High PSA

- Levels naturally rise as the prostate grows with age.
- Higher PSA increases the probability of prostate cancer
- Other causes
  - Benign enlargement
  - Prostatitis,
  - Recent ejaculation
  - UTI
  - Recent procedures/exam
  - Biking

General Guidelines

- Under 4.0 ng/mL:
  - Often considered normal, but for men under 60, a level above 2.5 ng/mL might warrant more investigation.
- 4.0 to 10.0 ng/mL (Borderline):
  - About a 25% chance of having cancer; further testing like a DRE or biopsy is discussed.
- Above 10.0 ng/mL:
  - More than a 50% chance of cancer; strongly suggests the need for biopsy.
- Rapid Rise (Velocity):
  - An increase of over 0.35 ng/mL in a year can signal cancer, even if the level is technically "normal," say Johns Hopkins Medicine

Elevated PSA

- Repeat PSA to confirm and check velocity (how fast it is rising).
- Digital rectal exam (DRE)
- Multiparametric prostate MRI to look for suspicious lesions
- Use of additional markers (percent free PSA, risk calculators, biomarker assays) in the 4–10 range to refine need for biopsy
- Prostate biopsy if risk remains significant

What PSA does well

- At commonly used cutoffs (around 3–4 ng/mL)
  - PSA has high sensitivity for “any” prostate cancer, meaning most cancers—especially higher-grade tumors—will show at least some PSA elevation over time.
- Higher PSA levels strongly correlate with higher likelihood of cancer, higher Gleason grade, and bone metastases;
- PSA has good overall accuracy (AUC around 0.8) for cancer and metastasis and moderate accuracy (AUC ~0.78) for Gleason >7 disease.
- Very high PSA (≥20 ng/mL)
  - Highly predictive: cancer is found on initial biopsy in roughly 70–80% of men, and PSA ≥50 ng/mL has a positive predictive value above 90%

MAYO CLINIC PSA STANDARDS

Mayo Clinic urologists use this age-adjusted scale in determining if PSA results are within standard limits for your age. The results are based on the test used at Mayo Clinic. The upper limit of what's considered normal increases as you age.

Age	Upper limit ng/mL*
<40	2.0
40-49	2.5
50-59	3.5
60-69	4.5
70-79	6.5
≥80	7.2

*Nanograms per milliliter

Positive PSA

- Historically 12 core Biopsy
  - Underestimates grade 30-50% of time
- Currently undergo Multiparametric MRI
  - If positive undergo MRI guided biopsy
  - (+-) Standard 12 core biopsy
- MRI = negative
  - Undergo standard 12 core biopsy