PI-RADS v2

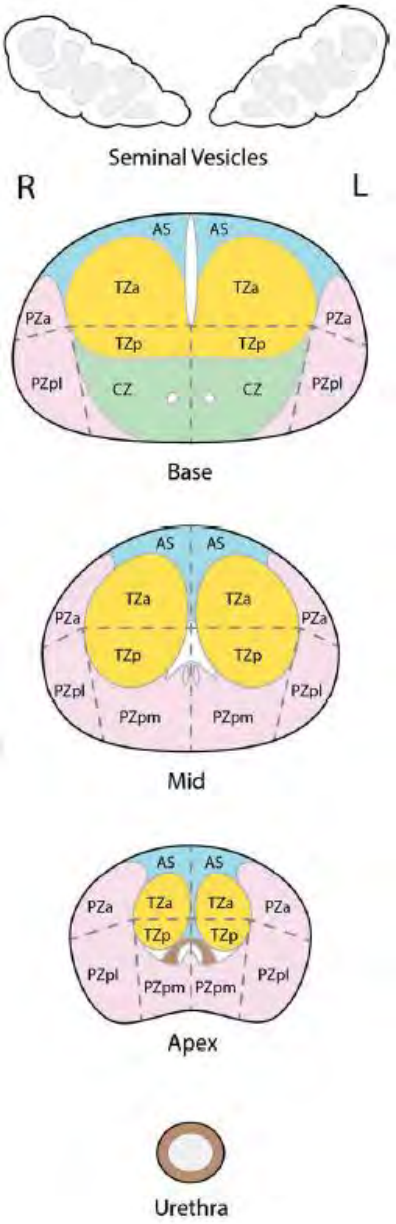
Prostate Imaging Reporting and Data System

American College of Radiology (ACR)

AdMeTech Foundation's International Prostate MRI Working Group

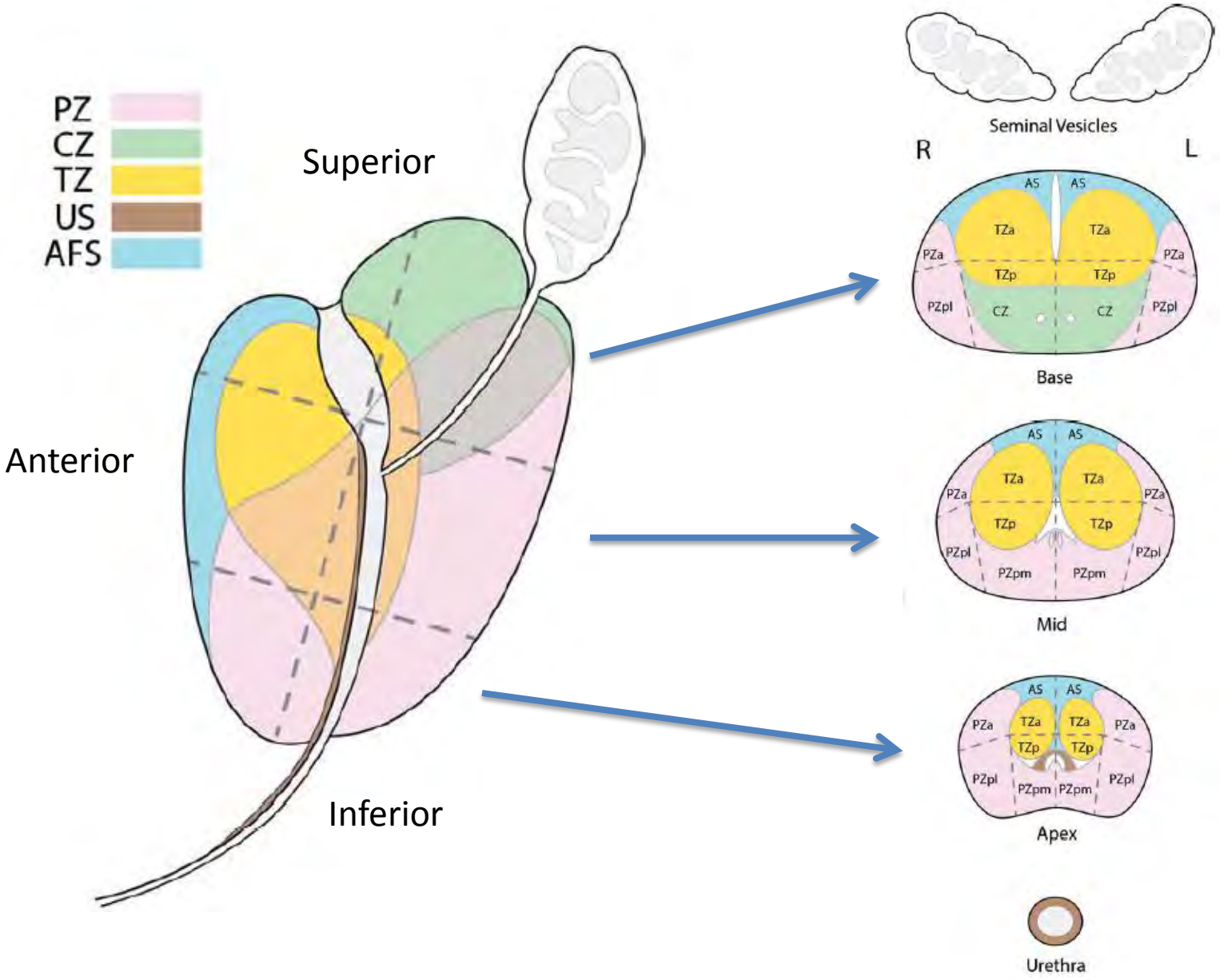
European Society of Urogenital Radiology (ESUR)

Four histologic zones



- AS- anterior fibromuscular stroma, no glandular tissue
- TZ- transition zone, 5% glandular tissue, increased size in BPH, 20-30% of cancers occur in TZ
- CZ- central zone, 20% glandular tissue, rare for cancers to occur in
- PZ- peripheral zone, 70-80% glandular tissue, 70-75% of cancers occur in PZ

Prostate anatomy-Sector Map



Measuring Lesions

- PZ lesions should be measured on ADC
- TZ lesions should be measured on T2W
- Report largest dimension of finding on axial image
  - If largest dimension is on sagittal and/or coronal images that measurement and imaging plane should also be reported

PI-RADS assessment for T2W-PZ

Score	Peripheral Zone (PZ)
1	Uniform hyperintense signal intensity (normal)
2	Linear or wedge-shaped hypointensity or diffuse mild hypointensity, usually indistinct margin
3	Heterogeneous signal intensity or non-circumscribed, rounded, moderate hypointensity Includes others that do not qualify as 2, 4, or 5
4	Circumscribed, homogenous moderate hypointense focus/mass confined to prostate and <1.5 cm in greatest dimension
5	Same as 4 but ≥1.5cm in greatest dimension or definite extraprostatic extension/invasive behavior

PI-RADS assessment for T2W-TZ

Score	Transition Zone (TZ)
1	Homogeneous intermediate signal intensity (normal)
2	Circumscribed hypointense or heterogeneous encapsulated nodule(s) (BPH)
3	Heterogeneous signal intensity with obscured margins Includes others that do not qualify as 2, 4, or 5
4	Lenticlular or non-circumscribed, homogeneous, moderately hypointense, and <1.5 cm in greatest dimension
5	Same as 4, but ≥ 1.5cm in greatest dimension or definite extraprostatic extension/invasive behavior

PI-RADS assessment for DWI-PZ/TZ

Signal intensity in a lesion should be visually compared to the average signal of "normal" prostate tissue in the histologic zone in which it is located.

Score	Peripheral Zone (PZ) or Transition Zone (TZ)
1	No abnormality (i.e. normal) on ADC and high b-value DWI
2	Indistinct hypointense on ADC
3	Focal mildly/moderately hypointense on ADC and isointense/mildly hyperintense on high b-value DWI.
4	Focal markedly hypontense on ADC and markedly hyperintense on high b-value DWI; <1.5cm in greatest dimension
5	Same as 4 but ≥1.5cm in greatest dimension or definite extraprostatic extension/invasive behavior

PI-RADS assessment for DCE-PZ/TZ

Score	Peripheral Zone (PZ) or Transition Zone (TZ) for DCE
(-)	no early enhancement, or diffuse enhancement not corresponding to a focal finding on T2 and/or DWI or focal enhancement corresponding to a lesion demonstrating features of BPH on T2WI
(+)	focal, and; earlier than or contemporaneously with enhancement of adjacent normal prostatic tissues, and; corresponds to suspicious finding on T2W and/or DWI

To determine overall score

Peripheral Zone (PZ)

DWI	T2W	DCE	PIRADS
1	Any*	Any	1
2	Any	Any	2
3	Any	-	3
		+	4
4	Any	Any	4
5	Any	Any	5

* "Any" indicates 1-5

Transition Zone (TZ)

T2W	DWI	DCE	PIRADS
1	Any	Any	1
2	Any	Any	2
3	≤4	Any	3
	5	Any	4
4	Any	Any	4
5	Any	Any	5

Assessment without DWI

Assessment **Without** Adequate DWI

Peripheral Zone (PZ) and Transition Zone (TZ)

T2W	DWI	DCE	PiRADS
1	X	Any	1
2	X	Any	2
3	X	- +	3 4
4	X	Any	4
5	X	Any	5

Assessment without DCE

- Peripheral Zone (PZ): Determined by DWI Assessment Category

Transition Zone (TZ)

T2W	DWI	DCE	PiRADS
1	Any	X	1
2	Any	X	2
3	≤4	X	3
	5	X	4
4	Any	X	4
5	Any	X	5