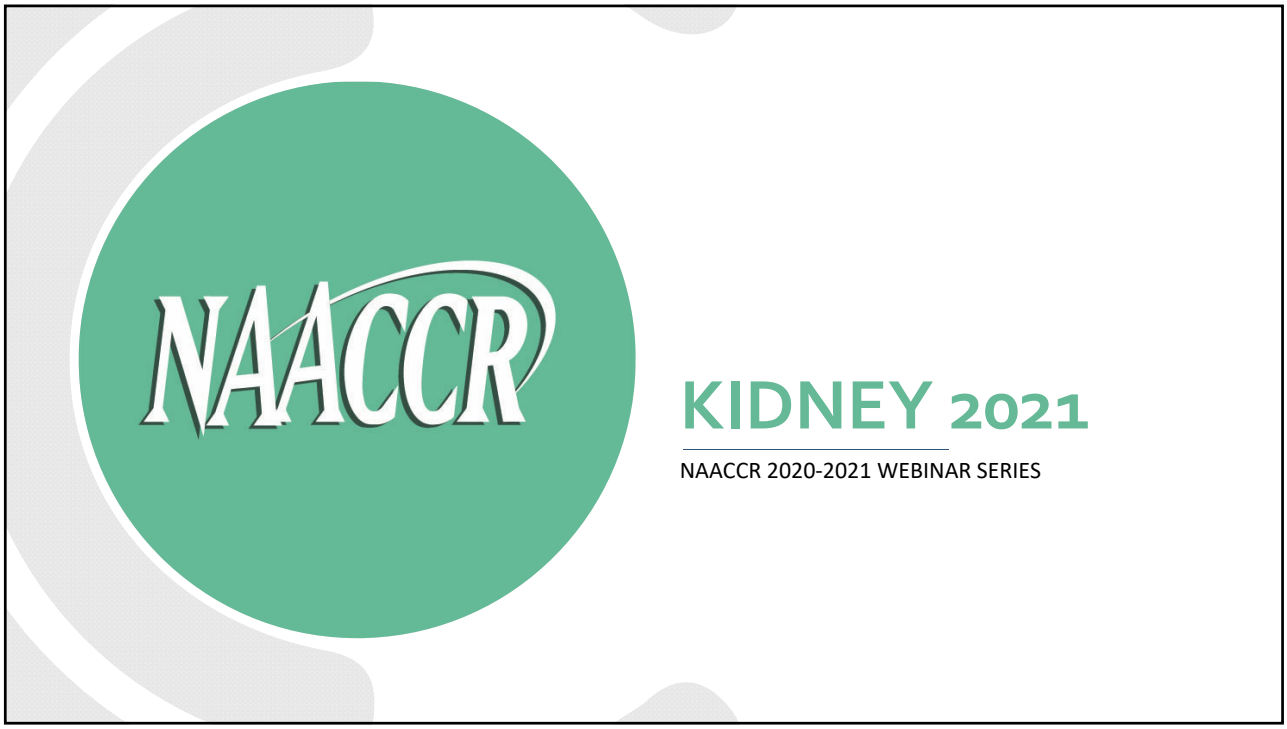


Q&A

- Please submit all questions concerning the webinar content through the Q&A panel.
- If you have participants watching this webinar at your site, please collect their names and emails.
- We will be distributing a Q&A document in about one week. This document will fully answer questions asked during the webinar and will contain any corrections that we may discover after the webinar.

FABULOUS PRIZES

3

GUEST PRESENTERS

- Denise Harrison, CTR
- Louanne Currence, RHIT, CTR

4

Kidney Cancer

Louanne Currence, RHIT, CTR
Denise Harrison, BS, CTR

Case Scenario

- 43 yo male referred for evaluation of 6 weeks of intermittent gross hematuria; 30# weight loss x 1 yr.

Workup

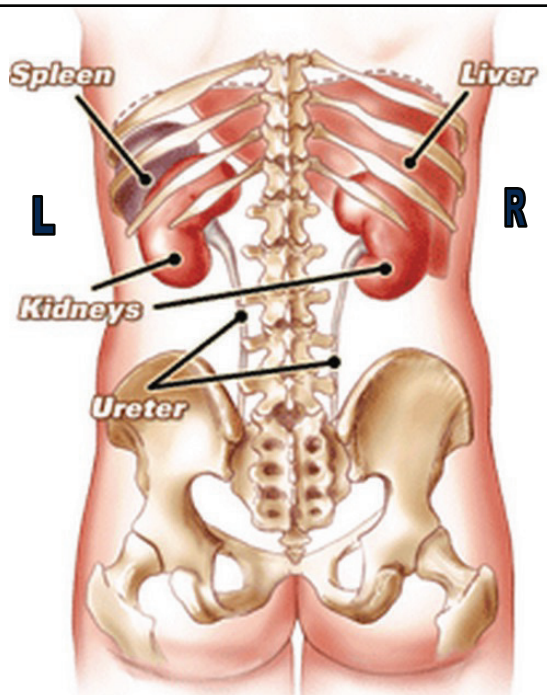
- **CT Abd/Pel**: 9.1 cm renal mass Lt kidney; renal vein appears patent; 1.3 cm hypodensity in Rt lobe liver; remainder WNL
- **Bone Scan**: no evidence of mets
- **MRI Abd**: Liver mass consistent with hemangioma; 0.9 cm Lt periaortic LN, inflammation vs neoplastic process; no renal vein thrombus

Case Scenario

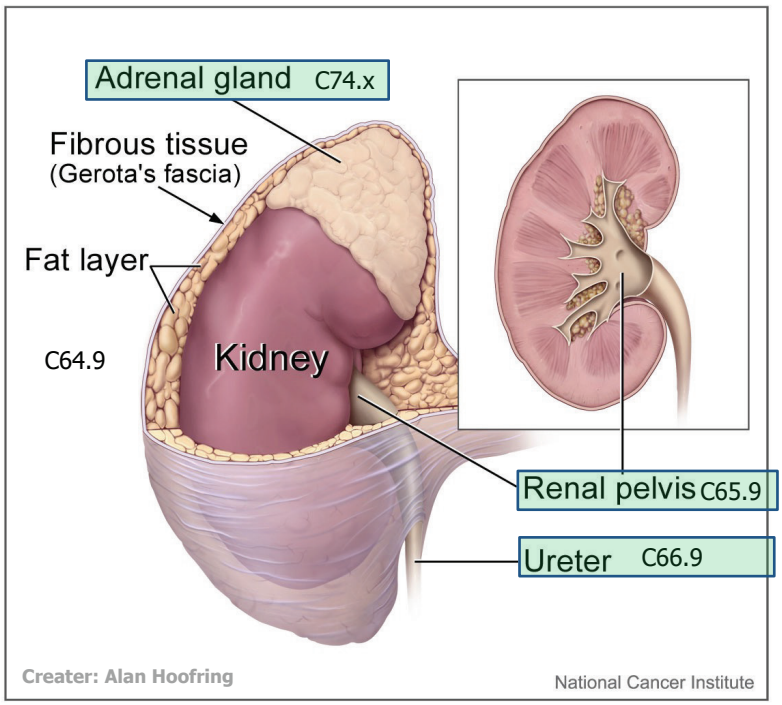
Treatment

- **Surgery:** Lt Laparoscopic Radical Nephrectomy; Lt para-aortic lymph node resection – No findings noted.
- **Pathology**: Lt kidney w/ unifocal clear cell renal cell CA limited to the kidney; TS 9.4 cm; WHO/ISUP grade 3; no sarcomatoid features identified; 0+/1 paraaortic LN; adrenal gland uninvolved; margins (-); VI present.

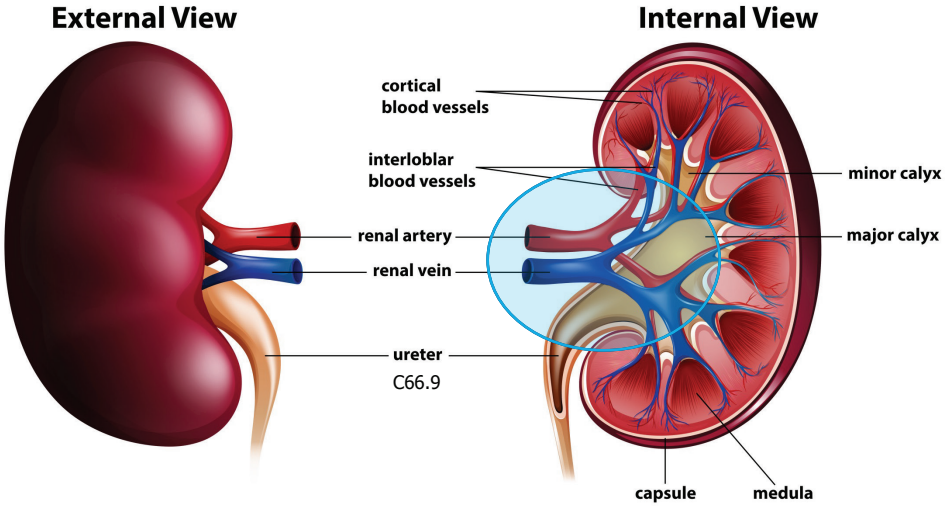
Where are they?



http://healthfixit.com/location-and-pictures-of-different-organs-in-the-abdomen/

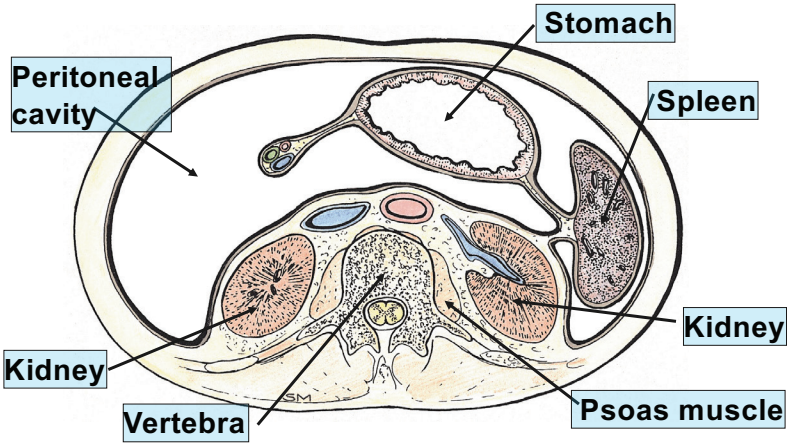


Cut Section of Kidney



https://www.vecteezy.com/free-vector/human

Cross-Section of Abdomen



Source: Medi-clip: Grant's Atlas, Thorax and Abdomen

Vocabulary

Parenchyma
- Solid part of kidney where process of waste excretion takes place
  - **Cortex** (ultrafiltration)
    - Outer layer of parenchyma made up or renal corpuscles (Bowman's capsule)
    - Produces erythropoietin
  - **Medulla**
    - Area of kidney where filtration and concentration of wastes takes place (most of the nephron is here)
    - Arranged into pyramid-type structures

Capsule
- Dense fibrous covering of kidney

Gerota's fascia
- Layer of connective tissue between kidneys and psoas muscles

Factoids

- Paired organ
- 4-5 inches long (about a fist)
- 76,080 new cases expected 2021
  - 6^{th} most common CA men, 8^{th} women
- Most lethal urologic cancer; 13,780 die in 2021
- Wilms tumor (nephroblastoma) pediatric – not AJCC staging

Functions of Kidney

- Filters blood
  - Remove excess water, salt, waste from blood = urine
- Produces hormones to regulate BP
  - Renin
- Produces hormones RBC production and other
  - Erythropoietin tells the bone marrow to make more RBC

Risk Factors

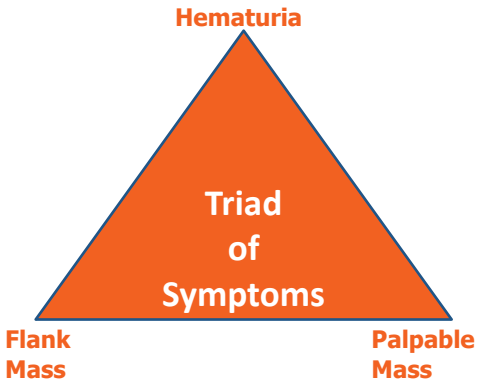
- Smoking 25-30% higher
- Gender Men:Women 2-3:1
- Race: African American higher rate
- Age 50-70 age usually
- Obesity
- Hypertension
- Exposure to chemicals (cadmium)
- Family history
- Kidney stones esp papillary RCC

Genetic Disorder Risk Factors

- Von Hippel-Lindau Syndrome (VHL)
- Hereditary non-VHL clear cell CA
- Hereditary papillary renal cell CA
- Birt-Hogg-Dubé (BHD)
- Hereditary leiomyomatosis & RCC
- Tuberous sclerosis complex
- Succinate dehydrogenase complex
- BAP-1 tumor predisposition syndrome

Symptoms

- Hematuria (40% of patients)
- Flank pain (40%)
- Abdominal lump/mass (25%)
- Weight loss (33%)
- Fever (20%)
- Hypertension (25%)
- Hypercalcemia (5%)
- Night sweats
- Malaise



Up to 50% of masses may be incidental finding

Work-Up

- Renal sonogram
  - Solid vs cystic mass?
- CT scan abdomen
  - For staging information
- MRI abdomen
  - If suspicion of renal vein or vena cava mets
  - If sonogram/CT scan equivalent findings
- CT chest
  - To rule out mets
- Lab Findings
  - Erythrocyte sedimentation rate (> 30mm/hr)
  - Hypercalcemia (>10mg/dL)
  - Anemia (Hgb <12g/dL men, <10g/dL women)
  - Elevated alkaline phosphatase

Bosniak Classification of Renal Cysts (Radiology Criteria)

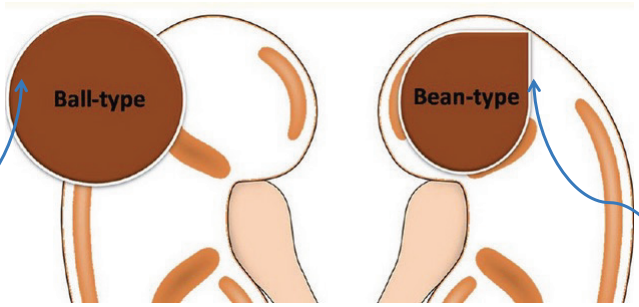
Type	Morphology	Management
Bosniak I	Simple cyst w/fluid	Benign, no FU needed
Bosniak II	Minimally complex, ≤ 3 cm	Benign, no FU needed
Bosniak IIF	More complex than II	FU CT or MRI
Bosniak III	Complex, enhancing septations or walls	30 – 100% chance of malignancy; resection recommended
Bosniak IV	Cystic mass w/enhancing soft-tissue components	Malignant until proven otherwise; resection recommended

Source: pubs.rsna.org

Renal Mass = ??

- Masses can be divided into:
  - Cystic
  - Complex cystic
  - Solid
    - Enhancing masses should be considered malignant until proven otherwise
    - Shape may matter

Shape?



Renal cell carcinoma
Angiomyolipoma
Oncocytoma
Metastasis
Lymphoma

Transitional cell carcinoma
Infiltrative renal cell carcinoma
Medullary carcinoma
Collecting duct carcinoma
Metastasis

Indian J Radiol Imaging. 2016 Oct-Dec; 26(4): 429–442.

Solid Tumor Rules

STR Introduction Notes

1. Tables refer to ICD-O
2. MPH & STR are based on DATE of DIAGNOSIS
   a. Dx 1/1/2007 thru 12/31/2017 – use MPH
   b. Dx 1/1/2018 and after – use STR
3. Renal cell CA is group term for adenocarcinoma of kidney; 85% of all C649 are RCC or subtypes
4. Transitional cell CA rarely arise in C649 (Kidney)
   – Code to C659 (Renal Pelvis) unless path confirms tumor originated in C649
5. If kidney tumors have biomarkers, they are used for treatment decisions, not STR

ICD-O-3 Site Coding Hints by Parts

- Named parts of **kidney parenchyma** (C64.9)

Bowman's capsule	Nephrons
Cortex	Pyramid
Glomerulus	Renal columns
Medulla	Renal papillae
Nephro-	

- Named parts of **renal pelvis** (C65.9)

Calyx	Renal pelvis
Pyelo-	Renal sinus

Kidney Equivalent or Equal Terms

- And; with (for ≥ 2 histo in 1 tumor)
- Carcinoma; adenocarcinoma
- Multifocal; multicentric
- Simultaneous; existing at same time; concurrent; prior to FCOT
- Site; topography
- Tumor; mass; lesion; neoplasm; nodule
- Type; subtype; variant

Terms NOT Equivalent or Equal

- Component ≠ subtype/type/variant
  - Component is only coded when pathologist specifies the component as a 2nd carcinoma
- Phenotype ≠ subtype/type/variant

Kidney Tables

- Table 1 – Specific histologies, NOS, and subtypes/variants
- Table 2 – Neoplasms NOT reportable

Table 1: Specific Histologies, NOS, and Subtypes/Variants

NOS/Specific Histology Term and Code	Synonyms	Subtypes/Variants
Renal cell carcinoma NOS **8312** *Note 1:* WHO, IARC, and CAP agree that sarcomatoid carcinoma is a pattern of differentiation, not a specific subtype, of renal cell carcinoma. *Note 2:* Sarcomatoid is listed in the CAP Kidney protocol under the header "features."	RCC Sarcomatoid carcinoma Sarcomatoid renal cell carcinoma Succinate dehydrogenase-deficient renal cell carcinoma (SDHD) Unclassified renal cell carcinoma	Acquired cystic disease-associated renal cell carcinoma/tubulocystic renal cell carcinoma **8316*** Chromophobe renal cell carcinoma (ChRCC) **8317** Clear cell papillary renal cell carcinoma **8323/3** *Note:* The 2016 WHO 4th Edition Classification of Tumors of the Urinary System and Male Genital Organs has reclassified this histology as a /1 because it is low nuclear grade and is now thought to be a neoplasia. This change was not implemented in the 2018 ICD-O update. Clear cell renal cell carcinoma (ccRCC) **8310** Collecting duct carcinoma **8319** Hereditary leiomyomatosis and renal cell carcinoma-associated renal cell carcinoma **8311*** MiT family translocation renal cell carcinomas **8311*** *Note:* Hereditary leiomyomatosis and renal cell carcinoma-associated renal cell carcinoma and MiT family translocation renal cell carcinomas have the same ICD-O code but are distinctly different histologies. Because they are different, they are on different lines in column 3. Mucinous tubular and spindle cell carcinoma **8480*** Papillary renal cell carcinoma (PRCC) **8260** Renal medullary carcinoma **8510*** *Note:* This is a **new** term (previously called renal spindle cell carcinoma).

Indented Subtypes/Variants in Column 3

NOS/Specific Histology Term and Code	Synonyms	Subtypes/Variants
Sarcoma **8800/3** *Note*: **Rhabdomyosarcoma** is a NOS with the following subtype/variants: Alveolar rhabdomyosarcoma **8920** Embryonal rhabdomyosarcoma **8910** Pleomorphic rhabdomyosarcoma **8901** Spindle cell/sclerosing rhabdomyosarcoma **8912**		Angiosarcoma **9120/3** Clear cell sarcoma/bone-metastasizing renal tumor of childhood **8964/3** Leiomyosarcoma/renal vein leiomyosarcoma **8890/3** Osteosarcoma **9180/3** Primitive/peripheral neuroectodermal tumor (pNET)/Ewing sarcoma **9364/3** Rhabdomyosarcoma **8900/3** Alveolar rhabdomyosarcoma **8920/3** Embryonal rhabdomyosarcoma **8910/3** Pleomorphic rhabdomyosarcoma **8901/3** Spindle cell/sclerosing rhabdomyosarcoma **8912/3** Synovial sarcoma **9040/3**

Kidney Table 2: Neoplasms which are NOT Reportable

Not Reportable Histology Term and Code	Synonyms
Adult cystic teratoma **8959/0**	Mixed epithelial and stromal tumor Renal epithelial stromal tumor
Angiomyolipoma **8860/0**	
Congenital mesoblastic nephroma **8960/1**	CMN
Cystic partially-differentiated nephroblastoma **8959/1**	
Epithelioid angiolipoma **8860/1***	
Hemangioblastoma **9161/1**	
Hemangioma **9120/0**	
Juxtaglomerular cell tumor **8361/0**	
Leiomyoma **8890/0**	
Lymphangioma **9170/0**	
Metanephric adenofibroma **9013/0**	Nephrogenic adenofibroma
Metanephric adenoma **8325/0**	
Metanephric stromal tumor **8935/1**	
Multilocular cystic renal neoplasm of low malignant potential **8316/1***	
Nephrogenic rests **(no code)**	
Oncocytoma **8290/0**	
Papillary adenoma **8260/0**	
Paraganglioma **8700/0**	Extra-adrenal pheochromocytoma
Pediatric cystic nephroma **8959/0**	
Renomedullary interstitial cell tumor **8966/0**	Medullary fibroma
Schwannoma **9560/0**	
Solitary fibrous tumor **8815/1**	

MP Rules

Do not count **metastatic** lesions when determining which module to use.

Unknown if Single or Multiple tumors

M1: SP when not possible to determine if single or multiple

Single Tumor

M2: Single tumor always SP

Multiple Tumors

M3: MP when tumors present in ICD-O site different at 2nd (C**X**xx), 3rd (Cx**X**x), or 4th (Cxx**X**) characters (tho C64.9 our only site code)

M4: SP when bilateral nephroblastomas (aka Wilms tumors); no time limit

M5: MP when tumors are in BOTH right and left kidney (unless path proves 1 tumor is metastatic from other)

M6: MP when subsequent tumor after NED for > 3 years from dx date OR last recurrence (clock starts over if recurrence)

Multiple Tumors

M7: MP when separate, non-contiguous tumors are 2 or more different subtypes in Table 1, column 3

M8: SP when synchronous, separate/ non- contiguous tumors on SAME row Table 1 (same kidney)

M9: MP when separate/non-contiguous tumors on DIFFERENT rows Table 1 (same kidney)

Table 1, Rule M8, and "Same Row"

Row 1

Row 2

NOS/Specific Histology Term and Code	Synonyms	Subtypes/Variants
Nephroblastoma 8960	Wilms tumor	
Renal cell carcinoma NOS 8312 *Note 1:* WHO, IARC, and CAP agree that sarcomatoid carcinoma is a pattern of differentiation, not a specific subtype, of renal cell carcinoma. *Note 2:* Sarcomatoid is listed in the CAP Kidney protocol under the header "features."	RCC Sarcomatoid carcinoma Sarcomatoid renal cell carcinoma Succinate dehydrogenase-deficient renal cell carcinoma (SDHD) Unclassified renal cell carcinoma	Acquired cystic disease-associated renal cell carcinoma/tubulocystic renal cell carcinoma 8316* Chromophobe renal cell carcinoma (ChRCC) 8317 Clear cell papillary renal cell carcinoma 8323/3 *Note:* The 2016 WHO 4th Edition Classification of Tumors of the Urinary System and Male Genital Organs has reclassified this histology as a /1 because it is low nuclear grade and is now thought to be a neoplasia. This change was not implemented in the 2018 ICD-O update. Clear cell renal cell carcinoma (ccRCC) 8310 Collecting duct carcinoma 8319 Hereditary leiomyomatosis and renal cell carcinoma-associated renal cell carcinoma 8311* MiT family translocation renal cell carcinomas 8311* *Note:* Hereditary leiomyomatosis and renal cell carcinoma-associated renal cell carcinoma and MiT family translocation renal cell carcinomas have the same ICD-O code but are distinctly different histologies. Because they are different, they are on different lines in column 3. Mucinous tubular and spindle cell carcinoma 8480* Papillary renal cell carcinoma (PRCC) 8260 Renal medullary carcinoma 8510* *Note:* This is a **new** term (previously called renal spindle cell carcinoma).

M8 same row =
Col. 1 + Col. 2
Col. 1 + 1 sub/var Col. 3
Col. 2 + 1 sub/var Col. 3
Col. 3 + 1 sub/var Col. 3

Table 1, Rule M8, and "Same Row", cont.

Row

NOS/Specific Histology Term and Code	Synonyms	Subtypes/Variants
Sarcoma 8800/3 *Note*: **Rhabdomyosarcoma** is a NOS with the following subtype/variants: Alveolar rhabdomyosarcoma 8920 Embryonal rhabdomyosarcoma 8910 Pleomorphic rhabdomyosarcoma 8901 Spindle cell/sclerosing rhabdomyosarcoma 8912		Angiosarcoma 9120/3 Clear cell sarcoma/bone-metastasizing renal tumor of childhood 8964/3 Leiomyosarcoma/renal vein leiomyosarcoma 8890/3 Osteosarcoma 9180/3 Primitive/peripheral neuroectodermal tumor (pNET)/Ewing sarcoma 9364/3 Rhabdomyosarcoma 8900/3 Alveolar rhabdomyosarcoma 8920/3 Embryonal rhabdomyosarcoma 8910/3 Pleomorphic rhabdomyosarcoma 8901/3 Spindle cell/sclerosing rhabdomyosarcoma 8912/3 Synovial sarcoma 9040/3

Multiple Tumors cont.

M10: SP when in situ tumor diagnosed AFTER invasive tumor AND in same kidney

M11: SP when invasive diagnosed ≤ 60 days after in situ in same kidney

M12: MP when invasive tumor > 60 days after in situ

M13: SP when multiple tumors that do NOT meet any of the above criteria

Coding Histology Notes

Code histology

- Before neoadjuvant therapy
  - EXCEPTION: Dx based on FNA, smears, cytology, OR from a regional or metastatic site and neoadjuvant treatment given followed by resection that identifies a different or specific histology – code the histology from the resected primary site
- Using priority list & H rules
- Do not change histo to stage

Priority Order for Using Documentation to Identify Histology (SP)

Code MOST specific from either resection or biopsy

- Tissue or path report
  - Addendum/comments
  - Final diagnosis/CAP synoptic report
  - CAP protocol
- Cytology (urine)
- Tissue from mets site
- Scan – NOT in priority order
  - MRI
  - CT
  - PET
- Histo documented by physician in med rec
  - Treatment plan
  - Tumor Board
  - Med record referring to path, cyto, or scan note
  - MD reference

Coding Histology Notes

- Code most specific or subtype/variant regardless if
  A. Majority or predominant part
  B. Minority of tumor
  C. Component

Terms A-C must describe a carcinoma or sarcoma

- Code histo described as differentiation or features of ONLY when there is specific ICD-O code for NOS with "diff" or with "features"

Coding Histology – Ambiguous Terms

- Code histo described by an ambiguous terms ONLY when conditions in A **or** B are met:
  A. Only dx available is one histo term described by ambiguous terminology (case accessioned based on ambiguous terms) and no other histo is available
  B. There is an NOS histo and a more specific histo (subtype/variant) described by ambiguous terms **AND**
     - Specific histology confirmed by a physician **OR**
     - Patient is being treated based on the specific histo described by ambiguous term

Coding Histology – Ambiguous Terms

List of Ambiguous Terms

Apparently	Favor(s)	Probable
Appears	Malignant appearing	Suspect(ed)
Comparable w/	Most likely	Suspicious (for)
Compatible w/	Presumed	Typical (of)
Consistent w/		

Last instruction: Do NOT code histo when described as

- Architecture
- Foci, focal, focus
- Pattern

Kidney Histology Rules

Single tumor	RULE	Multiple tumors
H1	Code the histo when only ONE histo is present	H4
H2	Code the NOS histo when there are • NOS and ≥ 2 more variants of that NOS present **OR** • ≥ 2 more variants of NOS present	H5
H3	Code the subtype/variant when NOS and a SINGLE subtype/variant of NOS are present	H6

Grade ID Table 18 Chap 60 Kidney Parenchyma – Uses WHO/ISUP

CODE	Grade Description
1	G1: Nucleoli absent or inconspicuous and basophilic at 400x magnification
2	G2: Nucleoli conspicuous and eosinophilic at 400x magnification, visible but not prominent at 100x mag
3	G3: Nucleoli conspicuous and eosinophilic at 100x mag
4	G4: Marked nuclear pleomorphism &/or multinucleate giant cells &/or rhabdoid &/or sarcomatoid differentiation
A	Well differentiated
B	Moderately differentiated
C	Poorly differentiated
D	Undifferentiated, anaplastic
9	Unknown; can't assess OR only Fuhrman grade documented

Priority

Primary Site, Histology, Grade

- Primary site: **C64.9 Kidney, NOS**
- Histology: **8310/3 Clear cell renal cell carcinoma**
- Grade Clinical: **9**
- Grade Pathological: **3**
- Grade Post-therapy Clin: **Blank**
- Grade Post-therapy Path: **Blank**

Staging: AJCC, SS2018, and EOD

Kidney (aka Renal Parenchyma)

AJCC Rules for Classification

CLINICAL

- Radiology
  - CT, MRI, PET

PATHOLOGICAL

- Resection including Gerota's fascia & perinephric fat recommended
- Adrenal gland review IF removed
- Regional LN resection on selective basis

EOD Primary Tumor Notes

- **Note 1:** 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 2:** 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 and is dependent on size in the absence of further involvement.

Staging: AJCC, SS2018, and EOD

AJCC T	SS2018	EOD	Description	
-	0	000	In situ, intraepithelial, noninvasive	
Based on TS: 4, 7, & 10 cm cut points	1	100	Any size tumor	
			Invasion of renal capsule	
			Invasive cancer confined to kidney cortex and/or medulla	
			Confined (limited) to the kidney, NOS; Localized, NOS	
	2	200	Blood vessel(s) (major)	
			Extrarenal portion of renal vein or segmental (muscle containing branches)	
			Hilar blood vessel	Renal vein, NOS
			Perirenal vein	Tumor thrombus in a renal vein, NOS
			Renal artery	
			Invasion of perirenal and/or renal sinus fat but not beyond Gerota's fascia	
			Pelvicalyceal system	
			Perinephric tissue invasion WITHOUT extension beyond the Gerota's fascia	
			Renal pelvis or calyces involved	
			Separate focus of tumor in renal pelvis/calyx	

Staging: AJCC, SS2018, and EOD

AJCC T	SS2018	EOD	Description	
Based on tumor extension	2	300	Inferior vena cava (IVC) below diaphragm	
		400	IVC above diaphragm or invades wall of IVC	
		500	Tumor extends into major veins (excluding ipsilateral adrenal gland)	
			Not beyond Gerota's fascia (see code 600)	
			IVC, NOS	
		600	Extension beyond Gerota's fascia to	
			Adrenal gland (ipsilateral) (contiguous metastasis)	Peritoneum
			Ascending colon from right kidney	Psoas muscle
			Beyond Gerota's fascia, NOS	Quadratus lumborum muscle
			Descending colon from left kidney	Retroperitoneal soft tissue
			Diaphragm	Tail of pancreas
			Duodenum from right kidney	Ureter (ipsilateral), incl. implant(s)

Staging: AJCC, SS2018, and EOD

AJCC T	SS2018	EOD	Description
Based on tumor extension	7	700	Aorta Liver from right kidney Ribs Spleen from left kidney Stomach
		800	Further contiguous extension
			No evidence of primary tumor
		999	Unknown; extension not stated Primary tumor cannot be assessed Not documented in patient record
			Death Certificate Only

Regional Nodes AJCC, EOD, and SS2018

SS18	EOD	Description (from EOD and SS2018)	
-	000	No regional lymph node involvement	
3	300	**Aortic, NOS**	**Caval, NOS**
		- Lateral (lumbar)	- Interaortocaval
		- Para-aortic	- Paracaval
		- Periaortic	- Pericaval
		- Preaortic	- Precaval
		- Retroaortic	- Retrocaval
		Renal hilar	
		Retroperitoneal, NOS	
	800	Regional lymph node(s), NOS Lymph node(s), NOS	
-	999	Unknown; regional lymph node(s) not stated Regional lymph node(s) cannot be assessed Not documented in patient record Death Certificate Only	

EOD
Note 1: Code only regional nodes and nodes, NOS, in this field. Distant nodes are coded in EOD Mets.
Note 2: Regional nodes include **bilateral** and **contralateral** involvement of named nodes.

AJCC
No subcategories of N
c/p N0

Distant Mets

- Reflect vascular drainage of kidney
  - Pulmonary very common
  - Because of cells circulating through heart, other mets possible
- Direct extension to contralateral kidney is M1
- Common mets
  - Adrenal (contralateral OR ipsilateral lesions)
  - Bone
  - Brain
  - Distant LN
  - Liver
  - Lung
- But RCC can mets to weird sites!

Distant Mets AJCC, EOD, and SS2018

AJCC M	SS18	EOD	Description
No subcat-egories of M: cM0, c/p M1	0-4	00	No distant metastasis Unknown if distant metastasis
	7	10	Distant lymph node(s), NOS
	7	70	Extension to •Adrenal gland • Ipsilateral, noncontiguous • Contralateral •Contralateral kidney •Contralateral ureter •Liver •Spleen Carcinomatosis Distant metastasis WITH or WITHOUT distant lymph node(s) Distant metastasis, NOS
		99	Death Certificate Only

Exercise: SS18 and EOD Fields

CT Abd/Pel: 9.1 cm renal mass Lt kidney; renal vein appears patent.

Bone Scan: no evidence of mets

MRI Abd: Liver mass consistent with hemangioma; 0.9 cm Lt periaortic LN, inflammation vs neoplastic process; no renal vein thrombus

Pathology: Lt kidney w/ unifocal clear cell renal cell CA limited to the kidney; TS 9.4 cm; WHO/ISUP grade 3; no sarcomatoid features identified; 0+/1 paraaortic LN; adrenal gland uninvolved; margins (-); VI present

EOD Primary Tumor 100

EOD Regional Nodes 000

EOD Mets 00

SS18 1

TNM and Prognostic Stage Groups

CT Abd/Pel: 9.1 cm renal mass Lt kidney; renal vein appears patent.

Bone Scan: no evidence of mets

MRI Abd: Liver mass consistent with hemangioma; 0.9 cm Lt periaortic LN, inflammation vs neoplastic process; no renal vein thrombus

Pathology: Lt kidney w/ unifocal clear cell renal cell CA limited to the kidney; TS 9.4 cm; WHO/ISUP grade 3; no sarcomatoid features identified; 0+/1 paraaortic LN; adrenal gland uninvolved; margins (-); VI present

cTNM and Stage Group cT2a cN0 cM0 II

pTNM and Stage Group pT2a pN0 cM0 II

5-Year Survival (ACS using NCDB Observed data)

Stage I	**81%**
Stage II	**74%**
Stage III	**53%**
Stage IV	**8%**

Site Specific Data Items (SSDI)

Kidney Parenchyma

AJCC Registry Data Collection Variables

- Histologic subtype
- WHO/ISUP grade
- Tumor size
- Invasion into perinephric fat or sinus tissues
- Venous involvement
- Lymphovascular invasion
- Adrenal gland involvement
- Sarcomatoid features
- Rhabdoid differentiation
- Histologic tumor necrosis

Blue shading =SSDIs

SSDI: Common Instructions

- These 3 SSDI share common instructions
  - On the next slide "____" is used to represent each of these SSDI
- **Invasion Beyond Capsule**
  - Invasion of the tumor beyond the fibrous capsule (invasion beyond capsule)
  - Synonyms include renal hilum, renal sinus fat, medial invasion
- **Ipsilateral Adrenal Gland Involvement**
- **Major Vein Involvement**
  - Renal vein or its segmental branches, and the inferior vena cava
  - Do not code invasion of small unnamed vein(s) of the type collected as lymph-vascular invasion. Lymph-vascular invasion is usually only seen microscopically.

SSDI Common Instructions

- Physician statement of pathologically confirmed ____ can be used to code this data item.
- Information about ____ is collected in primary tumor as an element in anatomic staging. It is also collected in this field as it may have an independent effect on prognosis.
- If surgical resection is done and the tumor is "confined to kidney" and staging is based on size, then there has been no ____.
- Record ____ as documented in the pathology report.
- Do not use imaging findings to code this data item.
- Code 9 if surgical resection of the primary site is performed and there is no mention of ____.

Invasion Beyond Capsule (Needs path confirmation)

Code	Description
0	Invasion beyond capsule not identified
1	Perinephric (beyond renal capsule) fat or tissue
2	Renal sinus
3	Gerota's fascia
4	Any combo of codes 1-3
5	Invasion beyond capsule, NOS
8	N/A; Info not collected for this case (depends on standard setter)
9	Not documented in medical record; invasion beyond capsule not assessed or unknown if assessed; no surgical resection of primary site performed

Ipsilateral Adrenal Gland Involvement (Needs path report)

Code	Description
0	Ipsi adrenal gland involvement not present/not identified
1	Adrenal gland involvement by direct (contiguous) involvement
2	Adrenal gland involvement by separate nodule (noncontiguous)
3	Combo of code 1-2
4	Ipsi adrenal gland involvement, unknown if direct involvement or separate nodule
8	N/A; Info not collected for this case (depends on standard setter)
9	Not documented in medical record; ipsi adrenal gland not resected; ipsi adrenal gland involvement not assessed or unknown if assessed; no surgical resection of primary site performed

Major Vein Involvement (Needs path report)

Code	Description
0	Major vein involvement not present/not identified
1	Renal vein or its segmental branches
2	Inferior vena cava (IVC)
3	Major vein invasion, NOS
4	Any combo of codes 1-3
8	N/A; Info not collected for this case (depends on standard setter)
9	Not documented in medical record; vein involvement not assessed or unknown if assessed; no surgical resection of primary site performed

Sarcomatoid Features (path report)

Code	Description
000	Sarcomatoid features not present/not identified
001 – 100	Sarcomatoid features 1 – 100%
R01	Sarcomatoid features stated as < 10%
R02	Sarcomatoid features stated as range 10% - 30%
R03	Sarcomatoid features stated as range 31% - 50%
R04	Sarcomatoid features stated as range 31% - 80%
R05	Sarcomatoid features stated as range > 80%
XX6	Sarcomatoid features present, % unknown
XX7	N/A; not a renal cell carcinoma morphology
XX8	N/A; Info not collected for this case
XX9	Not documented in medical record; sarcomatoid features not assessed or unknown if assessed; no surgical resection of primary site performed

Coding SSDIs

Invasion Beyond Capsule	0
Ipsilateral Adrenal Gland Involvement	0
Major Vein Involvement	0
Sarcomatoid Features	000

Treatment Stuff

STORE Surgery Codes

- 30 Partial or subtotal nephrectomy
  - Segmental resection, wedge resection
- 40 Complete/total/simple nephrectomy
  - Nephroureterectomy
- 50 Radical nephrectomy
  - MAY include portion of vena cava, adrenal gland(s), Gerota's fascia, perinephric fat, or partial/total ureter
- 70 Any nephrectomy with removal other organs

Partial Nephrectomy

- Aka nephron-sparing surgery (NSS)
- Used for benign tumors OR stage I - III cases
- Peripheral lesions
  - Central, hilar lesions more difficult
- Can be open, laparoscopic, or robotic approach
- May protect patient from renal insufficiency in later years

Indications for Partial Nephrectomy

ABSOLUTE

- Solitary kidney
- Bilateral renal masses
- Severe renal insufficiency (creatinine > 2.0 ng/dL)

RELATIVE

- Contralateral kidney with pre-existing renal disease (stones, pyelonephritis, UPJ obstruction, reflux, etc.)
- Medical disease predisposing to renal insufficiency (DM, Htn)
- Known multifocality (von Hippel-Lindau, other genetic syndromes)

Indications for Partial Nephrectomy

Elective

- Small tumor < 4.0cm
  - Maybe up to 7.0cm?
- Peripheral location
- Does not involve renal hilum or collecting system structures
- Relatively healthy patients

CONTRA-indications

- cT2 or greater lesion
- Renal sinus involvement
- Extensive collecting system involvement

Risks of Partial Nephrectomy

- Bleeding
- Acute renal failure (0 to 18% incidence)
- Urinary fistula (1.8 to 21% incidence)
- Increased O.R. time
- Technical difficulty

Renal Auto-transplantation

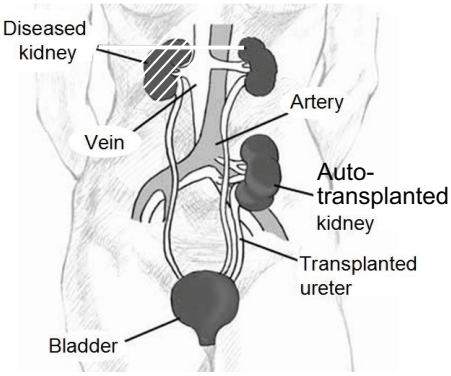
Procedure steps

1. Remove kidney
2. Repair kidney if planned
3. Reimplant kidney

Code as Surgery of Primary Site 40 (complete/total/simple nephrectomy)

Insufficient kidney function

Preserves kidney



Non-Surgical Treatment

- Radiofrequency ablation (RFA)
  - Destroys tumor via electrical charge delivered by needle
- Cryoablation
  - Freezing tumor with probe
- Clinical T1 lesions
  - Larger masses in select patients

Active Surveillance

- Clinical T1 lesions
  - Masses < 2 cm
  - Masses that have predominant cystic component
- If patient has high morbidity/death potential
- Serial abdominal imaging
- Periodic metastatic survey including blood work and chest imaging, especially if mass increases in size

Targeted Therapy

TKI (tyrosine kinase inhibitors)

- Block VEGF that promote development of new blood vessels

- Votrient (pazopanib)
- Nexavar (sorafenib)
- Sutent (sunitinib)
- Inlyta (axitinib)

Anti-angiogenesis (prevent blood vessel growth)

- Avastin (bevacizumab)

mTOR (protein helps tumors grow)

- Afinitor (erolimus)
- Torisel (temsirolimus)

Studies under way for targeted therapy given neoadjuvantly

Immunotherapy

- Interleukin-2 (IL-2, high dose)
- Pembrolizumab (Keytruda)
- Nivolumab (Opdivo)
- Avelumab (Bavencio)
- Ipilimumab (Yervoy)
- Interferon-alfa ± bevacizumab (Avastin)

Kidney Transplant

- What about transplanted kidneys that develop cancer?
  - CAnswer Forum says code to recipient (not donor) and code C80.9
    - "Because it's not an organ of your living patient" (Aug 2011)
  - SINQ says to code C64.9 in recipient (20150060)

Transplants & SEER Program Manual

- Transplants may come from:
  - Patient's own body (autograft)
  - Another human (homograft or allograft)
- Code the primary site to the location of the transplanted organ

Patient Follow-up (Depends on Treatment Chosen & Stage)

Active Surveillance

- Annual H&P
- Annual lab tests
- Abdominal CT or MRI in 6 mos, then annually
- CXR or CT chest annually

Ablation

- Annual H&P
- Annual lab tests
- Abdominal CT or MRI at 1-6 months post ablation, then CT, MRI or US annually for 5 years
- CXR or CT annually for 5 years

Patient Follow-up (Depends on Treatment Chosen & Stage)

Stage I, Nephrectomy

- Annual H&P
- Annual lab tests
- Abdominal CT or MRI or US in 3-2 mos postop, then annually for 3 years
- CXR or CT chest annually for at least 5 years

Stage II or III, Nephrectomy

- H&P & Labs q 3-6 mos x 3 yrs, then annual up to 5 years
- Abdominal CT or MRI AND Chest CT in 3-6 mos, then CT/MRI/US q 3-6 mos x 3 yrs, then annual up to 5 years

Evaluation of NCCN & AUA Renal Cell CA Surveillance Guidelines

- Presented at ASCO & AUA meetings 2014
- To capture 95% recurrence, pt must be followed:
  - 14 years if moderate/high risk pt (T2-4, NX-0 OR any N1 pt)
  - 15 years if partial nephrectomy
  - 21 years if radical nephrectomy
- If follow NCCN or AUA, will miss approximately 1/3 of RCC recurrences BUT cost for surveillance would be 4-9 times higher

Questions?

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FABULOUS PRIZES

COMING UP!

- 7/8/21 Quality in CoC Accreditation
  - Courtney B Jagneaux, CTR'
  - Erin Weber, CTR
- 8/5/21 Breast 2021
  - Vicki Hawhee, M.Ed, CTR

CE'S

- Phrase
- Link
  - https://survey.alchemer.com/s3/5729172/Kidney-2021

THANK YOU

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HTTPS://WWW.NAACCR.ORG/