Incidental CT Finding Renal Hypodensity

(see Table 1A)

Hemorrhagic **Intermediate** Cyst **Contains Fat** -10 to +21 to +69 HU Cyst Region of interest is >/= +70 HU (see table 1) < -10 HU +20 HU Non-contrast CT Non-contrast Simple CT or MRI W/WO CT or MRI W/WO Unlikely No With to be calcification neoplastic calcifications (AML) Complex No F/U Likely benign cyst Cyst Suspected renal (see table 2) cell carcinoma Homogeneous Refer Solitary Multiple Solid Thin or urology w/o Bosniak I or II imperceptible **Enhancing** co nsult growth per documented F/U wall; no mural Benign simple or Yellow CTR growth prior studies minimally CT or MRI nodule, septa or Indeterminate complicated calcification; likely or < 1.0 cm benign cyst Homogeneous size No F/U Refer YES >/= 1.0 cm urology size F/U consult No F/U CT or MRI in 6 >/= 4 cm **Bosniak IIF Yellow CTR** to 12 months benign complex NO cystic mass NO Refer <1 cm F/U No F/U Refer urology with growth or CT or MRI in 6 YES urology morphologic co nsu lt to 12 months co nsult change Yellow CTR **Yellow CTR** Bosniak III or IV NO Refer urology consult Small renal - Yellow CTR Stable < 1.0 cm neoplasm or **TSTC likely TSTC** benign cyst. indeterminate F/U Note: Follow-up CT or MRI is always W/WO F/U No F/U CT or MRI at 6 or 12 months Table 1. Features that indicate heterogeneity in a renal mass **Table 1A. Features to consider:** Feature 1. Size 2. Attenuation value Wall thickening 3. Homogeneity versus heterogeneity CTR = Critical Test Result One or more septa 4. Enhancement F/U = Follow-up5. Complexity of cystic mass (Bosniak classification) Mural nodule(s) HU = Housefield Unit 6. Growth and morphologic change Measurable or visible attenuation differences 7. Role of biopsy Calcification

Bosniak	
Classification	Description
I	Benign simple cyst with a hairline thin wall without septa, calcification, or solid component. Homogeneous near-water attenuation density (–10 to 20 HU) without enhancement.
II	Benign minimally complicated cyst that may contain a few hairline thin septa that may have "perceived" but not measurable enhancement. Fine calcification or a segment of slightly thickened calcification may be present in the wall or septa. Also, a well-marginated nonenhancing homogeneous mass < 3 cm with density above simple fluid attenuation (hyperdense cyst).
IIF	Usually benign complicated renal cyst with multiple hairline thin septa or minimal smooth thickening of the wall or septa. Wall or septa may contain thick and nodular calcification and may have "perceived" but not measurable enhancement. Also, a well-marginated intrarenal nonenhancing mass > 3 cm with density above simple fluid.
III	Indeterminate complicated cystic renal mass with thickened irregular walls or septa that have measurable enhancement.
IV	Malignant cystic renal mass with enhancing soft tissue components (cystic renal cell carcinoma).

Table 3. CT and MRI criteria for defining enhancement in a renal mass

CT Criteria: Increase in Attenuation After Contrast			
>20 HU	Definite for enhancement		
-			
>10 to < 20 HU	Equivocal for enhancement; consider factors related to beam		
	hardening, intra-renal location*		
≤10 HU	No enhancement		
MRI criteria for enhancement			
≥15% increase in signal intensity after contrast	Enhancing lesion		
Alternative method	Visible signal intensity on subtraction images		
HU = Hounsfield units.			

^{*}Stricter criteria (15 HU) should be used as a cutoff for enhancement of exophytic or larger lesions not prone to these factors.