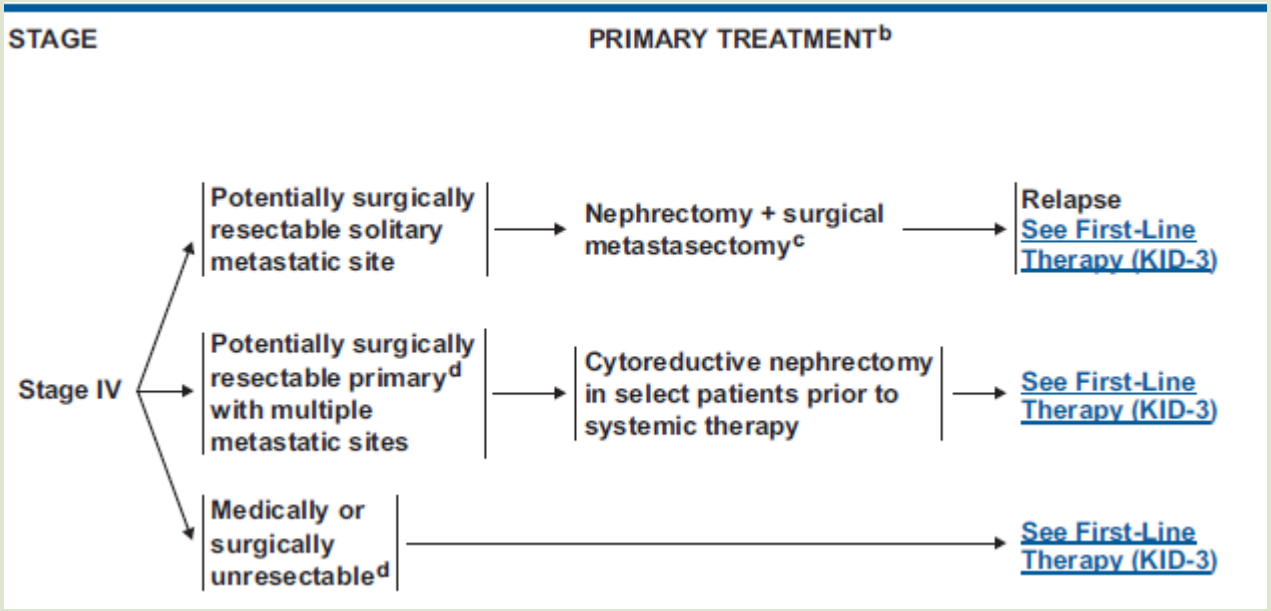


Kidney – Early Stage

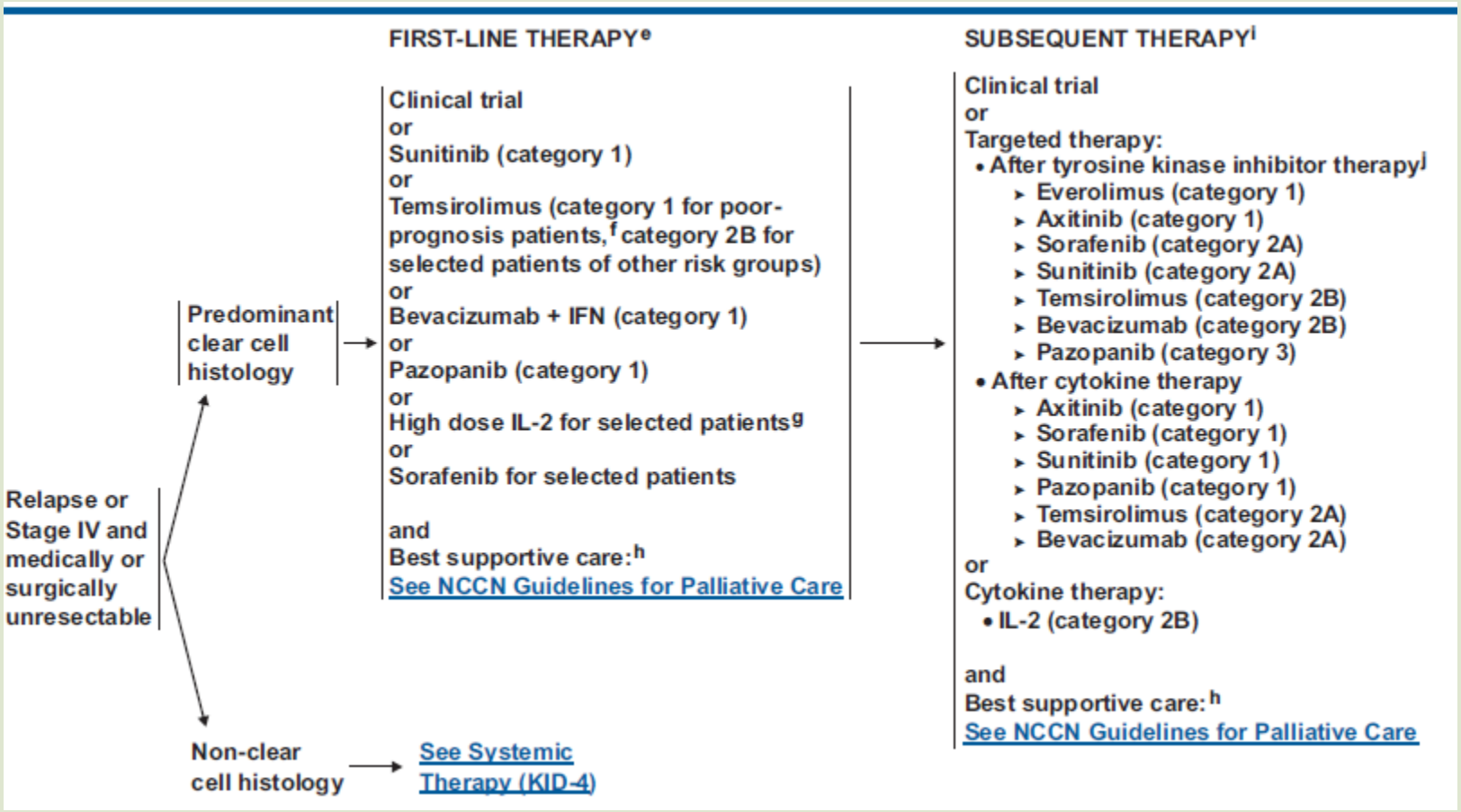
PRINCIPLES OF SURGERY

- Nephron-sparing surgery (partial nephrectomy) is appropriate in selected patients, for example:
  - Small unilateral tumors (T1a and selected patients T1b)
  - Uninephric state, renal insufficiency, bilateral renal masses, and familial renal cell cancer
- Open, laparoscopic, or robotic surgical techniques may be used to perform radical and partial nephrectomies.
- Regional lymph node dissection is optional but is recommended for patients with adenopathy on preoperative imaging or palpable/visible adenopathy at time of surgery.
- Adrenal gland resection may be omitted if adrenal is uninvolved and tumor is not high risk on the basis of size and location.
- Special teams may be required for extensive inferior vena cava involvement.
- Observation or ablative techniques (eg, cryosurgery, radiofrequency ablation):
  - Can be considered for patients with clinical stage T1 renal lesions who are not surgical candidates.
  - Biopsy of small lesions may be considered to obtain or confirm a diagnosis of malignancy and guide surveillance, cryosurgery, and radiofrequency ablation strategies.
  - Randomized phase III comparison with surgical resection (ie, radical or partial nephrectomy by open or laparoscopic techniques) has not been done.
  - Ablative techniques are associated with a higher local recurrence rate than conventional surgery.[1,2]
- Generally, patients who would be candidates for cytoreductive nephrectomy prior to systemic therapy have:
  - Excellent performance status (ECOG PS <2)
  - No brain metastasis

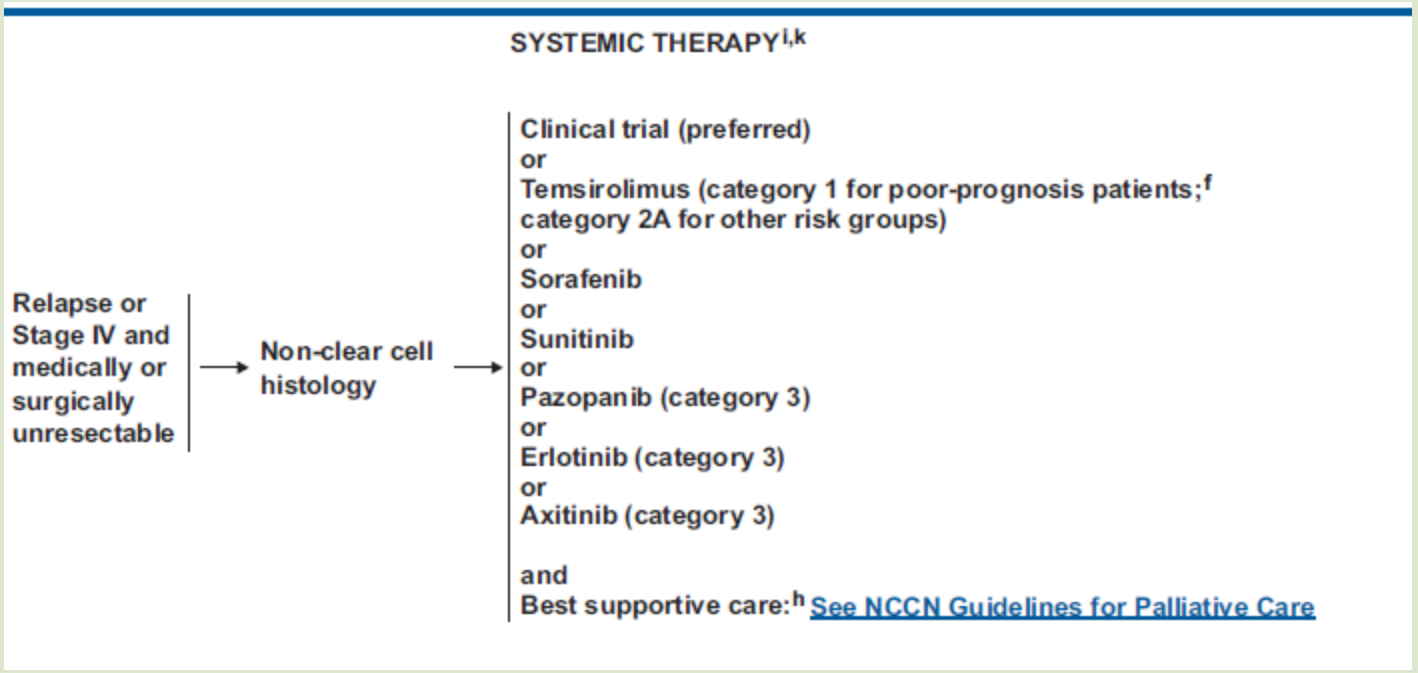
Kidney – Late Stage



Kidney – Late Stage



Kidney – Late Stage



Urothelial Neoplasms

Urothelium

The layer of transitional epithelium that lines the wall of the renal pelvis, ureters, the bladder, and parts of the urethra

The lining is made up of transitional epithelial cells that stop urine from entering the body.

Urine consists of water and waste products.

Field Effect Theory

The field effect theory suggests that the urothelium has undergone a widespread change, perhaps in response to a carcinogen, making it more sensitive to malignant transformations.

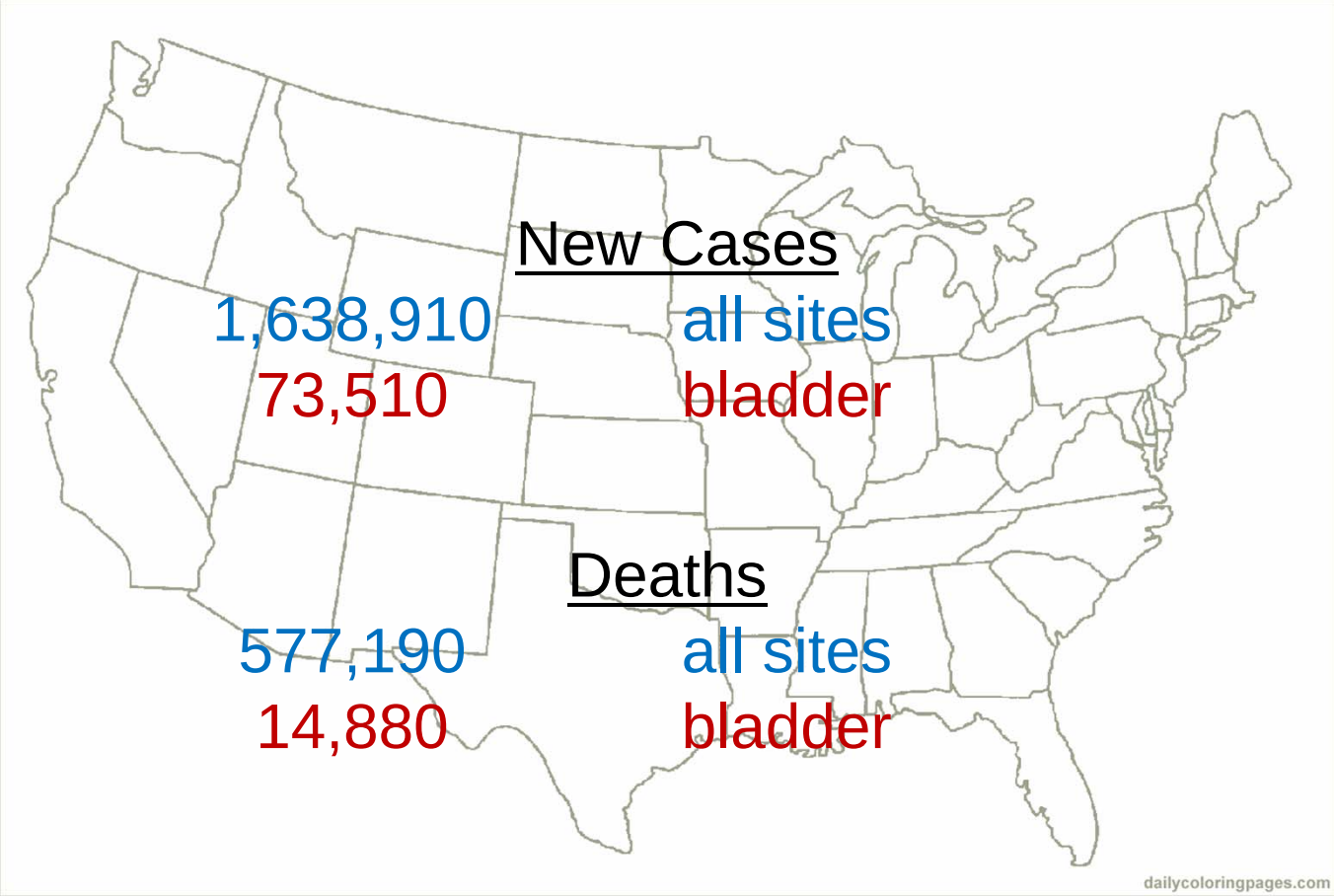
As a result, multiple tumors arise more easily.

Implantation Theory

The implantation theory suggests that tumor cells in one location lose their attachments and float in the urine until they attach (implant) on another site.

Urothelial tumors commonly spread in a head-to-toe direction, for example from the renal pelvis to the ureter(s) to the bladder.

U.S. Incidence/Mortality

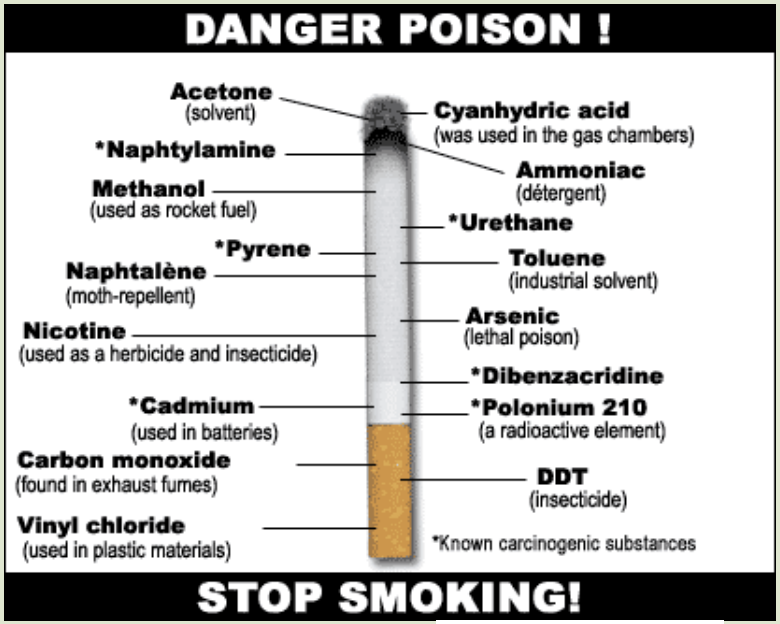


Source: American Cancer Society Cancer Facts and Figures 2012

Risk Factors/Screening

Risk Factors

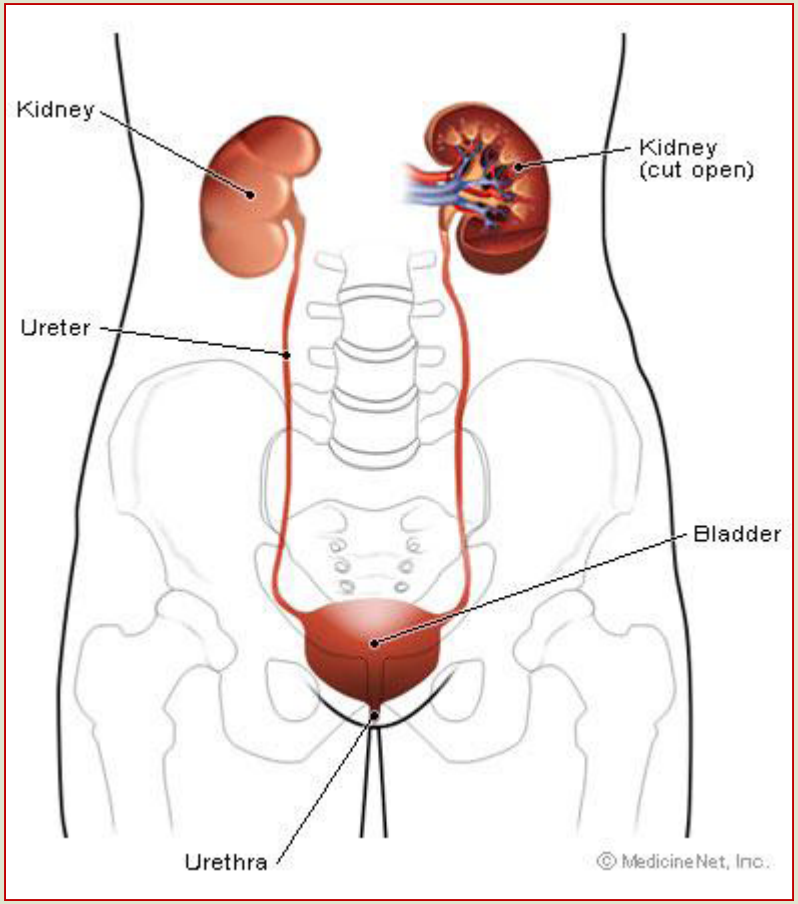
- Cigarette Smoking
- Chemical Exposures: dyes, solvents, paints, rubber, benzene, etc.
- Cyclophosphamide
- Chronic Inflammation
- Parasite Schistosoma



Screening

- None
- Blood in Urine
- Ultrasound
- Cystoscopy
- Incidental Finding

Anatomy



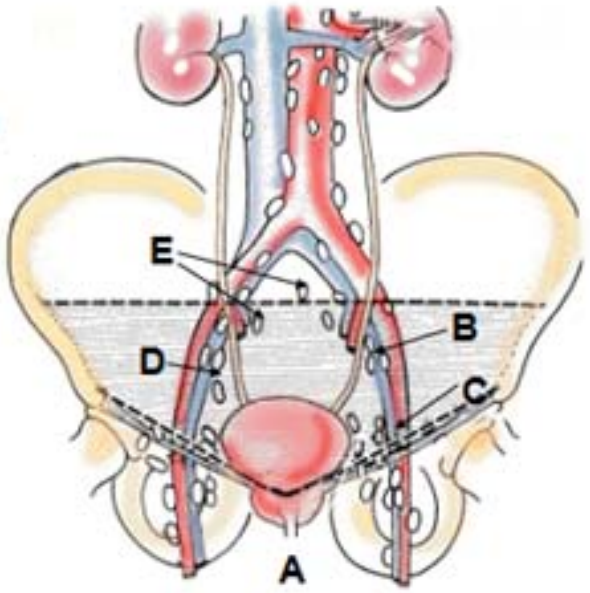
Source: http://www.medicinenet.com

Anatomy

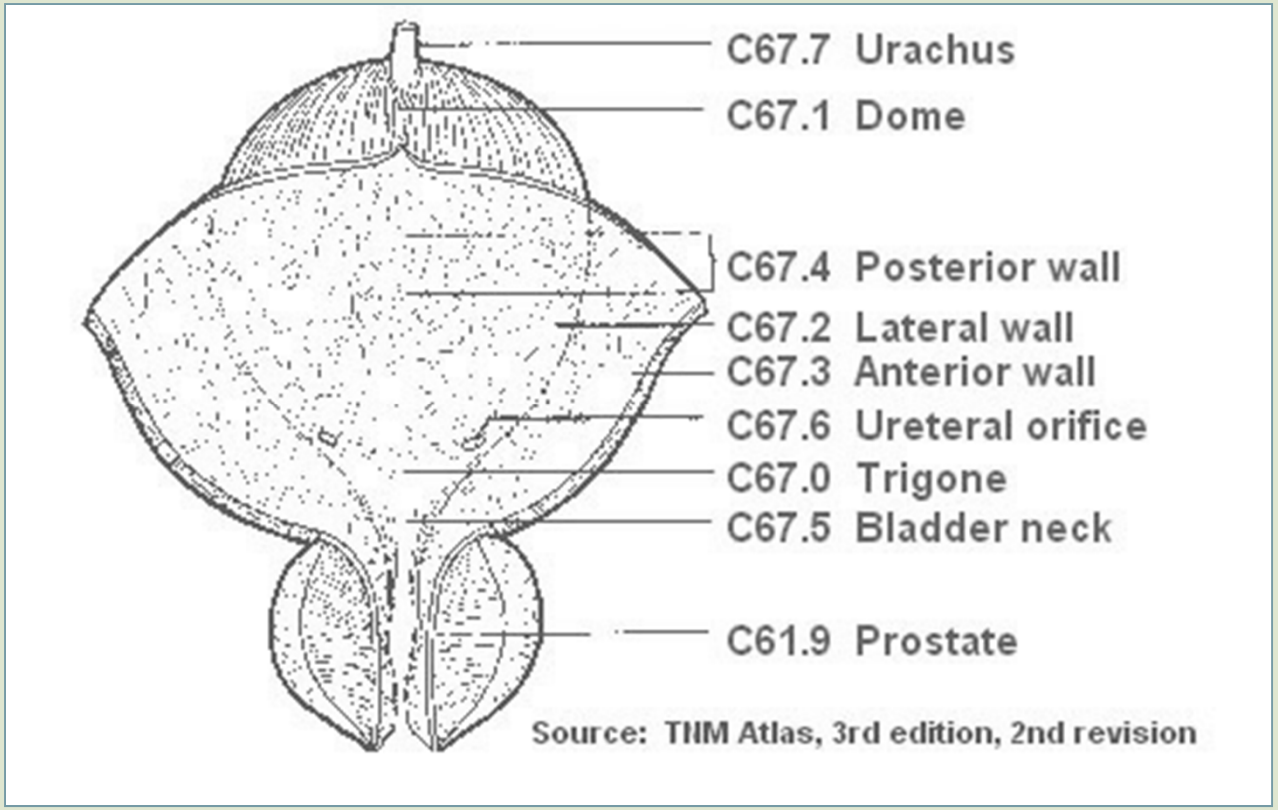
Lymph Nodes – Ureter, Bladder

Bladder and Distal Ureter
Perivesical (A)
Iliac, internal (hypogastric) (B)
Obturator (C)
Iliac, external (D)
Sacral (E), presacral
Pelvic, NOS (all nodes within shadowed area)

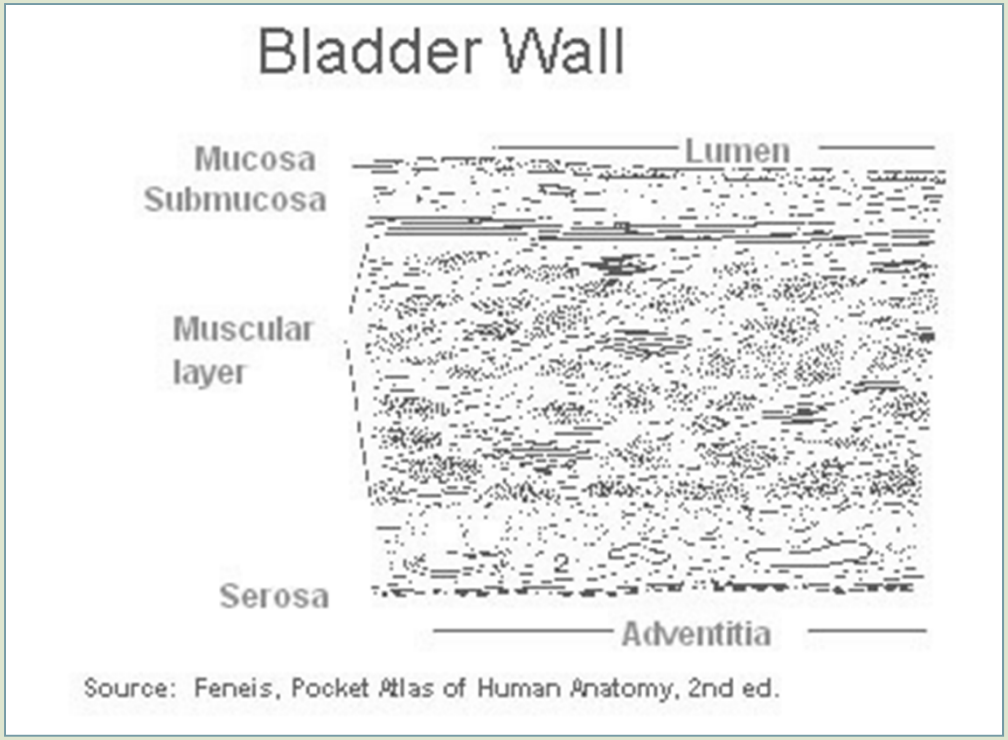
Also for ureter:
Periureteral
Iliac, common



Anatomy


C67.7 Urachus
C67.1 Dome
C67.4 Posterior wall
C67.2 Lateral wall
C67.3 Anterior wall
C67.6 Ureteral orifice
C67.0 Trigone
C67.5 Bladder neck
C61.9 Prostate
Source: TNM Atlas, 3rd edition, 2nd revision

Anatomy

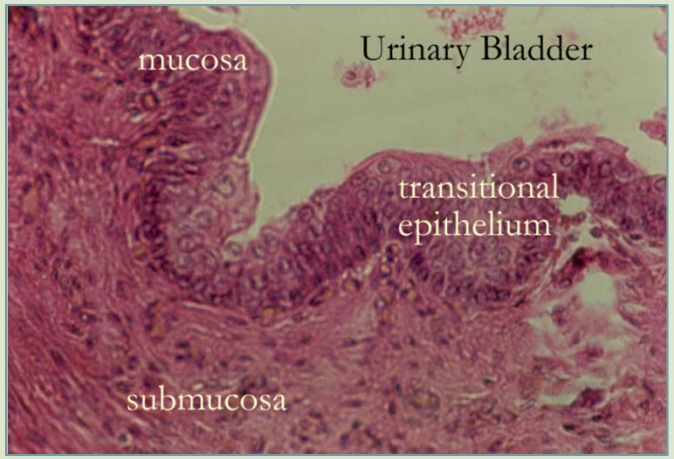

Bladder Wall
Lumen
Mucosa
Submucosa
Muscular
layer
Serosa
Adventitia
Source: Feneis, Pocket Atlas of Human Anatomy, 2nd ed.

Anatomy

- Urothelium
  - Mucosa
  - Epithelium
  - Transitional Epithelium
  - Mucosal Surface
  - Transitional Mucosa
  - Tunica Mucosa
  - Vesicae Urinariae
- Lamina Propria
  - Submucosa
  - Suburothelial Connective Tissue
  - Subepithelial Tissue
  - Stroma
  - Muscularis Mucosa
  - Transitinoal Epithelium
- Muscularis Propria
  - Submucosa
  - Muscularis Externa
  - Smooth Muscle

Histology

- Urothelial Carcinoma = Transitional Cell Carcinoma
- Squamous Cell Carcinoma
- Adenocarcinoma
- Small Cell Carcinoma
- Small Cell Neuroendocrine



Source: http://iws.collin.edu/mweis/A&P

Histology

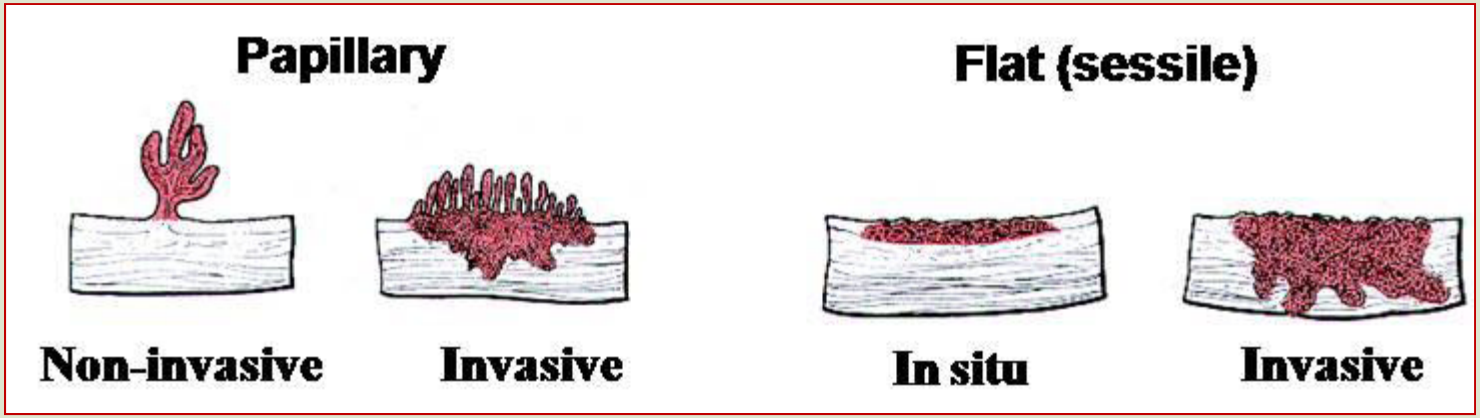
Table 1 – Urothelial Tumors

Note: Excludes pure squamous carcinoma, glandular (adeno) carcinoma, or other bladder tumor histologies.

Urothelial/Transitional Cell Tumors	Code
With squamous differentiation	8120
With glandular differentiation	
With trophoblastic differentiation	
Nested	
Microcystic	
Transitional cell, NOS	
Papillary carcinoma	8130
Papillary transitional cell	
Micropapillary	8131
Lymphoepithelioma-like	8082
Plasmacytoid	
Sarcomatoid	8122
Giant cell	8031
Undifferentiated	8020

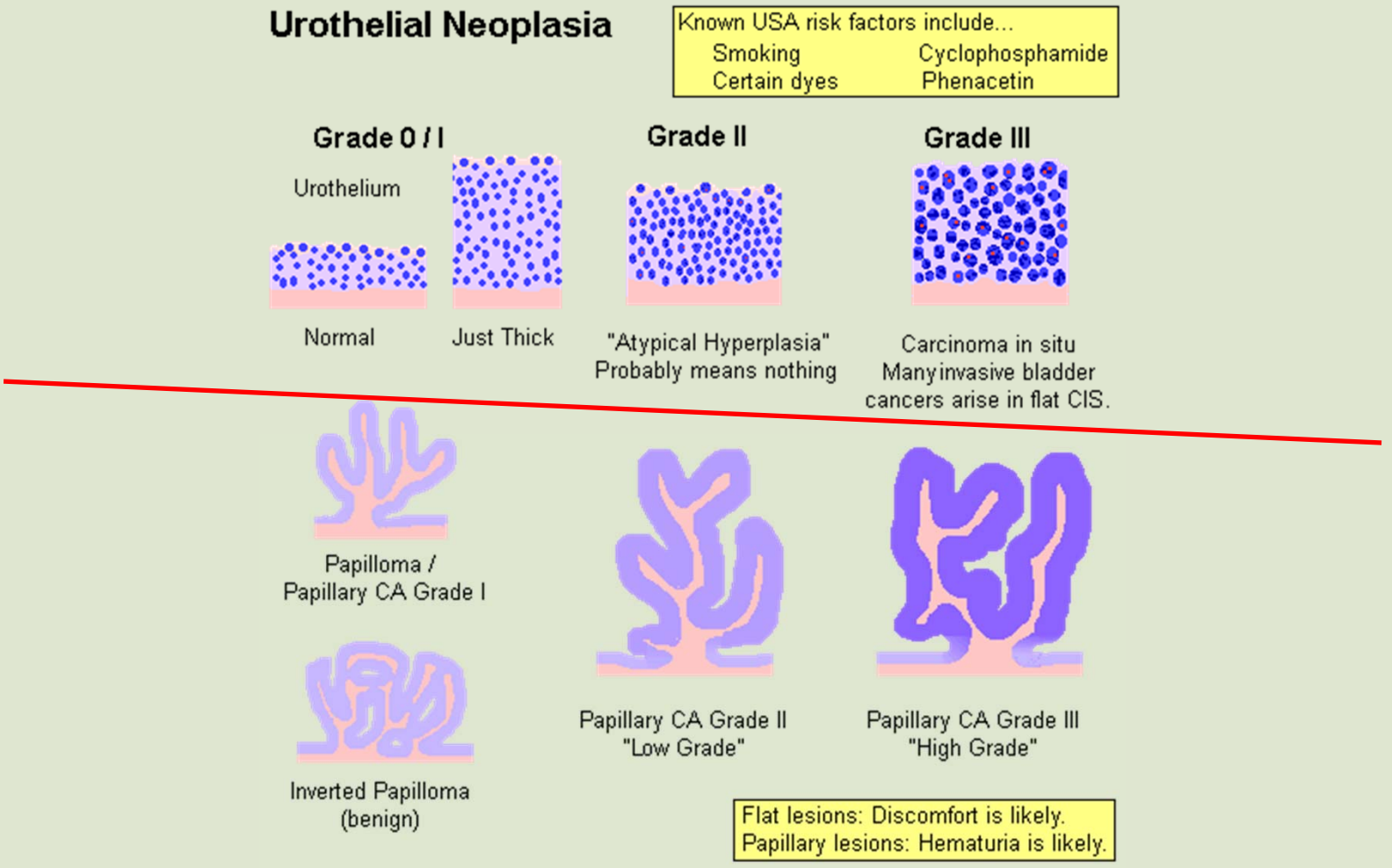
Source Multiple Primary & Histology Coding Rules - Table 1 – Urothelial Tumors

Histology



Source Multiple Primary & Histology Coding Rules - Table 1 – Urothelial Tumors

Tumor Grade



Source: http://pathguy.com/lectures/bladder.htm

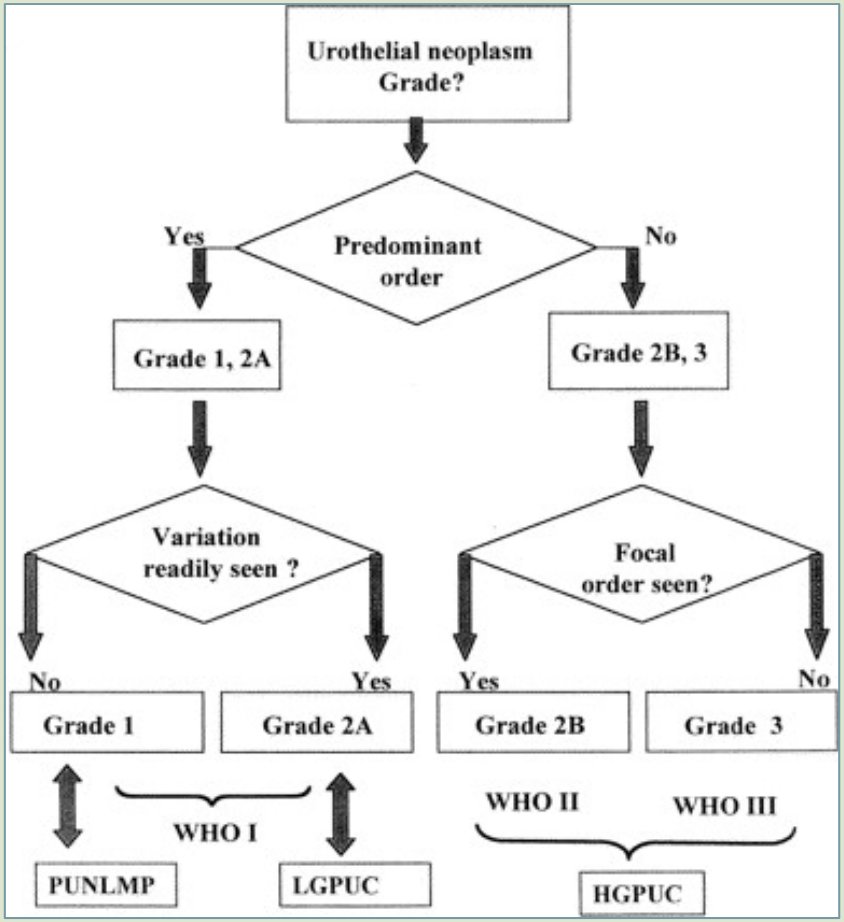
Tumor Grade

Table 1. Principles of Pathology Management: Malignancy Grading of Bladder Carcinoma: Old and New Systems[a,b]

Modified Bergkvist 1987	WHO 1973	WHO/ISUP 1998 Consensus WHO, 2004
Papilloma grade 0	Papilloma	Papilloma
Papilloma with atypia grade 1	TCC grade 1	Papillary urothelial neoplasm of low malignant potential
Urothelial carcinoma grade 2A	TCC grade 1	Urothelial carcinoma, low-grade
Urothelial carcinoma grade 2B	TCC grade 2	Urothelial carcinoma, low-grade or high-grade
Urothelial carcinoma grade 3	TCC grade 3	Urothelial carcinoma, high-grade

Source: nccn.org

Tumor Grade



Source: http://sciencedirect.com

Urothelial MPH Rules

Urothelial MPH Includes:

- Kidney Renal Pelvis
- Ureter
- Bladder
- Urinary Other

(C659, C669, C670-C679, C680-C689)

Renal Pelvis, Ureter, Bladder, and Other Urinary Equivalent Terms, Definitions, Tables and Illustrations
C659, C669, C670-C679, C680-C689
(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

Renal Pelvis, Ureter, Bladder, and Other Urinary

The renal pelvis, ureters, bladder and proximal portion of the urethra are lined by transitional epithelium, also known as urothelium. Tumors of the urothelium are more often multifocal compared to other sites. Two mechanisms have been proposed to explain this phenomenon: 1). a "field effect" and 2) tumor cell implantation.

1. The **field effect** theory suggests that the urothelium has undergone a widespread change, perhaps in response to a carcinogen, making it more sensitive to malignant transformations. As a result, multiple tumors arise more easily.
2. The **implantation** theory suggests that tumor cells in one location lose their attachments and float in the urine until they attach (implant) on another site. Transitional cell tumors commonly spread in a head-to-toe direction, for example from the renal pelvis to the ureter.

Molecular evidence has been found to support both of these theories, but neither has been proven to be the case for all tumors. Similarly, the widespread presence of flat carcinoma in situ may be a result of direct spread of neoplastic cells within the epithelium, direct extension, or due to implantation or field effect. The rules regarding histology and number of primaries are an attempt to reconcile these observations so that incidence data are consistent and reproducible.

Bladder

In the United States, transitional cell carcinomas account for more than 90% of all bladder cancers. Squamous cell carcinomas make up 3-8%, and adenocarcinomas make up about 1-2%. Pure squamous cell carcinoma of the bladder has a poor prognosis. See histology coding rules H5 and H13 for coding instructions.

Equivalent or Equal Terms

- **Flat transitional cell, flat urothelial**
- **In situ transitional cell carcinoma, in situ urothelial carcinoma**
- **Tumor, mass, lesion, neoplasm**
- **Urothelial and transitional**
- **Urothelium and transitional epithelium**
- **Intramucosal and in situ**
- **Papillary transitional cell carcinoma, papillary urothelial carcinoa**

Definitions

Contiguous Sites:

- Renal pelvis
- Ureter
- Bladder
- Urethra/prostatic urethra

Field effect: Widespread changes in normal or relatively normal tissue that predispose a person to cancer

Renal Pelvis, Ureter, Bladder, and Other Urinary Equivalent Terms, Definitions, Tables and Illustrations
C659, C669, C670-C679, C680-C689
(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

Flat Tumor (bladder)/Noninvasive flat TCC: A flat tumor is a non-papillary bladder tumor that lies flat against the bladder tissue. Flat tumors usually have a poor prognosis. Noninvasive flat TCC (also called carcinoma in situ, or CIS) grows in the layer of cells closest to the inside of the bladder and appears as flat lesions on the inside surface of the bladder. Flat, invasive TCC may invade the deeper layers of the bladder, particularly the muscle layer.

Note 1: Flat tumors may have foci or focus of invasion. This definition is for those flat tumors described as being carcinoma in situ, CIS, or non-invasive.
Note 2: Flat tumors could be called in situ or non-invasive. If the term "non-invasive' is used to describe flat carcinoma, be aware that for staging this would be an in situ carcinoma.

In situ: A tumor confined to epithelium (intraepithelial) with no penetration below the basement membrane

Intraluminal (Ureter): Within the lumen of a tubular or hollow structure. Urinary tumors may spread intraluminally to adjacent urinary organs.

Intramucosal: Within the mucosal surface.

Invasive: A tumor that penetrates beyond the basement membrane.

Most invasive: The tumor with the greatest continuous local/regional extension (see focal and foci/focus definitions).

Bladder

The walls of the **bladder** in order from least to greatest extension are:

- Mucosa
- Lamina propria (some pathologists equate this to submucosa)
- Muscularis mucosae (this layer not always present, may not be mentioned)
- Submucosa
- Muscular layer (muscularis propria, detrusor muscle)
- Serosa, adventitia

Renal pelvis and ureter

The walls of the **renal pelvis** and **ureter** from least to greatest extension are:

- Epithelium
- Subepithelial connective tissue, submucosa
- Muscularis mucosa
- Adventitia, periureteric fat, peripelvic fat

Multicentric, multifocal, and polycentric are often used as synonyms. The tumor has multiple centers. The foci are not contiguous.

Non-invasive tumor: A tumor confined to epithelium (intraepithelial) with no penetration below the basement membrane.

Renal Pelvis, Ureter, Bladder and Other Urinary Multiple Primary Rules - Flowchart

(C659, C669, C670-C679, C680-C689)

(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

* Prepare one abstract. Use the histology coding rules to assign the appropriate histology code.

** Prepare two or more abstracts. Use the histology coding rules to assign the appropriate histology code to each case abstracted.

MULTIPLE TUMORS	DECISION	NOTES
Multiple tumors may be a single primary or multiple primaries.		1. Tumors not described as metastases. 2. Includes combinations of in situ and invasive.
M3 Are there tumors in both the right renal pelvis and the left renal pelvis and no other urinary sites are involved? YES	MULTIPLE Primaries**	Use this rule and abstract as a multiple primary unless documented to be metastatic.
NO		
M4 Are there tumors in both the right ureter and the left ureter and no other urinary sites are involved? YES	MULTIPLE Primaries**	Use this rule and abstract as a multiple primary unless documented to be metastatic.
NO		
M5 Is there an **invasive** tumor **following** a **non-invasive** or **an in situ** tumor more than 60 days after diagnosis? YES	MULTIPLE Primaries**	1. The purpose of this rule is to ensure that the case is counted as an incident (invasive) case when incidence data are analyzed. 2. Abstract as multiple primaries even if the medical record/physician states it is recurrence or progression of disease.
NO		
Next Page		

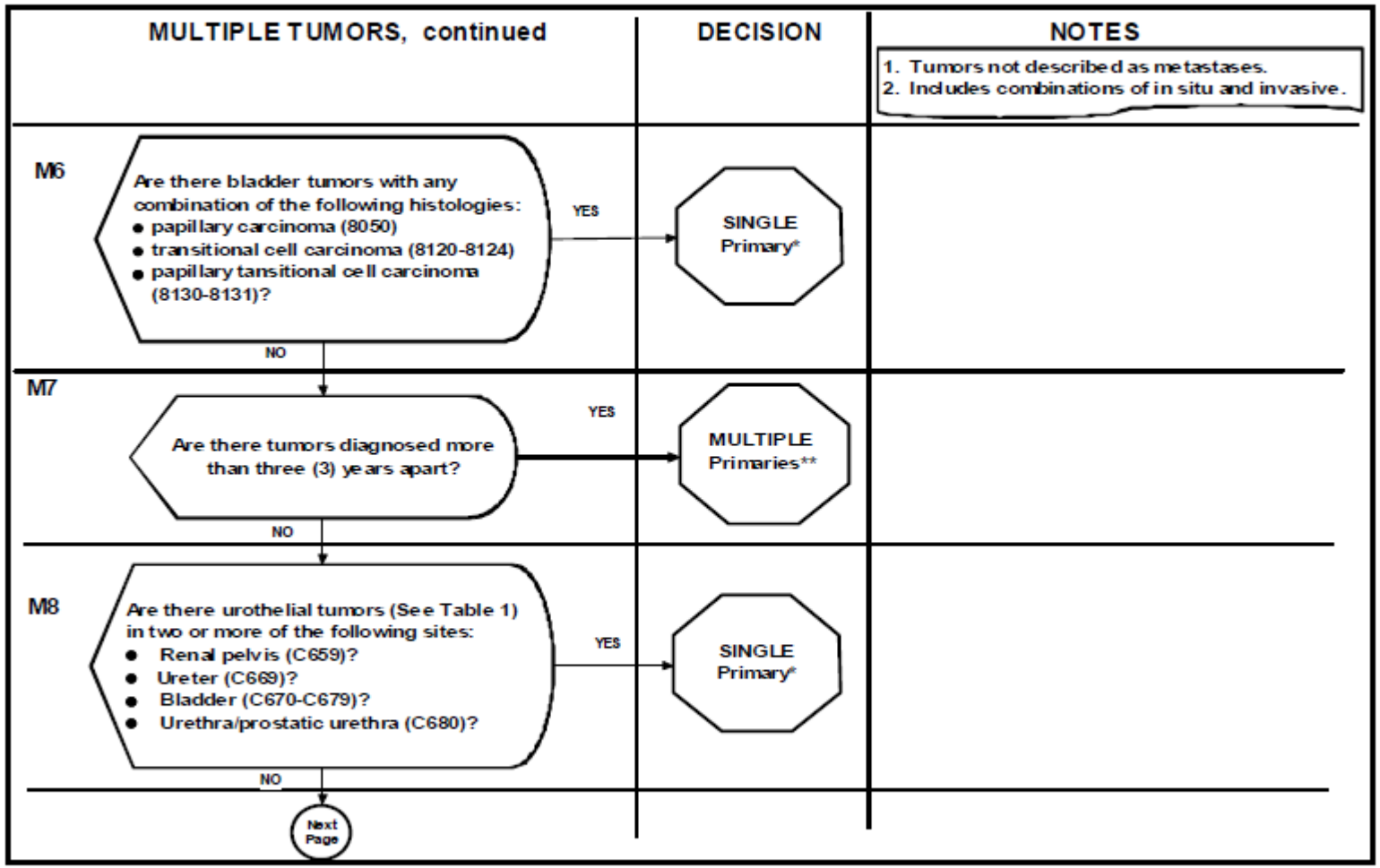
Renal Pelvis, Ureter, Bladder and Other Urinary Multiple Primary Rules - Flowchart

(C659, C669, C670-C679, C680-C689)

(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

* Prepare one abstract. Use the histology coding rules to assign the appropriate histology code.

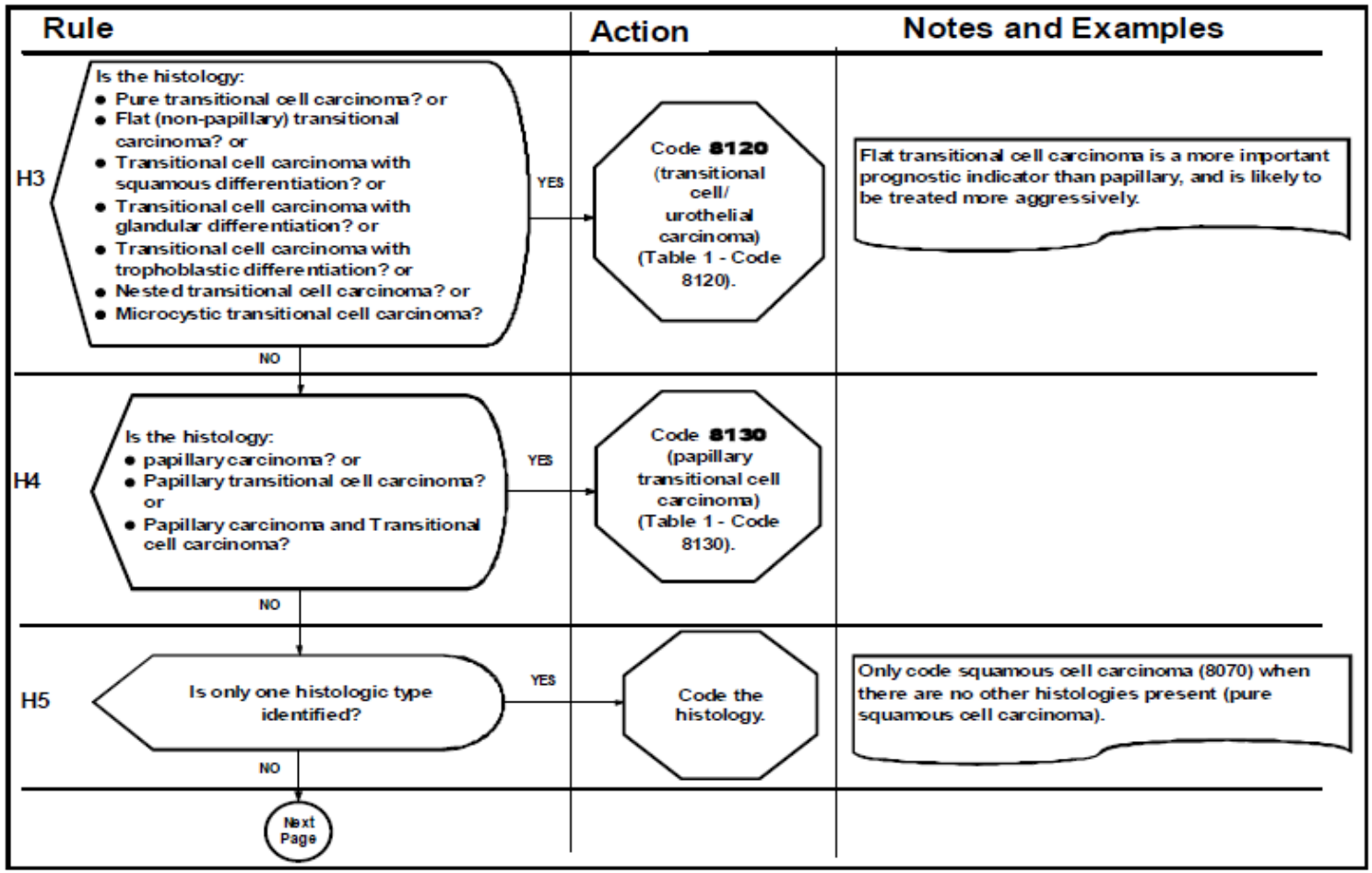
** Prepare two or more abstracts. Use the histology coding rules to assign the appropriate histology code to each case abstracted.



Renal Pelvis, Ureter, Bladder and Other Urinary Histology Rules - Flowchart

(C659, C669, C670-C679, C680-C689)
(Excludes lymphoma and leukemia M9590-9989 and Kaposi sarcoma M9140)

SINGLE TUMOR



Urothelial MPH – Example 1

- Patient with history of invasive cancer of the bladder diagnosed in 1996 and treated with TURBT and BCG.
- Patient seen in 2013 with new non-invasive papillary TCC.

- Histology 1: Urothelial Carcinoma – 8120/3
- Histology 2: Non-Invasive PTCC of Bladder – 8130/2

- One Primary or Two Primaries? One – Rule M6

- Histology – 8120/3 – Rule H14 code the invasive histology

Urothelial MPH – Example 2

- Patient with history of invasive cancer of the bladder in 2001 being seen in 2013 with new tumor in right ureter (TCC).

- Histology 1: Urothelial Carcinoma of Bladder – 8120/3
- Histology 2: TCC of Ureter – 8120/3

- One Primary or Two Primaries? Two
  - Rule M7 – tumors greater than 3 years apart
  - NOTE: Rule M8 includes all urothelial (except C679 only M6)

- Seq 01 – dx 2001 – C679 M8120/3
- Seq 02 – dx 2013 – C659 M8120/3

Urothelial MPH – Example 3

- Patient with history of invasive cancer of the bladder in 2011 being seen now with new tumor in right ureter (TCC).

- Histology 1: Urothelial Carcinoma of Bladder – 8120/3
- Histology 2: TCC of Ureter – 8120/3

- One Primary or Two Primaries? One
  - Rule M8 – tumors less than 3 years apart
  - NOTE: Rule M8 includes all urothelial (except neoplasms that occur only in the bladder C679 – then use Rule M6)

- Diagnosis 2011 with Primary Site C679 and Histology 8120/3
- Ureter TCC diagnosed less than 3 years after bladder – Rule M8

Bladder– Collaborative Stage

V02.04

Collaborative Stage Version 2

TNM 7 Schema List (v.02.04)

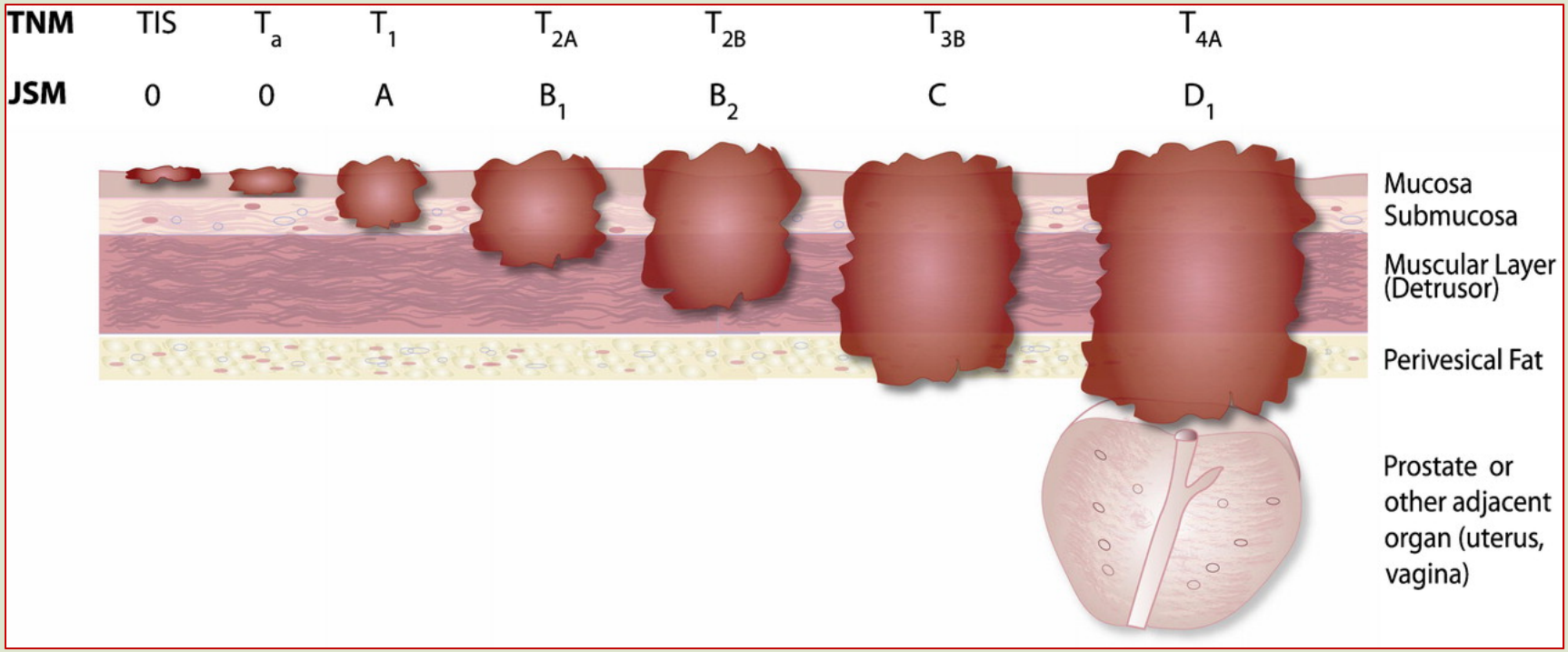
Version v.02.04

Natural Order • **Alphabetical Order**

AdnexaUterineOther	GISTSmallIntestine	MelanomaLarynxGlottic	PalateHard
AdrenalGland	GISTStomach	MelanomaLarynxOther	PalateSoft
AmpullaVater	GumLower	MelanomaLarynxSubglottic	PancreasBodyTail
Anus	GumOther	MelanomaLarynxSupraglottic	PancreasHead
Appendix	GumUpper	MelanomaLipLower	PancreasOther
BileDuctsDistal	HeartMediastinum	MelanomaLipOther	ParotidGland
BileDuctsIntraHepat	HemeRetic	MelanomaLipUpper	Penis
BileDuctsPerihilar	Hypopharynx	MelanomaMouthOther	Peritoneum
BiliaryOther	IllDefinedOther	MelanomaNasalCavity	PeritoneumFemaleGen
Bladder		ynx	PharyngealTonsil
Bone	KaposiSarcoma	MelanomaOropharynx	PharynxOther
Brain	KidneyParenchyma	MelanomaPalateHard	Placenta
Breast	KidneyRenalPelvis	MelanomaPalateSoft	Pleura
BuccalMucosa	LacrimalGland	MelanomaPharynxOther	Prostate
CarcinoidAppendix	LacrimalSac	MelanomaSinusEthmoid	Rectum
Cervix	LarynxGlottic	MelanomaSinusMaxillary	RespiratoryOther
CNSOther	LarynxOther	MelanomaSinusOther	Retinoblastoma
Colon	LarynxSubglottic	MelanomaSkin	Retroperitoneum
Conjunctiva	LarynxSupraglottic	MelanomaTongueAnterior	SalivaryGlandOther
CorpusAdenosarcoma	LipLower	MelanomaTongueBase	Scrotum
CorpusCarcinoma	LipOther	MerkelCellPenis	SinusEthmoid
CorpusSarcoma	LipUpper	MerkelCellScrotum	SinusMaxillary
CysticDuct	Liver	MerkelCellSkin	SinusOther
DigestiveOther	Lung	MerkelCellVulva	Skin
EndocrineOther	Lymphoma	MiddleEar	SkinEyelid
EpiglottisAnterior	LymphomaOcularAdnexa	MouthOther	SmallIntestine
Esophagus	MelanomaBuccalMucosa	MycosisFungoides	SoftTissue
EsophagusGEJunction	MelanomaChoroid	MyelomaPlasmaCellDisorder	Stomach
EyeOther	MelanomaCiliaryBody	NasalCavity	SubmandibularGland

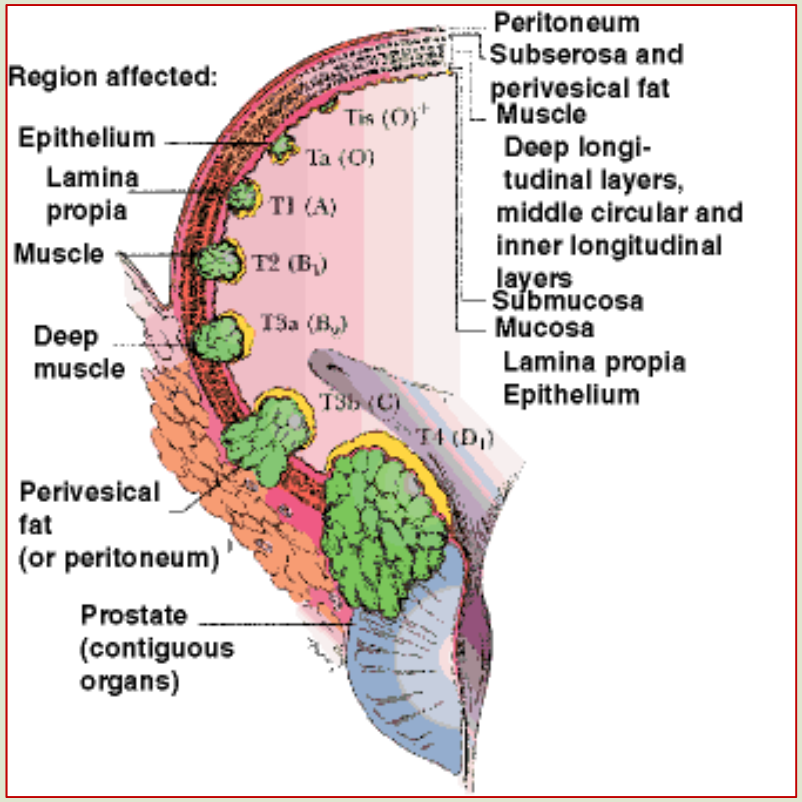
Bladder

Bladder Cancer Staging

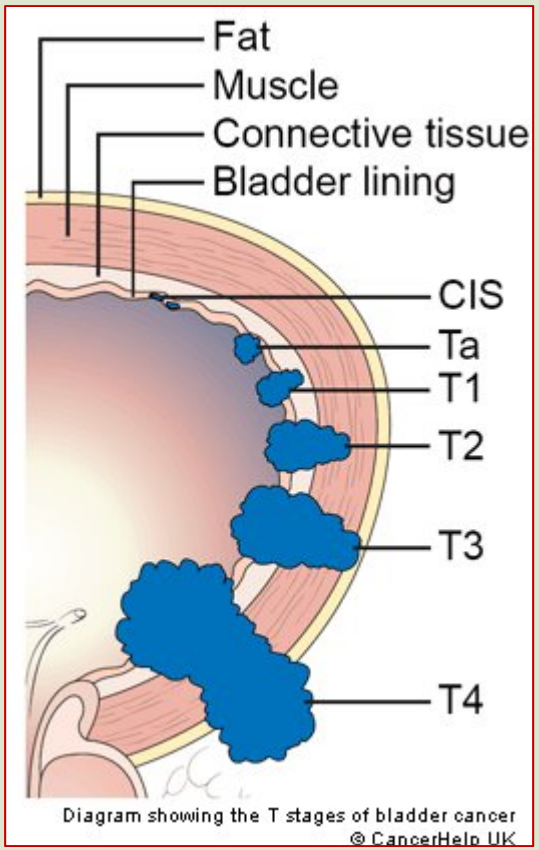


Source: http://pathologyoutlines.com/topic/bladderstaging

Bladder Cancer Staging



Source: http://onlinehealthcareservi ces.com



Source: http://cancerresearchuk.org

Bladder

Bladder

C67.0-C67.9

- C67.0 Trigone of bladder
- C67.1 Dome of bladder
- C67.2 Lateral wall of bladder
- C67.3 Anterior wall of bladder
- C67.4 Posterior wall of bladder
- C67.5 Bladder neck
- C67.6 Ureteric orifice
- C67.7 Urachus
- C67.8 Overlapping lesion of bladder
- C67.9 Bladder, NOS

CS Tumor Size	CS Site-Specific Factor 7 = **988**
CS Extension	CS Site-Specific Factor 8 = **988**
CS Tumor Size/Ext Eval	CS Site-Specific Factor 9 = **988**
CS Lymph Nodes	CS Site-Specific Factor 10 = **988**
CS Lymph Nodes Eval	CS Site-Specific Factor 11 = **988**
Regional Nodes Positive	CS Site-Specific Factor 12 = **988**
Regional Nodes Examined	CS Site-Specific Factor 13 = **988**
CS Mets at DX	CS Site-Specific Factor 14 = **988**
CS Mets Eval	CS Site-Specific Factor 15 = **988**
CS Site-Specific Factor 1	CS Site-Specific Factor 16 = **988**
WHO/ISUP Grade	CS Site-Specific Factor 17 = **988**
CS Site-Specific Factor 2	CS Site-Specific Factor 18 = **988**
Size of Metastasis in Lymph Nodes	CS Site-Specific Factor 19 = **988**
CS Site-Specific Factor 3	CS Site-Specific Factor 20 = **988**
Extranodal Extension of Regional Lymph Nodes	CS Site-Specific Factor 21 = **988**
CS Site-Specific Factor 4 = **988**	CS Site-Specific Factor 22 = **988**
CS Site-Specific Factor 5 = **988**	CS Site-Specific Factor 23 = **988**
CS Site-Specific Factor 6 = **988**	CS Site-Specific Factor 24 = **988**
	CS Site-Specific Factor 25 = **988**

Bladder

CS Extension

- Note 1: The two main types of bladder cancer are the flat (sessile) variety and the papillary type. The flat (sessile) variety is called in situ when tumor has not penetrated the basement membrane. Papillary tumor that has not penetrated the basement membrane is called noninvasive.
- Note 2: Noninvasive papillary transitional carcinoma: Pathologists use many different descriptive terms for noninvasive papillary transitional cell carcinoma. Frequently, the pathology report does not contain a definite statement of noninvasion; however, noninvasion can be inferred from the microscopic description.

A. Definite statements of noninvasion for papillary transitional cell carcinomas (code 010) include:
Noninfiltrating
Noninvasive
No evidence of invasion
No extension into lamina propria
No stromal invasion
No extension into underlying supporting tissue
Negative lamina propria and superficial muscle
Negative muscle and (subepithelial) connective tissue
No infiltrative behavior/component

B. Inferred descriptions of noninvasion for papillary transitional cell carcinomas (code 030) include:
No involvement of muscularis propria and no mention of subepithelium/submucosa
No statement of invasion (microscopic description present)
(Underlying) Tissue insufficient to judge depth of invasion
No invasion of bladder wall
No involvement of muscularis propria
Benign deeper tissue
Microscopic description problematic (noninvasion versus superficial invasion)
Frond surfaced by transitional cell
No mural infiltration
No evidence of invasion (no sampled stroma)
Confined to mucosa (see also Note 3 if tumor is not described as papillary)

- Note 3: Noninvasive (in situ) flat transitional cell carcinoma: Careful attention must be given to the use of the term "confined to mucosa" for flat bladder carcinomas. Historically, carcinomas described as "confined to mucosa" were coded as localized. However, pathologists use this designation for noninvasion as well. Pathologists also vary in their use of the terms "invasion of mucosa, grade 1" and "invasion of mucosa, grade 2" to distinguish between noninvasive and invasive carcinomas. In order to accurately code tumors described as "confined to mucosa", abstractors should determine:
  If the tumor is confined to the epithelium: then it is noninvasive (code 060).
  If the tumor has penetrated the basement membrane to invade the lamina propria: then it is invasive (code 155). The lamina propria and submucosa tend to merge when there is no muscularis mucosa, so these terms may be used interchangeably, along with stroma and subepithelial connective tissue.
  If the distinction between involvement of the epithelium and lamina propria cannot be made, then the tumor should be coded as "confined to mucosa, NOS" (code 100).
  Statements meaning confined to mucosa, NOS for flat transitional cell carcinomas include:
    Confined to mucosal surface
    Limited to mucosa, no invasion of submucosa and muscularis
    No infiltration/invasion of fibromuscular and muscular stroma
    Superficial, NOS
- Note 4: In case of multifocal noninvasive Ta and Tis tumors, use code 060 or 100 in preference to 010 or 030.
- Note 5: Use code 230 if the only description of extension is through full thickness of bladder wall, and there is no clear statement as to whether or not the cancer has extended into fat. If there is documentation that tumor has breached the wall, including invasion into fat or beyond, use code 410 or higher.
- Note 6: An associated in situ component of tumor extending into the prostatic ducts, prostatic glands, or ureter without invasion is disregarded in staging classification. Use the code that best describes depth of bladder wall invasion.
- Note 7: Direct invasion of the distal ureter is classified by the depth of greatest invasion in the bladder or ureter for AJCC staging. Use codes 165, 215, 235, and 245 for extension from bladder directly into distal ureter. The distal ureter is defined as below the iliac vessel, within the pelvic brim.
- Note 8: Extension from bladder into subepithelial tissue of prostatic urethra should be coded 160 and not code 600.
- Note 9: If CS Extension code is 010-060, Behavior ICD-O-3 must be coded as 2. If CS Extension code is 100, Behavior ICD-O-3 may be coded as 2 or 3. If CS Extension code is 155 or greater, Behavior ICD-O-3 must be coded as 3.

Code	Description	TNM 7 Map	TNM 6 Map	SS77 Map	SS2000 Map
010	Papillary: Papillary transitional cell carcinoma, stated to be noninvasive Papillary non-infiltrating (See Note 2A) Stated as Ta with no other information on extension (See Notes 1 and 2)	Ta	Ta	IS	IS
030	Papillary: Papillary transitional cell carcinoma, with inferred description of noninvasion (See Note 2B)	Ta	Ta	IS	IS
060	Nonpapillary: Sessile (flat) (solid) carcinoma in situ Carcinoma in situ, NOS Transitional cell carcinoma in situ Stated as Tis with no other information on extension	Tis	Tis	IS	IS
100	Confined to mucosa, NOS (See Note 3)	Tis	Tis	L	L
150	OBSOLETE DATA RETAINED V0200 See codes 155 and 170 Invasive tumor confined to subepithelial connective tissue (tunica propria, lamina propria, submucosa, stroma) TNM/AJCC T1 Jewett-Strong-Marshall Stage A	ERROR	T1	L	L
155	Subepithelial connective tissue (tunica propria, lamina propria, submucosa, stroma) of bladder only	T1	T1	L	L

200	OBSOLETE DATA CONVERTED V0200 See code 240 Muscle (muscularis propria) invaded, NOS	ERROR	ERROR	ERROR	ERROR
210	Muscle (muscularis propria) of bladder only: Superficial muscle - inner half Stated as T2a with no other information on extension	T2a	T2a	L	L
215	Extension to distal ureter: Superficial muscle of bladder and/or distal ureter (See Note 7)	T2a	T2a	RE	RE
220	Muscle (muscularis propria) of bladder only: Deep muscle--outer half Stated as T2b with no other information on extension	T2b	T2b	L	L
230	Extension through full thickness of bladder wall BUT still contained within bladder wall (see Note 5)	T2b	T2b	L	L
235	Extension to distal ureter: Deep muscle or extension through wall of bladder and/or distal ureter (See Note 7)	T2b	T2b	RE	RE
240	Muscle (muscularis propria) invaded, NOS of bladder only Stated as T2 [NOS] with no other information on extension	T2NOS	T2NOS	L	L
245	Extension to distal ureter: Muscle (muscularis propria) invaded, NOS of bladder and/or distal ureter (See Note 7)	T2NOS	T2NOS	RE	RE
300	Localized, NOS	T1	T1	L	L

411	Extension to perivesical fat/tissues (microscopic) including: Adventitia Serosa (mesothelium) Peritoneum Periprostatic tissue Distal periureteral tissue Stated as T3a with no other information on extension	T3a	T3a	RE	RE
415	OBSOLETE DATA CONVERTED V0203 See code 411 Stated as T3a with no other information on extension	ERROR	ERROR	ERROR	ERROR
420	OBSOLETE DATA CONVERTED V0203 See code 421 Extension to perivesical fat/tissues (macroscopic) Extravesical mass Stated as T3b with no other information on extension	ERROR	ERROR	ERROR	ERROR
421	Extension to perivesical fat/tissues (macroscopic) including: Adventitia Serosa (mesothelium) Peritoneum Periprostatic tissue Distal periureteral tissue Extravesical mass Stated as T3b with no other information on extension	T3b	T3b	RE	RE

630	Prostatic stroma Prostate, NOS Ureter (excluding distal ureter) Urethra, including prostatic urethra (excluding subepithelial connective tissue, see code 160)	T4a	T4a	RE	RE
650	Parametrium Rectovesical/Denonvilliers' fascia Seminal vesicle Vas deferens	T4a	T4a	RE	RE
670	Uterus Vagina	T4a	T4a	RE	RE
673	Rectum, male	T4a	T4a	RE	D
677	Large intestine including rectum, female (excluding rectum, male) Small intestine	T4a	T4a	D	D
680	Stated as T4a with no other information on extension	T4a	T4a	RE	RE
700	Bladder is "fixed"	T4b	T4b	RE	RE
710	Pubic bone	T4b	T4b	RE	D
715	700 + 673	T4b	T4b	RE	D
720	(710 or 700) + 677	T4b	T4b	D	D
730	OBSOLETE DATA REVIEWED V0203 See codes 673, 710, 715, and 720 Rectum, male Pubic bone	T4b	T4b	RE	D
750	Abdominal wall Pelvic wall	T4b	T4b	D	D

Bladder Site-Specific Factors

- SSF1: WHO/ISUP Grade
- SSF2: Size of Metastasis in Lymph Node
- SSF3: Extranodal Extension

Renal Pelvis– Collaborative Stage

V02.04

Collaborative Stage Version 2

TNM 7 Schema List (v.02.04)

Version v.02.04

Natural Order • **Alphabetical Order**

AdnexaUterineOther	GISTSmallIntestine	MelanomaLarynxGlottic	PalateHard
AdrenalGland	GISTStomach	MelanomaLarynxOther	PalateSoft
AmpullaVater	GumLower	MelanomaLarynxSubglottic	PancreasBodyTail
Anus	GumOther	MelanomaLarynxSupraglottic	PancreasHead
Appendix	GumUpper	MelanomaLipLower	PancreasOther
BileDuctsDistal	HeartMediastinum	MelanomaLipOther	ParotidGland
BileDuctsIntraHepat	HemeRetic	MelanomaLipUpper	Penis
BileDuctsPerihilar	Hypopharynx	MelanomaMouthOther	Peritoneum
BiliaryOther	IllDefinedOther	MelanomaNasalCavity	PeritoneumFemaleGen
Bladder	IntracranialGland	MelanomaNasopharynx	PharyngealTonsil
Bone	KaposiSarcoma	MelanomaOropharynx	PharynxOther
Brain	KidneyParenchyma	MelanomaPalateHard	Placenta
Breast	KidneyRenalPelvis	MelanomaPharynxOther	Prostate
BuccalMucosa	LacrimalGland	MelanomaSinusEthmoid	Rectum
CarcinoidAppendix	LacrimalSac	MelanomaSinusMaxillary	RespiratoryOther
Cervix	LarynxGlottic	MelanomaSinusOther	Retinoblastoma
CNSOther	LarynxOther	MelanomaSkin	Retroperitoneum
Colon	LarynxSubglottic	MelanomaTongueAnterior	SalivaryGlandOther
Conjunctiva	LarynxSupraglottic	MelanomaTongueBase	Scrotum
CorpusAdenosarcoma	LipLower	MerkelCellPenis	SinusEthmoid
CorpusCarcinoma	LipOther	MerkelCellScrotum	SinusMaxillary
CorpusSarcoma	LipUpper	MerkelCellSkin	SinusOther
CysticDuct	Liver	MerkelCellVulva	Skin
DigestiveOther	Lung	MiddleEar	SkinEyelid
EndocrineOther	Lymphoma	MouthOther	SmallIntestine
EpiglottisAnterior	LymphomaOcularAdnexa	MycosisFungoides	SoftTissue
Esophagus	MelanomaBuccalMucosa	MyelomaPlasmaCellDisorder	Stomach
EsophagusGEJunction	MelanomaChoroid	NasalCavity	SubmandibularGland
EyeOther	MelanomaCiliaryBody		

Kidney/Renal Pelvis

Urinary, Other – Collaborative Stage

V02.04

COLLABORATIVE STAGE
DATA COLLECTION SYSTEM

Collaborative Stage Version 2

TNM 7 Schema List (v.02.04)

Version v.02.04

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CarcinoidAppendix	LacrimalSac	MelanomaSinusEthmoid	Rectum
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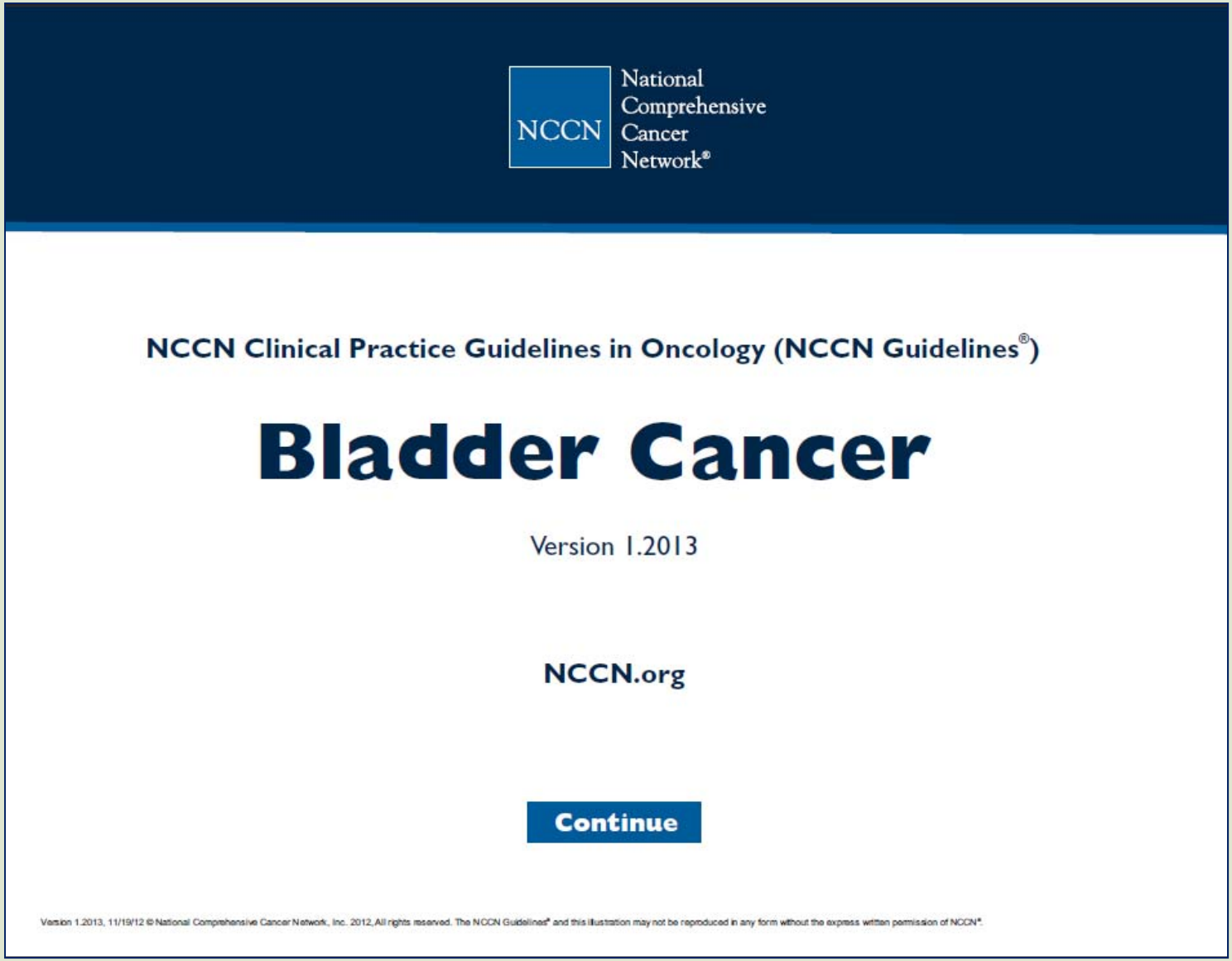
EsophagusGEJunction	MelanomaChoroid	MyelomaPlasmaCellDisorder	Stomach
EyeOther	MelanomaCiliaryBody	NasalCavity	SubmandibularGland
FallopianTube	MelanomaConjunctiva	Nasopharynx	Testis
FloorMouth	MelanomaEpiglottisAnterior	NETAmpulla	Thyroid
Gallbladder	MelanomaEyeOther	NETColon	TongueAnterior
GenitalFemaleOther	MelanomaFloorMouth	NETRectum	TongueBase
GenitalMaleOther	MelanomaGumLower	NETSmallIntestine	Trachea
GISTAppendix	MelanomaGumOther	NETStomach	Urethra
GISTColon	MelanomaGumUpper	Orbit	UrinaryOther
GISTEsophagus	MelanomaHypopharynx	Oropharynx	Vagina
GISTPeritoneum	MelanomaIris	Ovary	Vulva
GISTRectum			

Urinary Other

Urothelial Cancers - Treatment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PRINCIPLES OF PATHOLOGY MANAGEMENT

- Tumors in many cases that would have been classified as grade 2 by the WHO 1973 grading system are now classified as high-grade using the WHO 2004 and the ISUP/WHO 1998 systems.
- The pathology report on biopsy/TURBT specimens should specify:
  - If muscularis propria (detrusor muscle) is present and, if present, whether this structure is invaded by tumor
  - Presence or absence of lymphovascular space invasion
  - Presence or absence of subjacent carcinoma in situ

Malignancy Grading of Bladder Carcinoma: Old and New Systems*

Modified Bergkvist 1987	WHO 1973	WHO/ISUP 1998 Consensus WHO, 2004
Papilloma grade 0	Papilloma	Papilloma
Papilloma with atypia grade 1	TCC grade 1	Papillary urothelial neoplasm of low malignant potential
Urothelial carcinoma grade 2A	TCC grade 1	Urothelial carcinoma, low-grade
Urothelial carcinoma grade 2B	TCC grade 2	Urothelial carcinoma, low-grade or high-grade
Urothelial carcinoma grade 3	TCC grade 3	Urothelial carcinoma, high-grade

*From Droller MJ: Bladder Cancer, Current Diagnosis and Treatment. Totowa, NJ, 2001. With kind permission of Springer Science + Business Media, LLC.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

APPROXIMATE PROBABILITY OF RECURRENCE AND PROGRESSION

Pathology	Approximate Probability of Recurrence in 5 years	Approximate Probability of Progression to Muscle Invasion
Ta, low grade	50%	Minimal
Ta, high grade	60%	Moderate
T1, low grade (rare)	50%	Moderate
T1, high grade	50%-70%	Moderate-High
Tis	50%-90%	High

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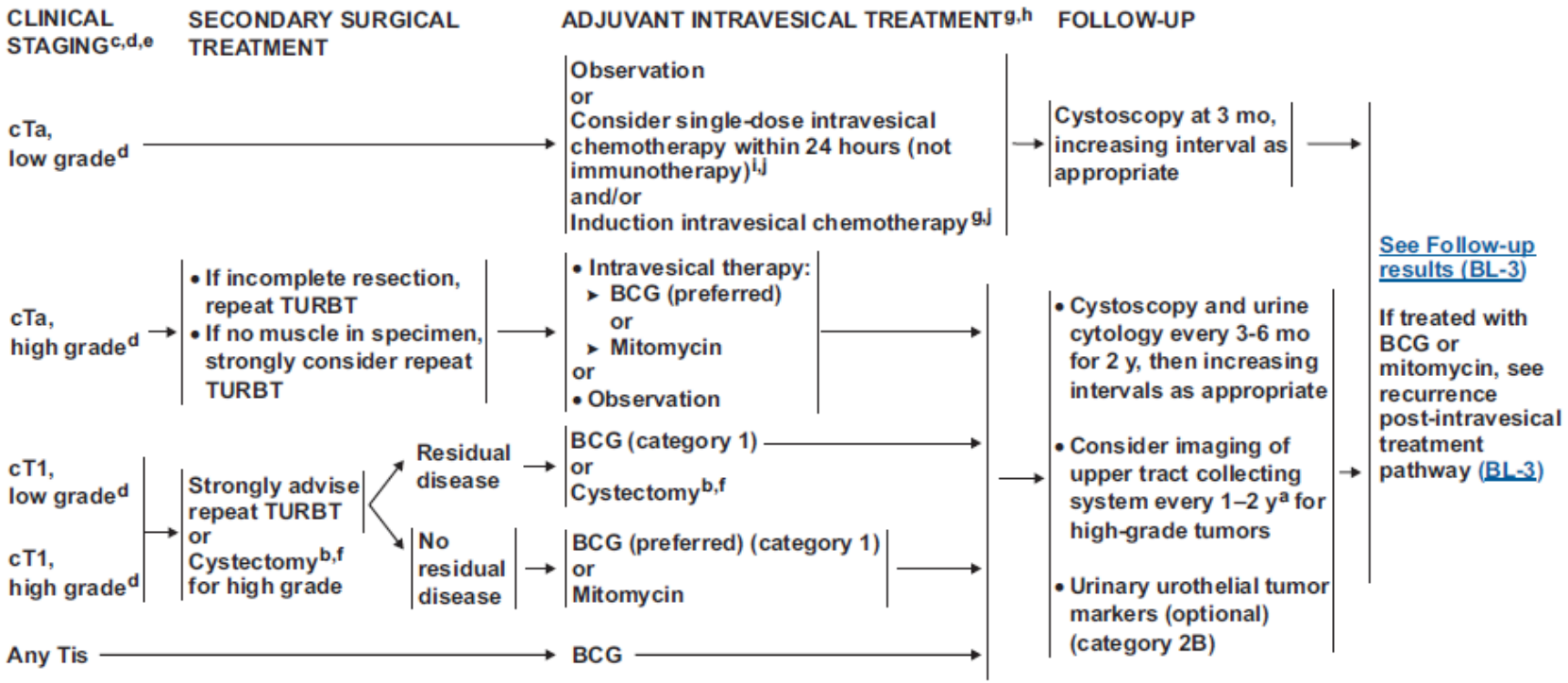

[a]Imaging may include one or more of the following: IVP, CT urography, renal ultrasound with retrograde pyelogram, ureteroscopy, or MRI urogram.

[b]See Principles of Surgical Management (BL-A).

[c]The modifier "c" refers to clinical staging based on bimanual examination under anesthesia and endoscopic surgery (biopsy or transurethral resection) and imaging studies. The modifier "p" refers to pathologic staging based on cystectomy and lymph node dissection.

[d]Montironi R, Lopez-Beltran A. The 2004 WHO classification of bladder tumors: A summary and commentary. Int J Surg Pathol 2005;13:143-153. See Principles of Pathology Management (BL-B).

[e]See Probability of Recurrence and Progression (BL-C) and Non-Urothelial Cell Carcinoma of the Bladder (BL-D).

[f]See Follow-Up After Cystectomy (BL-E).

[g]Indications for adjuvant therapy: Based on probability of recurrence and progression to muscle invasive disease, such as size, number, and grade.

[h]See Principles of Intravesical Treatment (BL-F).

[i]Immediate intravesical chemotherapy, not immunotherapy, may decrease recurrence.

[j]Although there is no intravesical chemotherapy standard for cTa low grade, mitomycin is most commonly used.

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Bladder Cancer

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Bladder Cancer TOC
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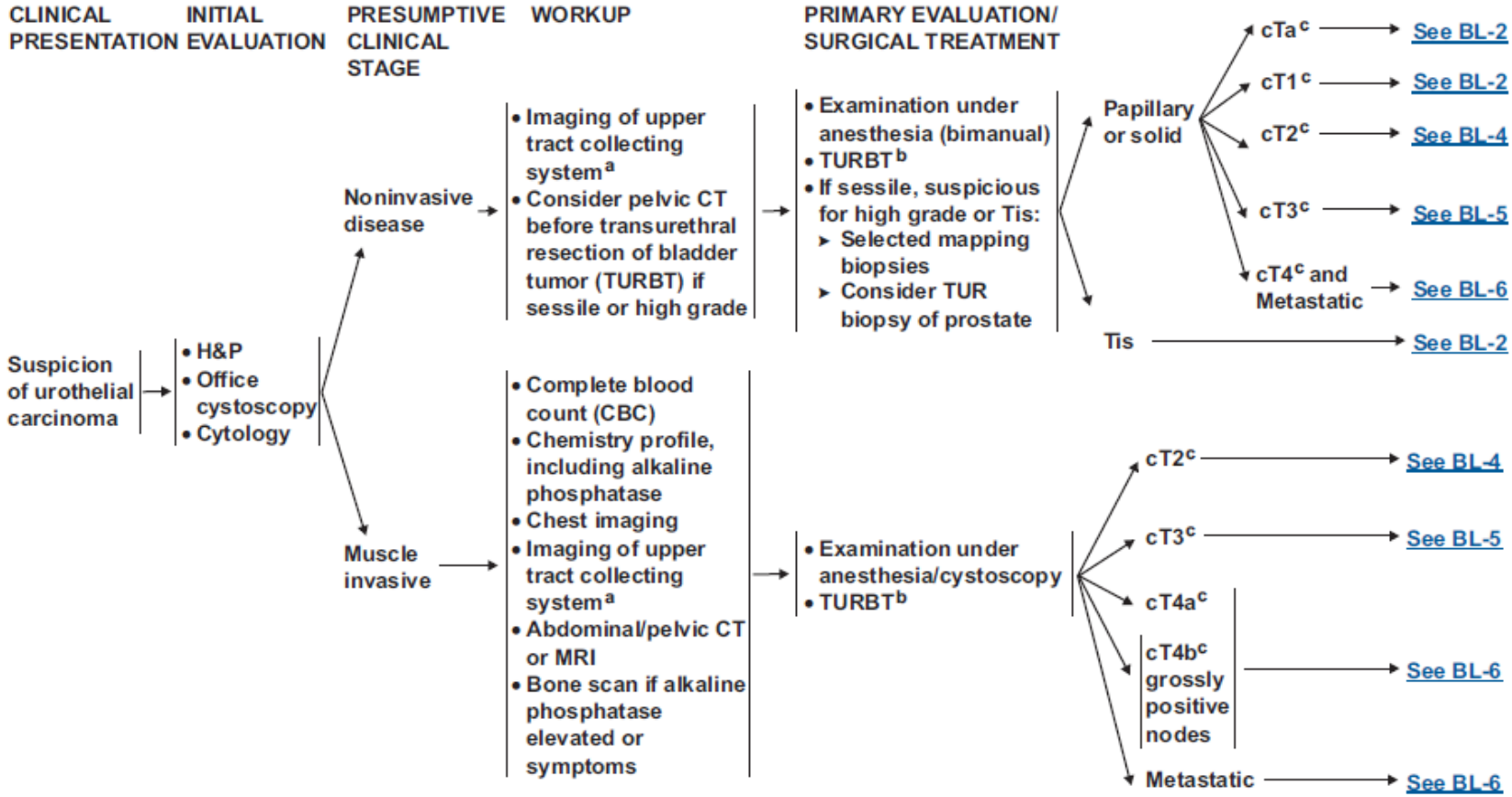

[a]Imaging may include one or more of the following: intravenous pyelogram (IVP), CT urography, renal ultrasound with retrograde pyelogram, ureteroscopy, or MRI urogram.

[b]See Principles of Surgical Management (BL-A).

[c]The modifier "c" refers to clinical staging based on bimanual examination under anesthesia and endoscopic surgery (biopsy or transurethral resection) and imaging studies. The modifier "p" refers to pathologic staging based on cystectomy and lymph node dissection.

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BL-1

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Bladder Cancer

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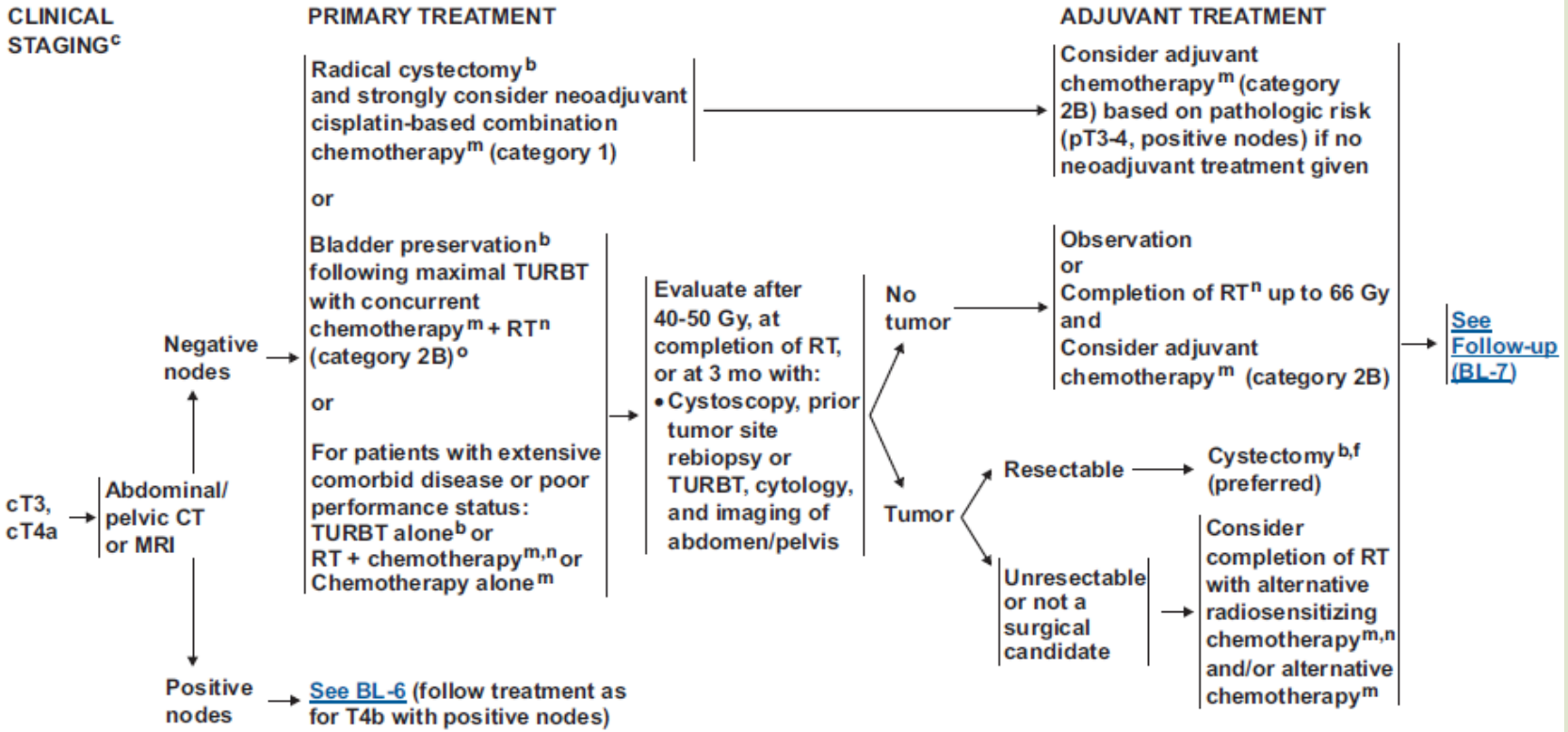
Bladder Cancer TOC
Discussion



[b] See Principles of Surgical Management (BL-A).

[c] The modifier "c" refers to clinical staging based on bimanual examination under anesthesia and endoscopic surgery (biopsy or transurethral resection) and imaging studies. The modifier "p" refers to pathologic staging based on cystectomy and lymph node dissection.

[f] See Follow-Up After Cystectomy (BL-E).

[m] See Principles of Chemotherapy Management (BL-G).

[n] See Principles of Radiation Management of Invasive Disease (BL-H).

[o] There are data to support equivalent survival rates, but not uniform consensus about the role of these approaches. Not all institutions have experience with these multidisciplinary treatment approaches, which require a dedicated team.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

PRINCIPLES OF INTRAVESICAL TREATMENT

Indications: Based on probability of recurrence and progression to muscle invasive disease, such as size, number, and grade.

Immediate Intravesical Chemotherapy
- Initiated within 24 hrs after resection
- Use after TUR lowers recurrence rate in Ta low-grade tumors
- Treatment should not be given if extensive TURBT or if suspected bladder perforation

Induction Intravesical Chemotherapy
- Initiated 3-4 wks after resection
- Maximum of 2 inductions without complete response
- Maintenance therapy is optional

Induction Intravesical Immunotherapy
- Initiated 3-4 wks after resection
- Withhold if traumatic catheterization, bacteriuria, persistent gross hematuria, persistent severe local symptoms, or systemic symptoms
- Maximum of 2 inductions without complete response
- Some data suggest benefit of maintenance therapy
- Dose reduction is encouraged if there are substantial local symptoms during maintenance therapy

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

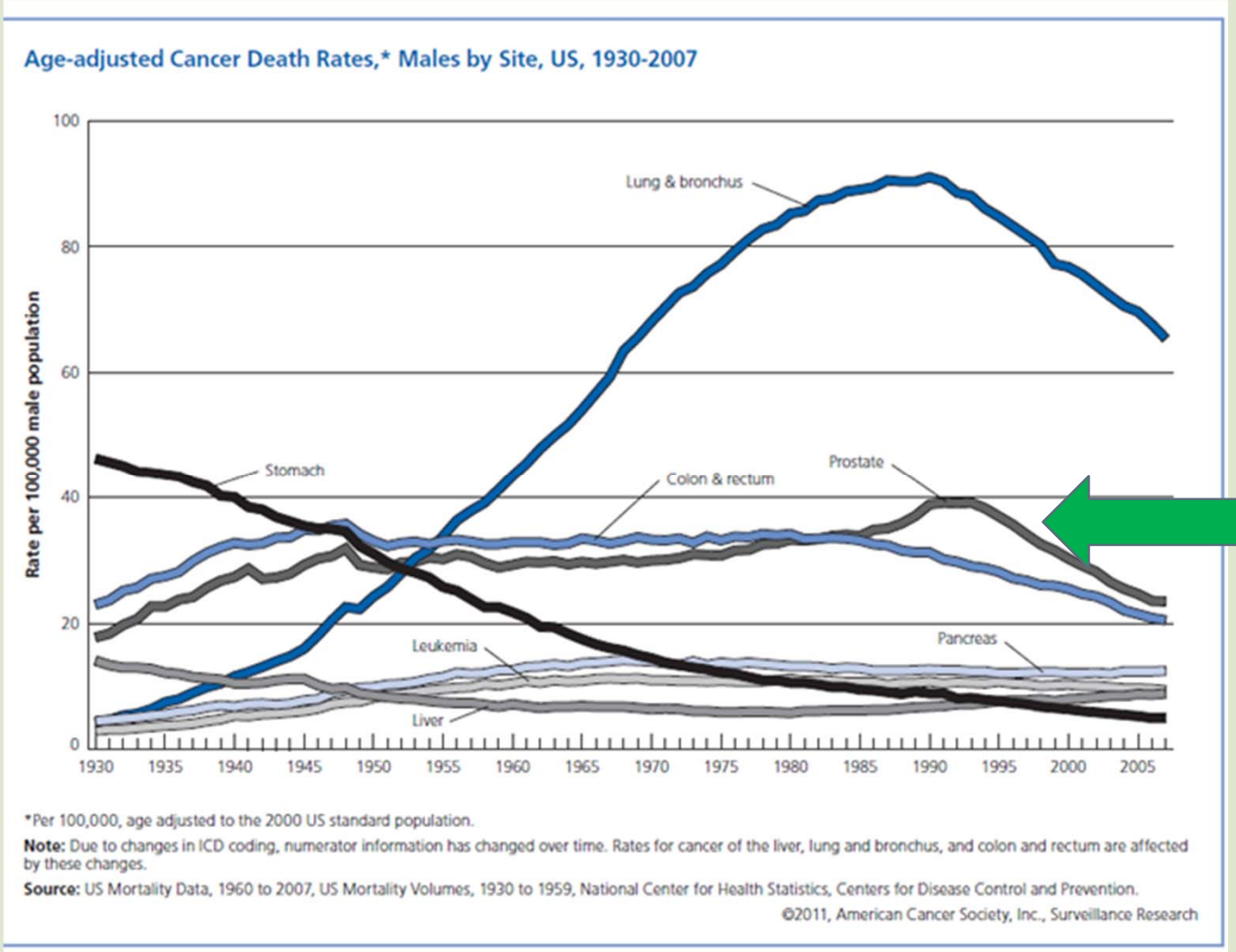
Table 2. Combination Chemotherapy Regimens

Regimen	Dosage	
Gemcitabine/ Cisplatin[73,83,94,95]	Gemcitabine*	1000 mg/m^2 on days 1, 8, 15 of a 28-day cycle or 1000 mg/m^2 on days 1, 8 of a 21-day cycle
	Cisplatin	70 mg/m^2 on day 2
Dose-Dense MVAC[74,75]	Methotrexate	30 mg/m^2 on day 1 or day 2 of a 14-day cycle
	Vinblastine	3 mg/m^2 on day 1 or day 2
	Doxorubicin	30 mg/m^2 on day 1 or day 2
	Cisplatin	70 mg/m^2 on day 1
CMV[44]	Methotrexate	30 mg/m^2 on days 1, 8 of a 21-day cycle
	Vinblastine	4 mg/m^2 on days 1, 8
	Cisplatin	100 mg/m^2 on day 2 before hydration
	Folinic acid	15 mg every 6 hours on days 2, 9 after hydration

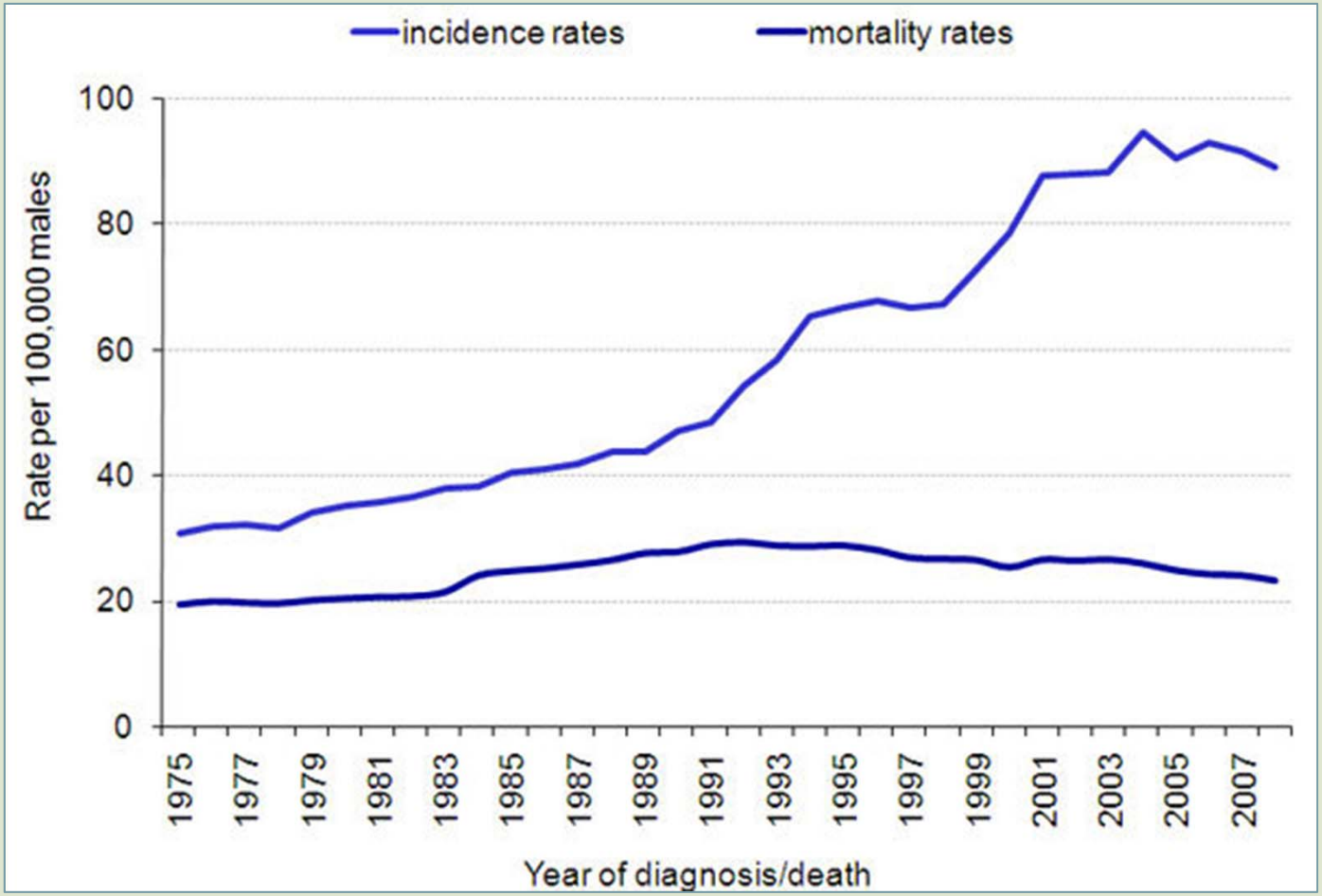
*This dose should not be combined with radiation.

PROSTATE

Age-Adjusted Cancer Death Rates, Males by Site, U.S. 1930-2007



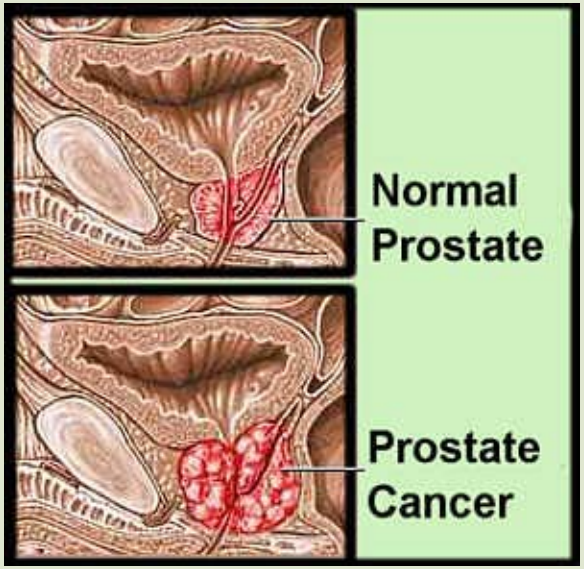
Incidence / Mortality



Prostate Cancer 1975-2008

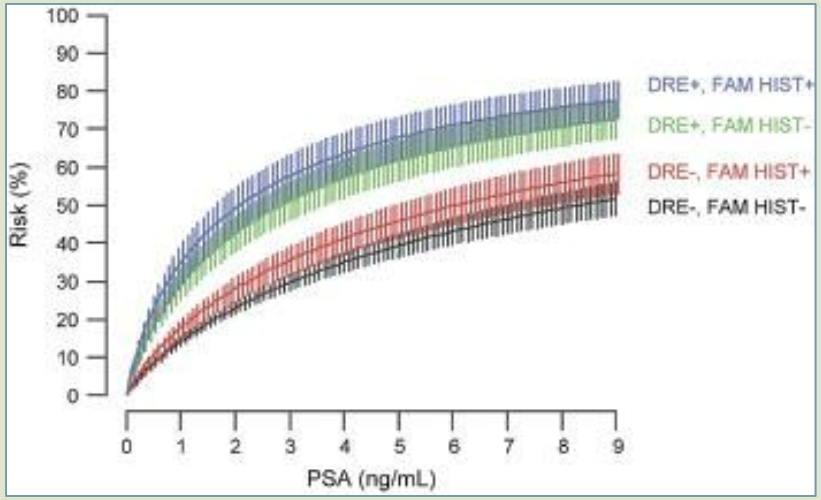
Risk Factors/Screening

- Most common male cancer
- 2nd leading cause of cancer death in U.S. men
- African-American men 2.5 x higher death rate others
- Estimated new cases: 240,890; deaths: 33,720
- Risk Factors:
  - Age
  - Race/Ethnicity
  - Family history
  - Genetics
  - Diet
- Screening
  - DRE
  - PSA

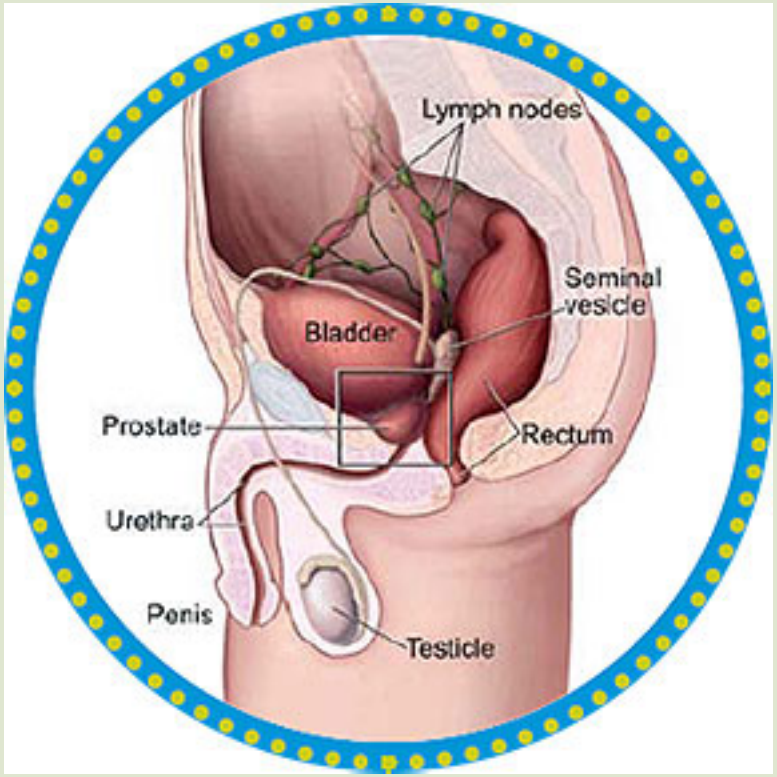


Screening Recommendations

- U.S. Preventive Services Task Force
- American Urological Association
- American Cancer Society
- ASCO/NCCN Guidelines
- Individual Urologist
- High-Risk Patients



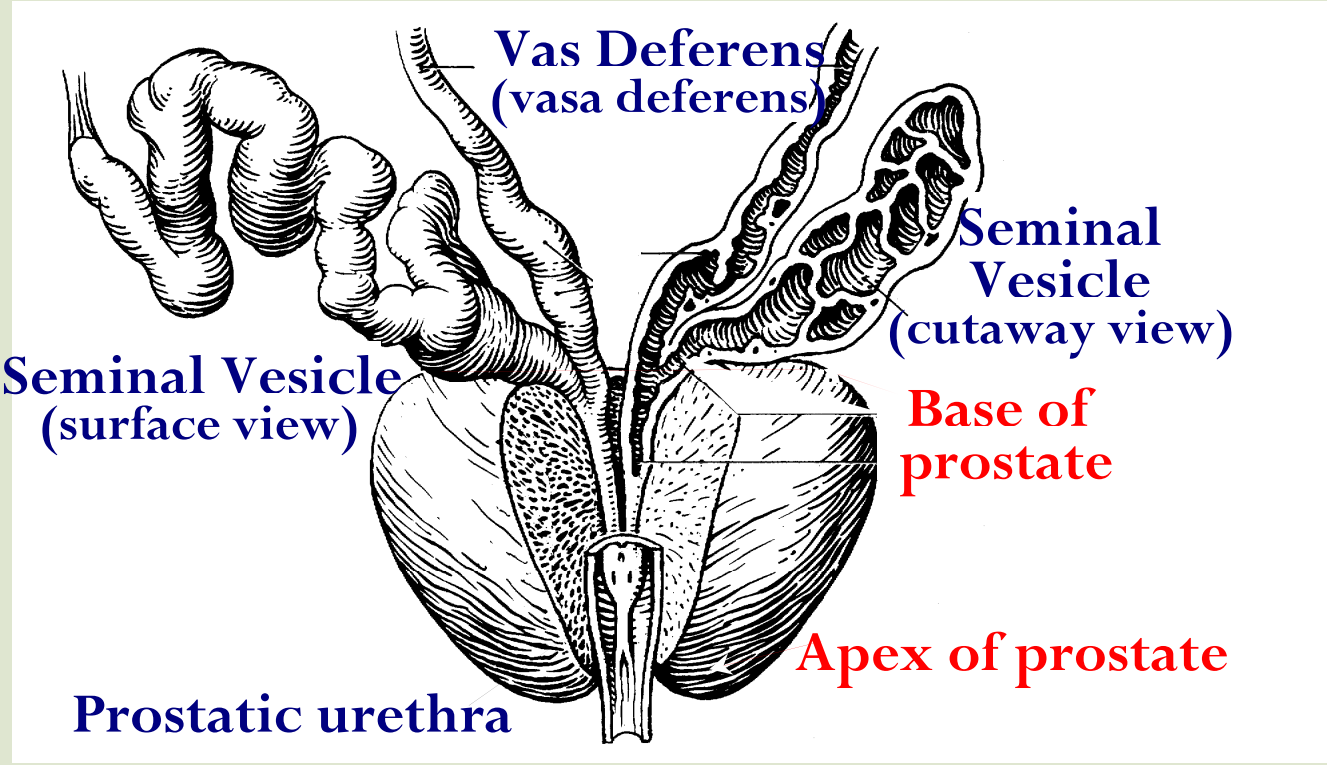
Anatomy



- The prostate is a gland found ONLY in men
- It is located in front of the rectum and under the bladder
- The size of a healthy prostate gland is about the size of a walnut

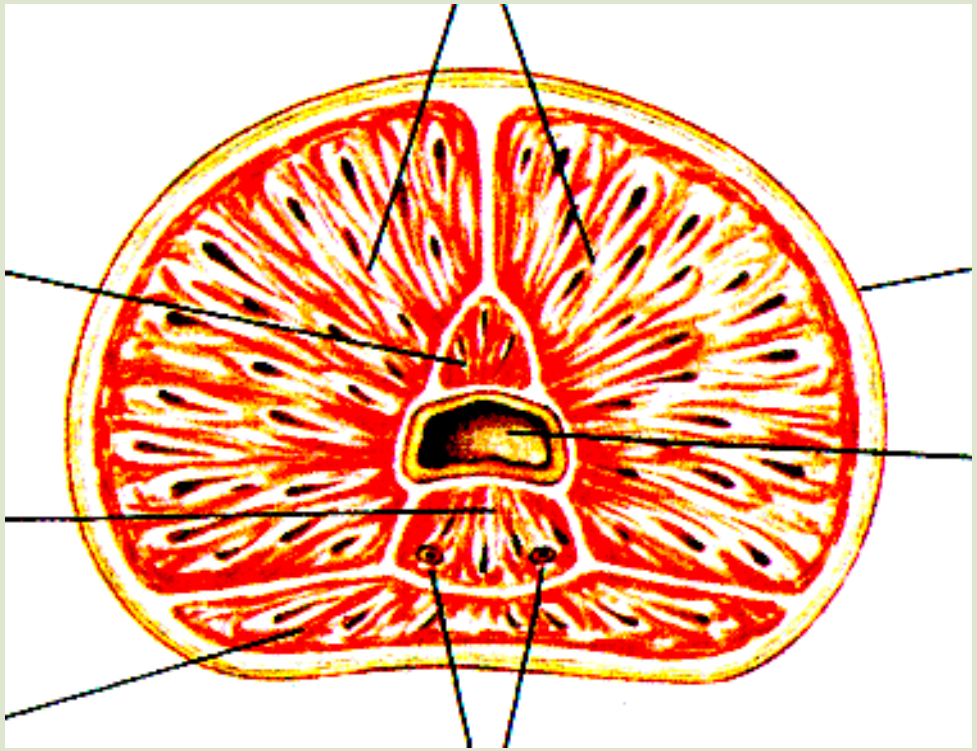
Source: http://www.abbottdiagnostics.com
U.S. National Cancer Institute

Anatomy



Source: SEER Training Website, www.training.seer.cancer.gov

Anatomy



Source: SEER Training Website, www.training.seer.cancer.gov

Histology

- 99% Adenocarcinoma
  - Code acinar as adenoca
- 1% Other
  - Sarcoma
  - Small cell carcinoma
  - Lymphoma
- PIN III
  - Do NOT abstract
  - 30% men develop Ca
  - Follow-up for 2 years

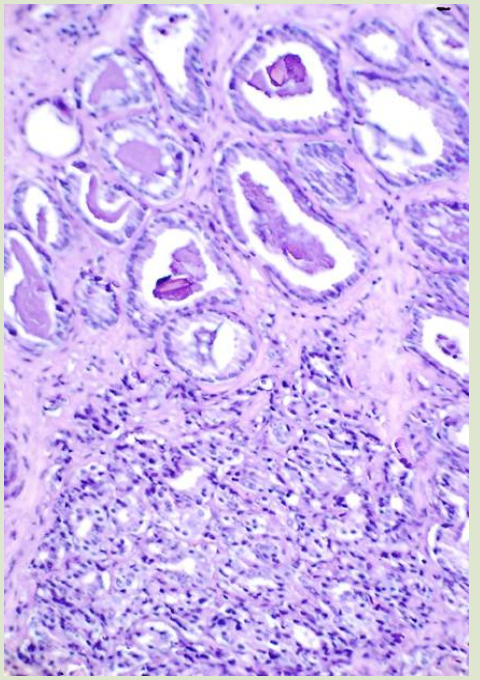


Image source: National Cancer Institute

Prostate - MPH Rules

Prostate - MPH Rules

- Only **ONE** Prostate Cancer DX per patient lifetime
- Dx of Acinar Carcinoma, Code to 8140 (Adenocarcinoma)

ICD-O-3 Site Codes

Related Adjectives

Prostate = prostato-

ICD-O-2/3	Term
C61.9	Prostate gland; Prostate, NOS

Prostate MPH - Example

- Patient seen as outpatient as follow-up to elevated PSA.
- Patient had multiple biopsies in multiple prostate lobes
- All specimens were positive for adenocarcinoma

- One primary or Multiple? One
  - Single Tumor
  - Multiple Biopsies

- Histologic Type? Adenocarcinoma

Prostate – Collaborative Stage

V02.04

COLLABORATIVE STAGE
DATA COLLECTION SYSTEM

Collaborative Stage Version 2

TNM 7 Schema List (v.02.04)

Version v.02.04

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EsophagusGEJunction	MelanomaChoroid	MyelomaPlasmaCellDisorder	Stomach
EyeOther	MelanomaCiliaryBody	NasalCavity	SubmandibularGland

Prostate

Prostate

C61.9

- C61.9 Prostate gland
- Note 1: Transitional cell (urothelial) carcinoma of the prostatic urethra is to be coded to primary site C68.0, Urethra, and assigned Collaborative Stage codes according to the urethra schema.
- Note 2: The 7th Edition AJCC stage group is derived not only from the T, N, and M categories but also from Site-Specific Factor 1 (PSA Lab Value) and Site-Specific Factor 8 or 10 (Gleason's Score). The specific Gleason's Score used is dependent upon the values of CS Extension - Clinical Extension, Site-Specific Factor 3 (CS Extension - Pathologic Extension) and CS Tumor Size/Ext Eval as shown in the Special Calculation Table for TNM 7 Invasive/Unknown Pathologic Extension Eval and Special Calculation Table for TNM 7 Non-Invasive Pathologic Extension.

CS Tumor Size	CS Site-Specific Factor 7
CS Extension - Clinical Extension	Gleason's Primary Pattern and Secondary Pattern Values on Needle Core Biopsy/Transurethral Resection of Prostate (TURP)
CS Tumor Size/Ext Eval	CS Site-Specific Factor 8
CS Lymph Nodes	Gleason's Score on Needle Core Biopsy/Transurethral Resection of Prostate (TURP)
CS Lymph Nodes Eval	CS Site-Specific Factor 9
Regional Nodes Positive	Gleason's Primary Pattern and Secondary Pattern Values on Prostatectomy/Autopsy
Regional Nodes Examined	CS Site-Specific Factor 10
CS Mets at DX	Gleason's Score on Prostatectomy/Autopsy
CS Mets Eval	CS Site-Specific Factor 11
CS Site-Specific Factor 1	Gleason's Tertiary Pattern Value on Prostatectomy/Autopsy
Prostatic Specific Antigen (PSA) Lab Value	CS Site-Specific Factor 12
CS Site-Specific Factor 2	Number of Cores Positive
Prostatic Specific Antigen (PSA) Interpretation	CS Site-Specific Factor 13
CS Site-Specific Factor 3	Number of Cores Examined
CS Extension - Pathologic Extension	CS Site-Specific Factor 14
CS Site-Specific Factor 4	Needle Core Biopsy Findings
Prostate Apex Involvement (OBSOLETE: Prostatic Acid Phosphatase (PAP))	CS Site-Specific Factor 15
CS Site-Specific Factor 5	Clinical Staging Procedures Performed
OBSOLETE - Gleason's Primary Pattern and Secondary Pattern Value	CS Site-Specific Factor 16 = **988**
CS Site-Specific Factor 6	CS Site-Specific Factor 17 = **988**
OBSOLETE - Gleason's Score	CS Site-Specific Factor 18 = **988**

Clinical Stage/Pathological Stage

Clinical Extension

- CS Ext – Clinical Stage
- Prior to Prostatectomy
- Clinical Evaluation Only
  - Bx for Elevated PSA
  - Clinically Inapparent
  - Clinically Apparent
- Used to Develop a Treatment Plan

Pathological Extension

- SSF3 – Pathological Stage
- PROSTATECTOMY
- Pathological Evaluation
  - Surgical Findings
  - Prostatectomy Specimen
- Code 970 if No Surgery
- Surgery is Part of the Treatment Plan

Clinical Stage: Why Important??

- Clinical Stages T1a and T1b
  - Incidentally detected during a TURP
- Clinical stages T1c and T2
  - PSA test positive – detects earlier stage
- Clinical Stage T3
  - DRE detects palpable disease sufficient to indicate that the tumor has penetrated through the prostate capsule

Clinical Stage: Why Important??

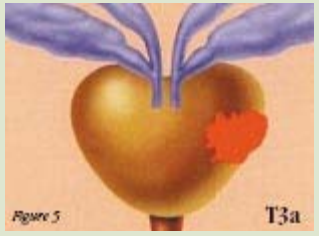
- Clinical Stage T4
  - Indicates local invasion of a structure adjacent to the prostate other than the seminal vesicle(s).
    - T4a indicates a DRE exam with tumor invading the bladder neck, external sphincter or rectum.
    - T4b indicates clinical findings of invasion into the levator muscles or a tumor that is fixed to the pelvis.

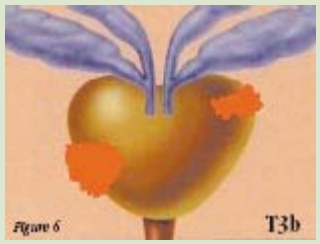
Clinical Stage Illustrations

T1c

T2 (a,b,c)

T3 (a,b,c)





T4 (a,b)

Material provided by Prostate Cancer Research Institute (PCRI)

Pathological Stage Criteria

Prostate

CS Site-Specific Factor 3
CS Extension - Pathologic Extension

- Note 1: Include information from prostatectomy and autopsy in this field and not in CS Extension - Clinical Extension. Only use histologic information from prostatectomy, including simple prostatectomy with negative margins, and autopsy in this field. Information from biopsy of extraprostatic sites is coded in CS Extension - Clinical Extension; information from needle core biopsy of prostate is coded in CS Site-Specific Factor 14.
- Note 2: Code 970 if there is no prostatectomy performed within the first course of treatment.
- Note 3: Limit information in this field to first course of treatment in the absence of disease progression.
- Note 4: AJCC considers "in situ carcinoma of prostate gland" an impossible diagnosis. Any case so coded is mapped to TX for AJCC stage and in situ Summary Stage.
- Note 5: When prostate cancer is an incidental finding during a prostatectomy for other reasons (for example, a cystoprostatectomy for bladder cancer), use the appropriate code for the extent of disease found (for example, involvement in one lobe, both lobes, or more).
- Note 6: When the apical margin, distal urethral margin, bladder base margin, or bladder neck margin is involved and there is no extracapsular extension, use code 400.
- Note 7: Involvement of the prostatic urethra does not alter the extension code.
- Note 8: "Frozen pelvis" is a clinical term which means tumor extends to pelvic sidewall(s). In the absence of a more detailed statement of involvement, assign this to code 600.
- Note 9: For information regarding stage calculations, refer to CS Extension - Clinical Extension Note 6 and the special calculation extra tables.

NOT A PROSTECTOMY

00 None; **no surgery** of primary site; **autopsy** ONLY

18 Local tumor destruction or excision, NOS

19 Transurethral resection (TURP), NOS
Unknown whether a specimen was sent to pathology for surgical events coded 18 or 19

10 **Local** tumor **destruction**, NOS
- 14 Cryoprostatectomy (**Cryoablation**)
- 15 Laser ablation
- 16 Hyperthermia
- 17 Other method of local tumor destruction

No specimen sent to **pathology** from surgical events 10-17
[***NOTE:*** Code Transurethral Microwave Thermotherapy (TUMT) as 16
Code High Intensity Focused Ultrasonography (HIFU) as 17
Code Transurethral Needle Ablation (TUNA) as 17]

20 **Local** tumor excision, NOS
- 21 Transurethral resection (**TURP**), NOS
- 22 TURP cancer is incidental finding during surgery for benign disease
- 23 TURP patient has suspected/known cancer

Any combination of 20-23WITH
- 24 Cryosurgery
- 25 Laser
- 26 Hyperthermia

[***NOTE:*** Codes 24 to 26 above combine 20 Local tumor excision, NOS, 21 TURP, NOS, 22 TURP incidental or 23 TURP suspected/known cancer with 24 Cryosurgery, 25 Laser or 26 Hyperthermia]
Specimen sent to **pathology from** surgical events 20-26

NOT A PROSTECTOMY

80	Prostatectomy, NOS
Specimen sent to pathology from surgical events 20–80.	
90	Surgery, NOS
99	Unknown if surgery performed; death certificate ONLY

When **NO PROSTECTOMY**

CS SSF 3 **MUST** = 970

Prostatectomy Procedures

30	**Subtotal, segmental, or simple prostatectomy**, which may leave all or part of the capsule intact
50	**Radical** prostatectomy, NOS; **total** prostatectomy, NOS **Excised prostate, prostatic capsule, ejaculatory ducts, seminal vesicle(s) and may include a narrow cuff of bladder neck.**
70	**Prostatectomy** WITH resection in continuity with **other organs**; pelvic **exenteration** **Surgeries coded 70 are any prostatectomy WITH resection in continuity with any other organs. The other organs may be partially or totally removed. Procedures may include, but are not limited to, cystoprostatectomy, radical cystectomy, and prostatectomy.** [*NOTE:* In continuity with or "en bloc" means that all of the tissues were removed during the same procedure, but not necessarily in a single specimen] *Da Vinci* prostatectomy would be coded as any other prostatectomy depending on the extent of the procedure codes 50 -80 per FORDS.

When **PROSTECTOMY IS PERFORMED**

CS SSF 3 **CANNOT** = 970

Pathologic Extension – SSF 3

021	OBSOLETE DATA CONVERTED V0200 See code 210 Involves one half of one lobe or less	ERROR	ERROR	ERROR	ERROR
022	OBSOLETE DATA CONVERTED V0200 See code 220 Involves more than one half of one lobe, but not both lobes	ERROR	ERROR	ERROR	ERROR
023	OBSOLETE DATA CONVERTED V0200 See code 230 Involves both lobes	ERROR	ERROR	ERROR	ERROR
030	OBSOLETE DATA CONVERTED V0200 See code 300 Localized, NOS Confined to prostate, NOS Intracapsular involvement only Stage B, NOS	ERROR	ERROR	ERROR	ERROR
031	OBSOLETE DATA REVIEWED AND CHANGED V0102 Into prostatic apex/arising in prostatic apex, NOS (See Site-Specific Factor 4)	ERROR	ERROR	ERROR	ERROR
032	OBSOLETE DATA CONVERTED V0200 See code 320 Invasion into (but not beyond) prostatic capsule	ERROR	ERROR	ERROR	ERROR
033	OBSOLETE DATA REVIEWED AND CHANGED V0102 Arising in prostatic apex (See Site-Specific Factor 4)	ERROR	ERROR	ERROR	ERROR

Pathologic Extension – SSF 3

415	Extension to periprostatic tissue: Extracapsular extension (beyond prostatic capsule), NOS Through capsule, NOS	T3a	T3a	RE	RE
420	Unilateral extracapsular extension	T3a	T3a	RE	RE
430	Bilateral extracapsular extension	T3a	T3a	RE	RE
480	Extracapsular extension and specific margins involved (see Note 6)	T3a	T3a	RE	RE
482	Microscopic bladder neck involvement	T3a	T4	RE	RE
483	Stated as pT3a with no other information on pathologic extension	T3a	T3a	RE	RE
485	Extension to seminal vesicle(s) Stated as pT3b with no other information on pathologic extension	T3b	T3b	RE	RE
490	485 + 482 Extension to seminal vesicle(s) plus microscopic bladder neck involvement	T3b	T4	RE	RE
495	Stated as pT3 [NOS] with no other information on pathologic extension	T3NOS	T3NOS	RE	RE
500	Extension to or fixation to adjacent structures other than seminal vesicles: Bladder, NOS Fixation, NOS Rectovesical (Denonvillier's) fascia Rectum; external sphincter	T4	T4	RE	RE
510	Extraprostatic urethra (membranous urethra)	T4	T4	RE	RE
520	Levator muscle Skeletal muscle, NOS Ureter	T4	T4	D	RE
600	Extension to or fixation to pelvic wall or pelvic bone "Frozen pelvis", NOS (see Note 8)	T4	T4	D	D

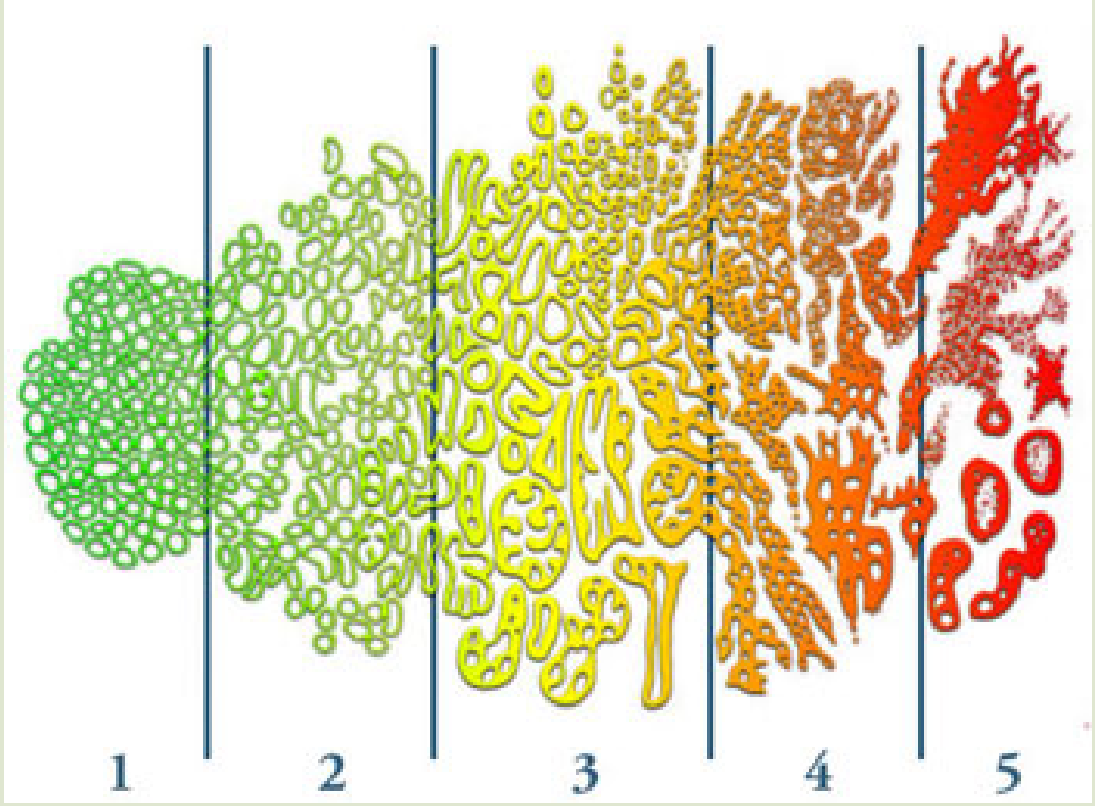
Other Prostate Site Specific Factors

SSF #	SSF Name	FCDS Required	CoC Required
SSF1	PSA Lab Value	YES	YES
SSF2	PSA Interpretation	-	YES
SSF3	**CS Extension – Pathologic Ext**	**YES**	**YES**
SSF7	Gleason Pattern – biopsy/TURP	-	YES
SSF8	Gleason Score – biopsy/TURP	YES	YES
SSF9	Gleason Pattern – prostatecomy/autopsy	-	YES
SSF10	Gleason Score – prostatectomy/autopsy	YES	YES
SSF11	Gleason Tertiary – prostatectomy/autopsy	-	YES
SSF12	Number of Cores Positive	-	YES
SSF13	Number of Cores Examined	-	YES

PSA Lab Value – SSF 1

Code	Description
000	OBSOLETE DATA CONVERTED V0200 See code 998 Test not done (test was not ordered and was not performed)
001	0.1 or less nanograms/milliliter (ng/ml) (Exact value to nearest tenth of ng/ml)
002-979	0.2 - 97.9 ng/ml (Exact value to nearest tenth of ng/ml)
980	98.0 ng/ml or greater
981-987	OBSOLETE DATA CONVERTED V0200 See code 980 98.1 - 98.7 ng/ml
988	Not applicable: Information not collected for this case (If this item is required by your standard setter, use of code 988 will result in an edit error.) (Cases with code 988 in CSv1 converted to code 980)
989	OBSOLETE DATA CONVERTED V0200 See code 980 98.9 ng/ml
990	OBSOLETE DATA CONVERTED V0200 Data converted to code 980 99.0 or greater ng/ml
997	Test ordered, results not in chart
998	Test not done (test not ordered and not performed)
999	Unknown or no information Not documented in patient record

Gleason Pattern(s) and Score

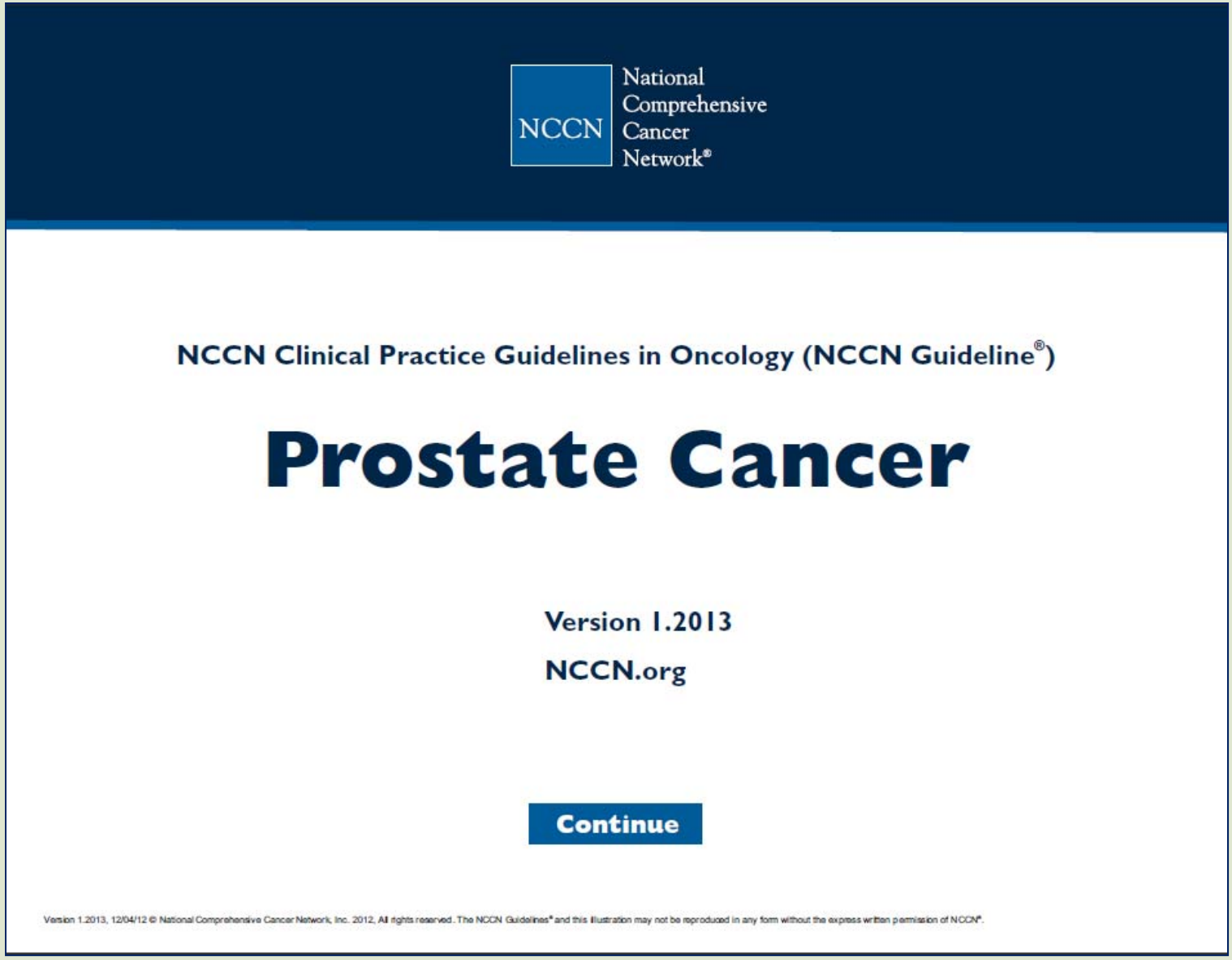


http://www.stjohnprovidence.org

Gleason Score to Grade Conversion

Gleason Score	Grade/Differentiation
Gleason 2-6	Well Differentiated
Gleason 7	Moderately Differentiated
Gleason 8-10	Poorly Differentiated

Prostate Cancer - Treatment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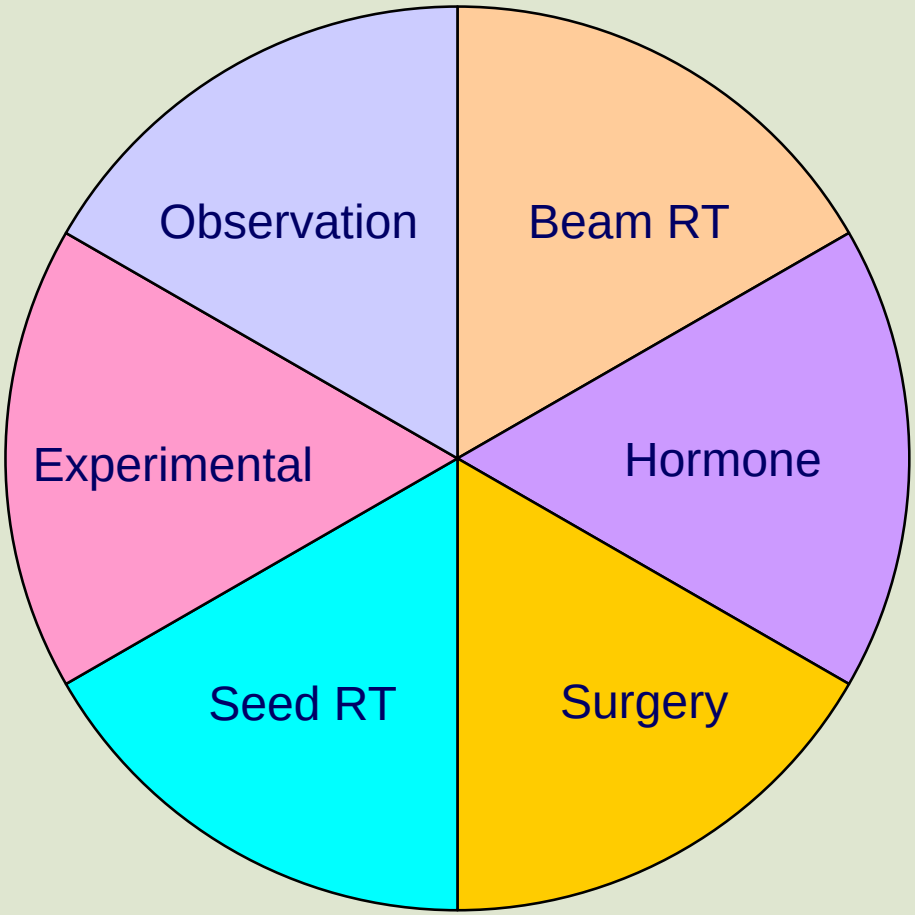
Treatment Options



NCCN Guidelines Version 1.2013
Prostate Cancer

NCCN Guidelines Index
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Discussion

PRINCIPLES OF ACTIVE SURVEILLANCE

- The NCCN Prostate Cancer Panel and the NCCN Prostate Cancer Early Detection Panel (See NCCN Guidelines for Prostate Cancer Early Detection) remain concerned about over-diagnosis and over-treatment of prostate cancer. The Panel recommends that patients and their physicians (ie, urologist, radiation oncologist, medical oncologist, primary care physician) consider active surveillance based on careful consideration of the patient's prostate cancer risk profile, age, and health.
- Active surveillance is usually appropriate for men with very low-risk prostate cancer when life expectancy is <20 y or for men with low-risk prostate cancer when life expectancy is <10 y. See Recurrence Risk Criteria (PROS-2).
- Active surveillance involves actively monitoring the course of disease with the expectation to intervene with curative intent if the cancer progresses.
- Patients with clinically localized cancers who are candidates for definitive treatment and choose active surveillance should have regular follow-up. Follow-up should be more rigorous in younger men than in older men. Follow-up should include:
  - PSA as often as every 3 mo but at least every 6 mo
  - DRE as often as every 6 mo but at least every 12 mo
  - Needle biopsy of the prostate should be repeated within 6 mo of diagnosis if initial biopsy was <10 cores or assessment discordant (eg, palpable tumor contralateral to side of positive biopsy)
  - A repeat prostate biopsy should be considered if prostate exam changes or PSA increases, but neither parameter is very reliable for detecting prostate cancer progression
  - Needle biopsy may be performed within 18 mo if initial prostate biopsy ≥10 cores and as often as every 12 months. Repeat prostate biopsies are not indicated after age 75 y or when life expectancy is <10 y
  - A repeat prostate biopsy should be considered as often as annually to assess for disease progression, because PSA kinetics may not be as reliable as monitoring parameters to determine progression of disease.
  - PSADT appears unreliable for identification of progressive disease that remains curable. Although multi-parametric MRI is not recommended for routine use, it may be considered if PSA rises and systematic prostate biopsy is negative to exclude the presence of an anterior cancer.
- Cancer progression may have occurred if:
  - Gleason grade 4 or 5 cancer is found upon repeat prostate biopsy
  - Prostate cancer is found in a greater number of prostate biopsies or occupies a greater extent of prostate biopsies
- Advantages of active surveillance:
  - Avoidance of possible side effects of definitive therapy that may be unnecessary
  - Quality of life/normal activities potentially less affected
  - Risk of unnecessary treatment of small, indolent cancers reduced
- Disadvantages of active surveillance:
  - Chance of missed opportunity for cure
  - Risk of progression and/or metastases
  - Subsequent treatment may be more complex with increased side effects
  - Nerve sparing may be more difficult, which may reduce chance of potency preservation after surgery
  - Increased anxiety
  - Requires frequent medical exams and periodic biopsies, which are not without complications
  - Uncertain long-term natural history of prostate cancer

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

PRINCIPLES OF SURGERY

Pelvic Lymph Node Dissection:

- An extended PLND will discover metastases approximately twice as often as a limited PLND. Extended PLND provides more complete staging and may cure some men with microscopic metastases; therefore, an extended PLND is preferred when PLND is performed.
- An extended PLND includes removal of all node-bearing tissue from an area bounded by the external iliac vein anteriorly, the pelvic sidewall laterally, the bladder wall medially, the floor of the pelvis posteriorly, Cooper's ligament distally, and the internal iliac artery proximally.
- A PLND can be excluded in patients with <2% predicated probability of nodal metastases by nomograms, although some patients with lymph node metastases will be missed.
- PLND can be performed using an open, laparoscopic, or robotic technique.

Radical Prostatectomy:

- RP is an appropriate therapy for any patient with clinically localized prostate cancer that can be completely excised surgically, who has a life expectancy of ≥10 years, and has no serious comorbid conditions that would contraindicate an elective operation.
- High-volume surgeons in high-volume centers generally provide better outcomes.
- Laparoscopic and robot-assisted RP are used commonly. In experienced hands, the results of these approaches appear comparable to open surgical approaches.
- Blood loss can be substantial with RP but can be reduced by careful control of the dorsal vein complex and periprostatic vessels.
- Urinary incontinence can be reduced by preservation of urethral length beyond the apex of the prostate and avoiding damage to the distal sphincter mechanism. Bladder neck preservation may decrease the risk of incontinence. Anastomotic strictures increase the risk of long-term incontinence.
- Recovery of erectile function is directly related to age at RP, preoperative erectile function, and the degree of preservation of the cavernous nerves. Replacement of resected nerves with nerve grafts has not been shown to be beneficial. Early restoration of erections may improve late recovery.
- Salvage RP is an option for highly selected patients with local recurrence after EBRT, brachytherapy, or cryotherapy in the absence of metastases, but the morbidity (ie, incontinence, loss of erection, anastomotic stricture) is high.

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PRINCIPLES OF RADIATION THERAPY

Primary EBRT:

- 3-D conformal RT or IMRT techniques should be used to treat prostate cancer. IGRT is required if dose is ≥ 78 Gy. IMRT, if available, is preferred.
- Doses of 75.6 to 79.2 Gy in conventional fractions to the prostate (± seminal vesicles for part of the therapy) are appropriate for patients with low-risk cancers. For patients with intermediate- or high-risk disease, doses up to 81.0 Gy provide improved PSA-assessed disease control.
- Patients with high-risk cancers are candidates for pelvic lymph node irradiation and the addition of neoadjuvant/concomitant/adjuvant ADT for a total of 2 to 3 y (category 1).
- Patients with intermediate-risk cancer may be considered for pelvic lymph node irradiation and 4 to 6 mo neoadjuvant/concomitant/adjuvant ADT.
- Patients with low-risk cancer should not receive pelvic lymph node irradiation or ADT.
- The accuracy of treatment should be improved by attention to daily prostate localization, with techniques of IGRT using CT, ultrasound, implanted fiducials, electromagnetic targeting/tracking, or an endorectal balloon to improve oncologic cure rates and reduce side effects.
- Treatment results appear better when disease burden is lower. Radiation should be administered before PSA excedes 1.0 ng/mL.

Primary/Salvage Brachytherapy:

- Permanent low-dose rate (LDR) brachytherapy as monotherapy is indicated for patients with low-risk cancers. For intermediate-risk cancers, consider combining brachytherapy with EBRT (40-50 Gy) ± 4 to 6 mo neoadjuvant/concomitant/adjuvant ADT. Patients with high-risk cancers may be treated with a combination of EBRT (40-50 Gy) and brachytherapy ± 4 to 6 mo neoadjuvant/concomitant/adjuvant ADT.
- Patients with a very large prostate or very small prostate, symptoms of bladder outlet obstruction (high IPSS), or a previous transurethral resection of the prostate are more difficult to implant and may suffer increased risk of side effects. Neoadjuvant ADT may be used to shrink the prostate to an acceptable size.
- Post-implant dosimetry must be performed to document the quality of the implant.
- The recommended prescribed doses for LDR monotherapy are 145 Gy for Iodine-125 and 125 Gy for Palladium-103. The corresponding boost doses after 40 to 50 Gy EBRT are 110 Gy and 90 to 100 Gy, respectively.
- High-dose rate (HDR) brachytherapy can be used in combination with EBRT (40-50 Gy) instead of LDR. Commonly used boost regimens include 9.5 to 11.5 Gy x 2 fractions, 5.5 to 7.5 Gy x 3 fractions, and 4.0 to 6.0 Gy x 4 fractions.
- Permanent LDR or temporary HDR brachytherapy can be used as treatment for a local recurrence following EBRT or primary brachytherapy. Radiation dose depends on the original primary external beam dose and ranges from 100 to 110 Gy for LDR and 9 to 12 Gy x 2 fractions for HDR.

Continued on next page

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PRINCIPLES OF ANDROGEN DEPRIVATION THERAPY (1 of 3)

Androgen Deprivation Therapy for Clinically Localized Disease

- Neoadjuvant ADT for RP is strongly discouraged.
- Giving ADT before, during, and/or after radiation prolongs survival in selected radiation managed patients.
- Studies of short-term (4-6 mo) and long-term (2-3 y) neoadjuvant ADT all have used complete androgen blockade. Whether the addition of an antiandrogen is necessary will require further studies.
- Adjuvant ADT given after completion of primary treatment is not a standard treatment at this time with the exception of selected high-risk patients treated with RT (See PROS-3). Low-volume, high-grade prostate cancer may warrant adjuvant ADT for 4-6 mo, but 2-3 y may be considered.
- In the largest randomized trial to date using antiandrogen bicalutamide alone at high dose (150 mg), there were indications of a delay in recurrence of disease but no improvement in survival. Longer follow-up is needed.
- In one randomized trial, immediate and continuous use of ADT in men with positive nodes following RP resulted in significantly improved overall survival compared to men who received delayed ADT. Therefore, such patients should be considered for immediate ADT.
- The side effects of continuous ADT increase with the duration of treatment.

Timing of ADT for Advanced Disease (PSA recurrence or metastatic disease)

- The timing of ADT for patients whose only evidence of cancer is a rising PSA is influenced by PSA velocity, patient anxiety, and the short and long-term side effects of ADT.
- A significant proportion of these patients will ultimately die of their disease; their prognosis is best approximated by the absolute level of PSA, the rate of change in the PSA level (PSADT), and the initial stage, grade, and PSA level at the time of definitive therapy.
- Earlier ADT may be better than delayed ADT, although the definitions of early and late (what level of PSA) are controversial. Since the benefit of early ADT is not clear, treatment should be individualized until definitive studies are done. Patients with an elevated PSA (>50 ng/mL) and/or a shorter PSADT (or a rapid PSA velocity) and an otherwise long life expectancy should be encouraged to consider ADT earlier.
- Treatment should begin immediately in the presence of tumor-related symptoms or overt metastases (category 1). Earlier ADT will delay the appearance of symptoms and of metastases, but it is not clear whether earlier ADT will prolong survival. The complications of long-term ADT have not been adequately documented.

Optimal ADT

- LHRH agonist or antagonist (medical castration) and bilateral orchiectomy (surgical castration) are equally effective.
- Combined androgen blockade (medical or surgical castration combined with an antiandrogen) provides no proven benefit over castration alone in patients with metastatic disease.
- Antiandrogen therapy should precede or be coadministered with LHRH agonist and be continued in combination for at least 7 days for patients with overt metastases who are at risk of developing symptoms associated with the flare in testosterone with initial LHRH agonist alone.

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Note: All recommendations are category 2A unless otherwise indicated.
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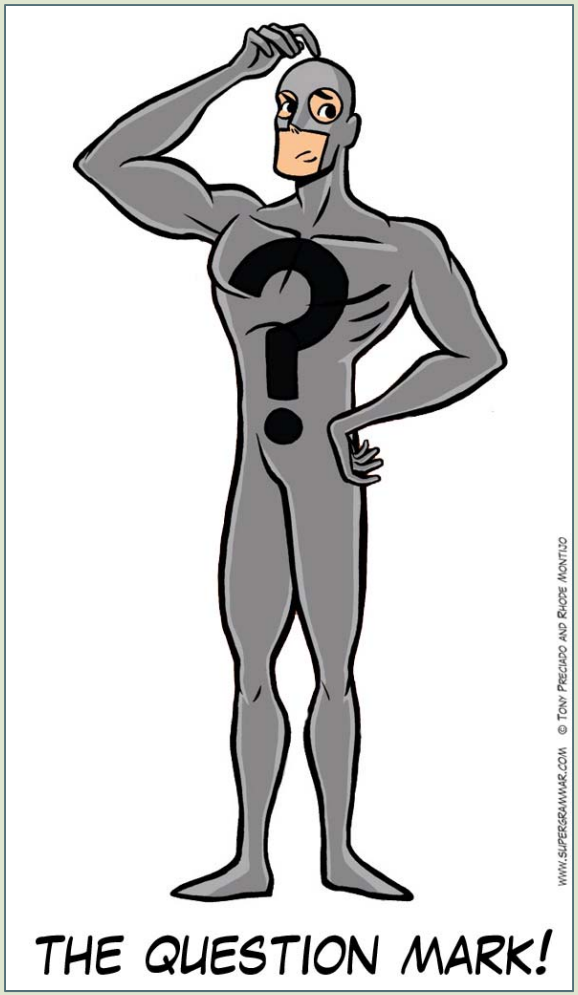
Questions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