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Prostate Cancer Recurrence – Clinician Perspective

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Disclosures

None

Objectives

- Differentiate key clinical concepts — biochemical recurrence, persistent disease, and true recurrence — following surgery or radiation therapy (or active surveillance), using PSA trends and clinical context
- Describe clinical methods used to detect and evaluate prostate cancer recurrence, including interpretation of PSA kinetics and the role of imaging modalities such as PSMA PET, CT, MRI, and bone scan
- Distinguish among local recurrence, regional spread, and distant metastatic disease, and explain how these patterns influence clinical decision-making and patient management
- Identify essential medical record documentation used to support accurate abstraction of prostate cancer recurrence, while recognizing common documentation nuances that impact registry coding

Prostate Cancer Treatment: Setting the Stage for Recurrence

- Radical prostatectomy (RP): open, laparoscopic, or robotic-assisted
- External beam radiation therapy (EBRT) ± androgen deprivation therapy (ADT)
- Brachytherapy (low-dose rate or high-dose rate)
- Active surveillance for low-risk disease

Post-treatment follow-up: PSA monitoring is the primary tool for recurrence detection after all definitive treatments

Recurrence type and timing depend on primary treatment received: definitions and thresholds differ after RP vs. RT

Key Clinical Concepts

Recurrence: new evidence of disease after a documented disease-free interval following definitive treatment — requires confirmation that the patient was disease-free at some point

Persistent disease: PSA never becomes undetectable after RP, or PSA does not reach nadir post-RT — no disease-free interval; not a recurrence

Biochemical recurrence (BCR): PSA-based recurrence without imaging-detectable disease — the most common first recurrence event (20–40% of patients after definitive treatment)

Progressive disease: increase in disease extent, development of new metastatic sites, or castration resistance compared to prior assessment

Timing matters: the disease-free interval — confirmed by undetectable PSA, NED documentation, or imaging — is the critical dividing line between persistence and true recurrence

Biochemical Recurrence (BCR)

After radical prostatectomy (AUA/SUO definition): PSA ≥ 0.2 ng/mL confirmed on two consecutive measurements

- PSA should be undetectable (< 0.1 ng/mL) after successful RP — any persistent or rising PSA warrants evaluation
- PSA nadir is typically achieved within 4–6 weeks post-RP

After radiation therapy (Phoenix Criteria): PSA rise ≥ 2 ng/mL above the post-treatment PSA nadir

- PSA nadir after RT may take 18–36 months — premature assessment can lead to misclassification
- PSA bounce: benign transient rise (especially after brachytherapy) — does not confirm recurrence

PSA kinetics guide risk stratification: PSA doubling time (PSADT) < 3 months and PSA velocity > 0.75 ng/mL/year suggest aggressive recurrence with higher risk of metastatic spread

BCR and the SEER Data Gap

What current SEER items capture: Cancer Status (NAACCR #1770) and Recurrence Type–1st (NAACCR #1880) require identifiable disease — anatomic location, imaging finding, or pathologic confirmation

What is NOT captured — BCR: BCR is PSA-based with no anatomic site, no imaging finding, no pathology — it does not fit any existing Recurrence Type–1st code

- BCR affects 20–40% of patients after definitive treatment — a major clinical event currently invisible in population-level registry data
- Neither the current nor future recurrence data items capture BCR for prostate cancer

Why this matters: Thorough documentation of PSA trends, nadirs, and BCR dates supports future data item development. Registrars and clinicians should advocate together for a mechanism to capture PSA-only recurrence

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Recurrent vs. Persistent vs. Progressive Disease

Recurrent: PSA becomes undetectable post-RP then rises (≥ 0.2 ng/mL × 2), or PSA reaches nadir post-RT then rises (nadir + 2 ng/mL); or new biopsy-proven or imaging-confirmed disease after a documented NED period

Persistent: PSA never becomes undetectable after RP, or PSA does not achieve nadir post-RT; positive surgical margins with ongoing PSA elevation; no disease-free interval is established

Progressive: development of new metastatic sites (bone, lymph nodes, visceral), castration-resistant progression (rising PSA despite ADT with castrate testosterone), or new/enlarging lesions on surveillance imaging

Key for registrars: patients who never achieve undetectable PSA after RP are classified as persistent disease — not recurrent; CRPC represents progression of existing disease, not a new recurrence event

Imaging for Recurrence Detection

PSMA PET/CT — most sensitive modality; FDA-approved (2020); detects recurrence at low PSA (< 1 ng/mL); identifies local, nodal, and distant disease in a single scan; may guide targeted salvage therapy

CT abdomen/pelvis — standard for nodal and visceral metastasis evaluation; sensitivity limited at low PSA; used alongside bone scan for initial restaging

Bone scan (Tc-99m) — detects osseous metastases; being replaced by PSMA PET at centers with access; false positives possible (fractures, arthritis) — requires clinical correlation

Multiparametric MRI (mpMRI) — detects local recurrence in the prostate bed after RP; used for salvage radiation planning; differentiates post-treatment fibrosis from tumor

Key for registrars: imaging reports document the location of recurrence (local, regional, distant) — PSMA PET has transformed the ability to localize recurrence even at very low PSA levels (< 0.5 ng/mL)

Disease-Free Interval: Clinical Documentation

The disease-free interval (DFI) is the time from definitive treatment to first documented evidence of recurrence — establishing the DFI requires confirmation that the patient was disease-free at some point after treatment

For post-RP patients: DFI begins when PSA becomes undetectable (< 0.1 ng/mL) and ends at first confirmed BCR (PSA ≥ 0.2 × 2)

For post-RT patients: DFI begins at PSA nadir and ends when Phoenix criteria are met (PSA nadir + 2 ng/mL)

Disease-free status is typically documented in urology/oncology progress notes, lab data, or letters stating 'NED' or 'PSA undetectable'

Registrars should look for: (1) documentation of undetectable PSA or NED, (2) date of that documentation, and (3) date recurrence was first noted

Patients who never achieve undetectable PSA after RP are classified as persistent disease — not recurrent

Recurrence Patterns — Local Disease

After radical prostatectomy: local recurrence in the prostatic fossa; BCR with slow PSADT (> 12 months) and low PSA at detection favors local recurrence; managed with salvage EBRT ± ADT

- PSMA PET/CT increasingly used to localize recurrence in the surgical bed even at very low PSA (< 0.5 ng/mL)
- Features favoring local recurrence: BCR > 1–2 years post-RP, PSADT > 12 months, Gleason score ≤ 7 (Grade Group 1–3)

After radiation therapy: in-gland recurrence confirmed by prostate biopsy ≥ 2 years post-RT; PSA bounce must be distinguished from true BCR, especially after brachytherapy

- Salvage local options: salvage prostatectomy, cryotherapy, HIFU — patient selection is critical given higher morbidity

Important for registrars: in-gland recurrence after RT = local recurrence, not a new primary under SEER Solid Tumor Rules

Recurrence Patterns — Regional and Distant Metastatic Disease

Regional nodal recurrence: pelvic lymph nodes (iliac, obturator, presacral); detected on PSMA PET, CT, or MRI; oligometastatic nodal disease may be treated with salvage lymph node dissection or SBRT

Distant metastatic recurrence: bone metastases in > 80% of metastatic prostate cancer cases (most common: spine, pelvis, ribs, femur); visceral metastases (liver, lung) less common, associated with aggressive disease

- Distant nodal recurrence: para-aortic, mediastinal, or supraclavicular involvement
- Oligometastatic disease (1–3 lesions): potential candidate for metastasis-directed therapy — PSMA PET critical for identification

Regional recurrence does not require pathologic confirmation if imaging is unambiguous and clinical management changes (ADT initiation, salvage therapy, tumor board documentation)

Castration-Resistant Prostate Cancer (CRPC): Progression, Not a New Recurrence

Definition: disease progression — PSA, radiographic, or symptomatic — despite castrate testosterone levels (< 50 ng/dL); represents evolution of existing disease, not a new recurrence event

- Non-metastatic CRPC (M0CRPC): rising PSA with no detectable metastases on conventional imaging; PSMA PET increasingly used to detect early subclinical disease
- Metastatic CRPC (mCRPC): progression to new or enlarging metastatic sites despite castrate testosterone — requires escalation of systemic therapy

Key documentation: oncology notes describing 'castration-resistant progression,' castrate testosterone level confirmation, serial PSA measurements, and imaging showing new/progressive lesions

Key for registrars: CRPC ≠ new recurrence; M0CRPC developing into M1CRPC = disease progression; CRPC is coded as evidence of tumor (Cancer Status = 2), not as a new recurrence type

Key Medical Record Documentation

PSA laboratory reports: serial PSA values with dates, PSA nadir after treatment, PSA doubling time notation in clinical notes, castrate testosterone level when relevant

Pathology reports: RP pathology (margins, stage, Gleason/Grade Group); post-treatment biopsy confirming local recurrence; lymph node pathology from salvage dissection

Imaging reports: PSMA PET/CT, CT abdomen/pelvis, mpMRI, bone scan — radiologist interpretation of recurrence location and lesion characteristics; comparison to prior imaging for interval change

Urology and oncology progress notes: explicit physician statements of recurrence, progression, or NED; documentation of PSADT, PSA velocity, and treatment changes; tumor board notes

Treatment plans and operative reports: salvage RT planning; salvage prostatectomy or lymph node dissection reports; systemic therapy initiation records linking treatment to confirmed recurrence

Terminology and Common Documentation Pitfalls

'BCR' (biochemical recurrence): PSA-based; does not imply an identifiable disease site — not captured by current SEER recurrence codes; document PSA values and dates carefully

PSA bounce vs. true BCR: PSA bounce after brachytherapy is benign — look for confirmatory measurements before coding as recurrence

Persistent PSA coded as recurrence: if PSA never becomes undetectable after RP, this is persistent disease, not recurrence — a critical distinction for Disease-Free Interval coding

CRPC classified as a new recurrence event: CRPC represents progression of existing disease; M0CRPC developing into M1CRPC is progression, not a separate recurrence

Local recurrence after RT vs. new primary: in-gland recurrence after radiation is not a new primary under SEER Solid Tumor Rules

Missing PSA nadir documentation: makes DFI determination challenging — search across multiple notes, lab results, and after-visit summaries

Treatment initiation without explicit recurrence documentation: ADT alone does not confirm recurrence — look for physician statement, imaging, or PSA trend

Summary: Key Clinical Concepts for Registrars

BCR is the most common first sign of recurrence — defined by PSA criteria (AUA/SUO after RP; Phoenix after RT); precedes clinical recurrence by years

Recurrence ≠ Persistence ≠ Progression — a disease-free interval must be established; persistent disease never becomes disease-free

BCR is currently not captured by SEER recurrence codes — a critical gap for prostate cancer outcomes research that needs to be addressed

Imaging context is essential — PSMA PET has transformed recurrence localization; conventional imaging has limited sensitivity at low PSA

The disease-free interval must be documented — look for NED/undetectable PSA, nadir date, and date recurrence confirmed

Terminology varies by provider — careful review across multiple note types is required for accurate abstraction

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Thank you

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Questions?

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