Prostate Cancer Screening Update

11/07/2024

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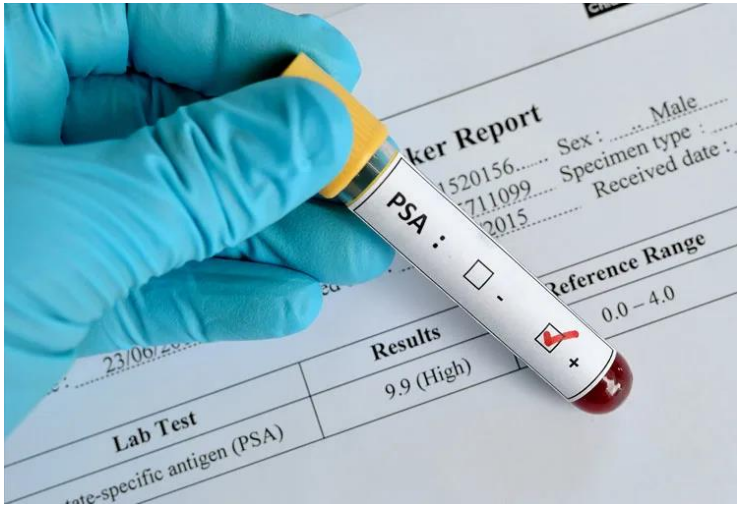
Prostate Cancer Epidemiology

Incidence: Most common cancer in American men

- 288,300 new cases in U.S. (annual)
- 34,700 deaths from prostate cancer
- 1 in 8 men will be diagnosed with prostate cancer during his lifetime

Limitations in Prostate Cancer Screening



PSA is widely used for prostate cancer screening

- Lack of specificity with PSA 4-10
- Fluctuations in PSA:
  - Prostate size
  - 5-ARI (Finasteride)
  - UTI/infection
  - Recent catheterization
  - Sexual activity
  - Bike-riding, vigorous activity

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Prostate Cancer Screening

Who to Screen

How to Screen

When to Screen

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Prostate Cancer Screening

Who to Screen

- At what age do we initiate screening?
- Do some patients get earlier screening than others?
- What are the age-based normative values for elevated PSA to trigger additional diagnostic interventions?

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Prostate Cancer Screening

Who to Screen

- At what age do we initiate screening?
- Do some patients get earlier screening than others?

The USPTF recommendations for prostate cancer screening (ages 55 – 69) are outdated and no longer apply!
(Based on ERSPC trial)

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Prostate Cancer Screening

Who to Screen

- Newer evidence favors a baseline screening at a younger age, including a risk-adapted strategy for screening

Malmo Preventative Project: Patients with PSA in the highest decile (≥ 1.6 ng/mL) at ages 45– 49 years contributed to nearly half of prostate cancer deaths over the next 25 – 30 years (Vickers et al, *BMJ* 2013)

PROBASE trial: risk-adapted screening for prostate cancer starting at age 45 (ongoing): men with PSA<1.5 at age 45 are at very low risk of prostate cancer within 5 years

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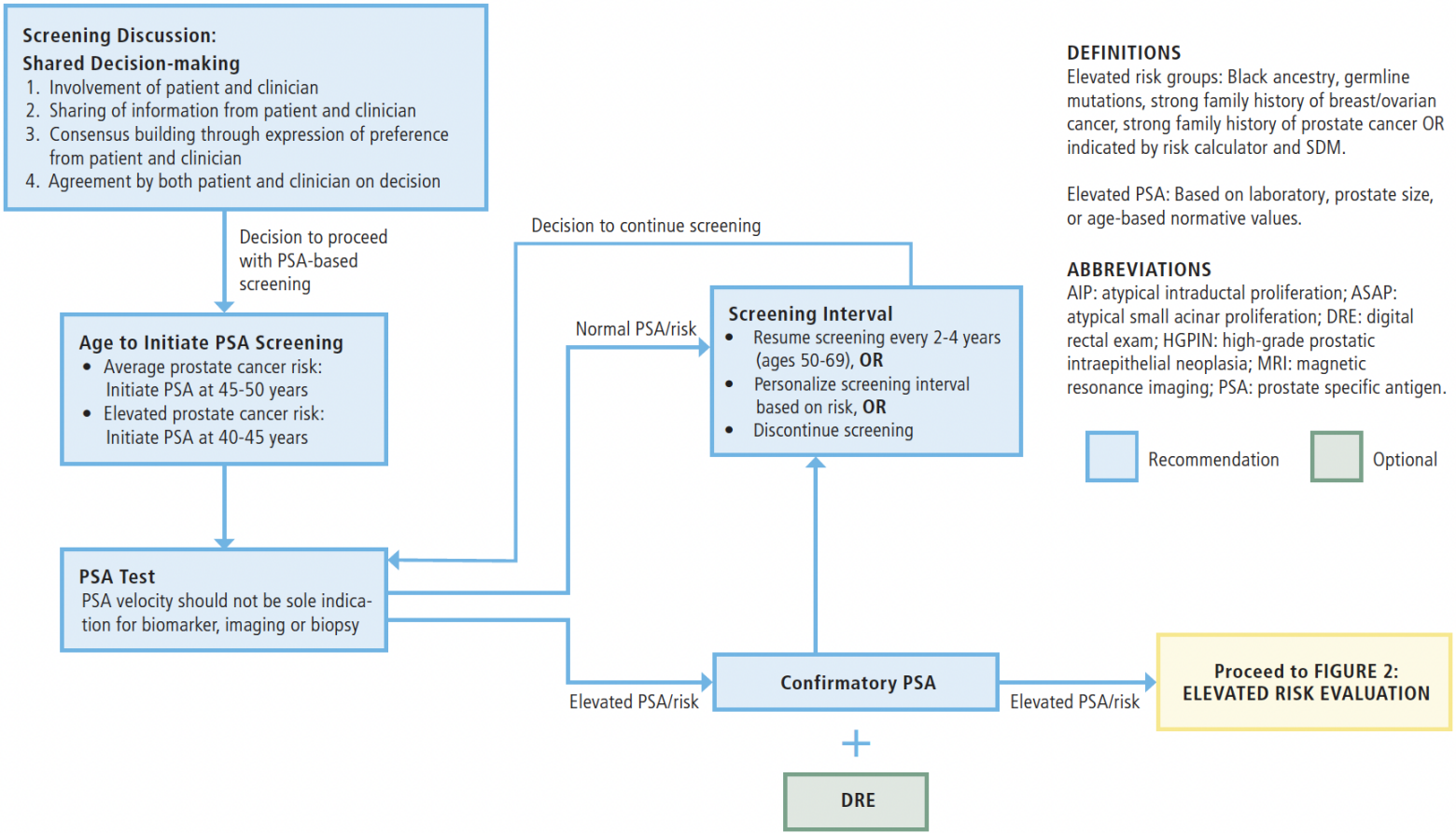
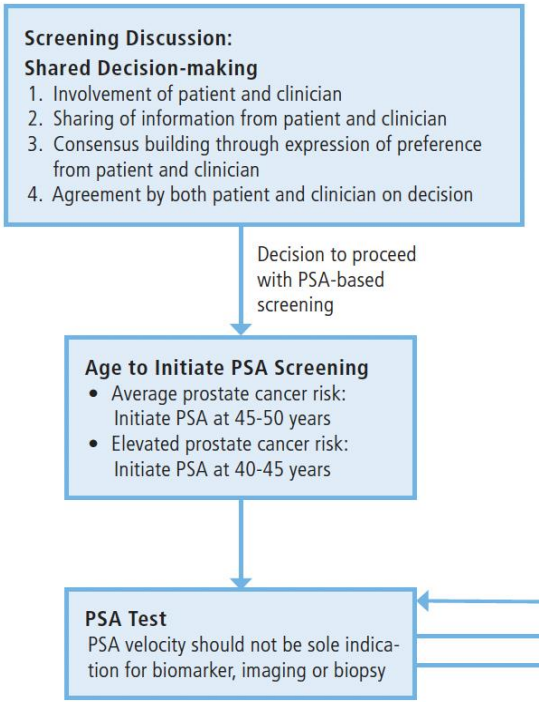
AUA/SUO Screening Algorithm



AUA/SUO Screening Algorithm: Who to Screen



- Clinicians should engage in shared decision-making (SDM) with people for whom prostate cancer screening would be appropriate and proceed based on a person's values and preferences. (*Clinical Principle*)
- After SDM, consider prostate cancer screening initiation at age:
  - 45 - 50 years (average risk)
  - 40 – 45 years (elevated risk)

Which patients are at elevated risk?

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Wei JT, Barocas D, Carlsson S, et al.
Early detection of prostate cancer: AUA/SUO guideline part I: prostate cancer screening. J Urol. 2023;210(1):45-53

AUA/SUO Screening Algorithm: Who to Screen

Which patients are at elevated risk?

- Black ancestry
- Germline mutations
- Strong family history of breast/ovarian cancer
- Strong family history of prostate cancer

OR

Indicated by risk calculator and shared decision making

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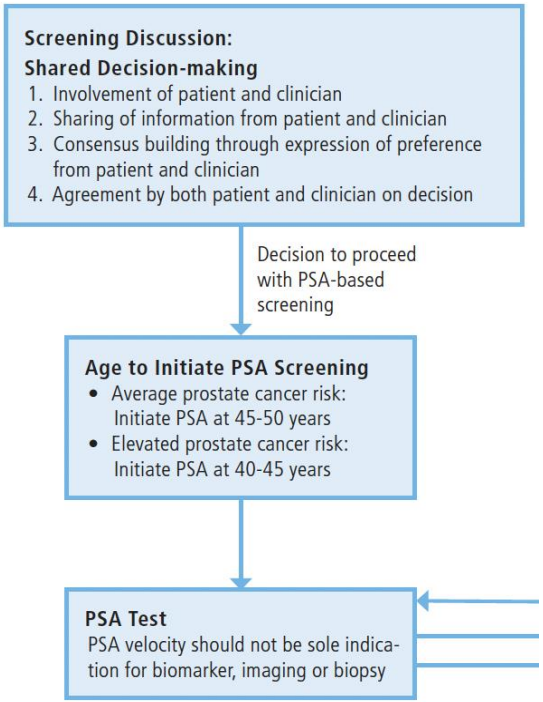

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What PSA levels trigger additional diagnostic interventions?

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Is there a Definition of Elevated PSA?

Traditional age-specific cutoffs (Oesterling JE et al, *JAMA* 1993)

Age 50 – 59: PSA 3.5: 100% sensitivity
Age 60 – 69: PSA 4.5: 82% sensitivity
Age 70 – 79: PSA 6.5: 44% sensitivity

Suggested PSA thresholds for referral to Urology:

Age 40 – 49: PSA 2.5
Age 50 – 59: PSA 3.5
Age 60+: PSA 4

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COMPARISON OF PERCENT FREE PSA, PSA DENSITY, AND AGE-SPECIFIC PSA CUTOFFS FOR PROSTATE CANCER DETECTION AND STAGING

WILLIAM J. CATALONA, PAULA C. SOUTHWICK, KEVIN M. SLAWIN, ALAN W. PARTIN, MICHAEL K. BRAWER, ROBERT C. FLANIGAN, ANUP PATEL, JEROME P. RICHIE, PATRICK C. WALSH, PETER T. SCARDINO, PAUL H. LANGE, GAIL H. GASIOR, KATHLEEN G. LOVELAND, AND KURTIS R. BRAY

- Multicenter prospective study
- 773 men (379 with prostate cancer, 394 with benign prostatic disease) from 50-75, PSA 4-10, negative DRE
- Age-specific PSA cutoffs missed 20 – 60% of cancers in men older than 60 years of age
- Cancer detection (sensitivity) is significantly higher with %free PSA than age-specific PSA reference ranges.

Catalona WJ et al., *Urology* 56(2), 2000
Oesterling JE et al, *JAMA* 270:860-864, *1993.*

Prostate Cancer Screening

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Prostate Cancer Screening

What components are required in prostate cancer screening?

How to Screen

Is the initial screening result sufficient?

What are the next steps for a positive screening?

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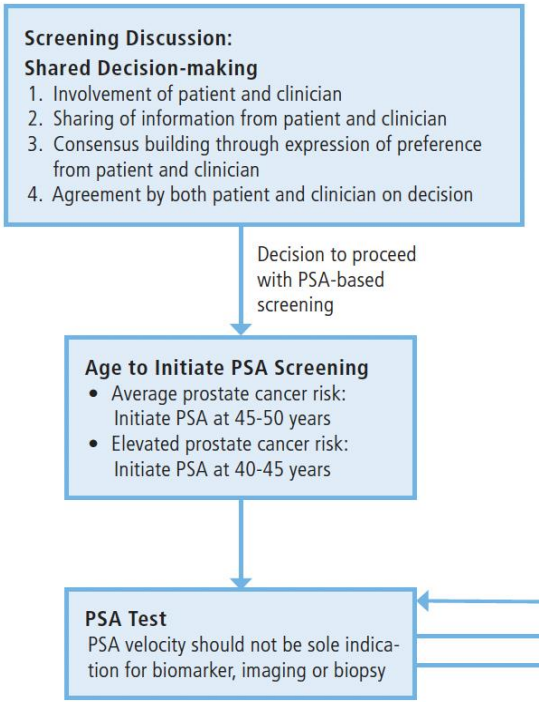
AUA/SUO Screening Algorithm: How to Screen



- When screening for prostate cancer, clinicians should use PSA as the first screening test. (*Strong Recommendation; Evidence Level: Grade A*)
- For people with a newly elevated PSA, clinicians should repeat the PSA prior to a secondary biomarker, imaging, or biopsy. (*Expert Opinion*)

Use PSA, repeat PSA at first diagnosis prior to next steps

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Wei JT, Barocas D, Carlsson S, et al. Early detection of prostate cancer: AUA/SUO guideline part I: prostate cancer screening. J Urol. 2023;210(1):45-53

Role of Digital Rectal Exam (DRE)

In the context of screening, DRE is optional!

There is insufficient evidence to support adding DRE to PSA-based prostate cancer screening.

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Prostate Cancer Screening

What components are required in prostate cancer screening?

How to Screen

Is the initial screening result sufficient?

What are the next steps for a positive screening?

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Role of MRI prostate in Screening

ORIGINAL ARTICLE

MRI-Targeted or Standard Biopsy for Prostate-Cancer Diagnosis

Veeru Kasivisvanathan, M.R.C.S., Antti S. Rannikko, Ph.D., Marcelo Borghi, M.D., Valeria Panebianco, M.D., Lance A. Mynderse, M.D., Markku H. Vaarala, Ph.D., Alberto Briganti, Ph.D., Lars Budäus, M.D., Giles Hellawell, F.R.C.S.(Urol.), Richard G. Hindley, F.R.C.S.(Urol.), Monique J. Roobol, Ph.D., Scott Eggener, M.D., et al., for the PRECISION Study Group Collaborators*

- The role of MRI prostate in the initial diagnosis of prostate cancer has changed dramatically over the last 10 years
- PRECISION: clinically significant cancer was detected in 38% in the MRI-targeted biopsy group compared with 26% in the standard biopsy group. MRI-targeted biopsy was superior to standard TRUS biopsy

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Kasivisvanathan V, *NEJM* 2018

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How often should we screen?

When should we discontinue screening?

When to Screen

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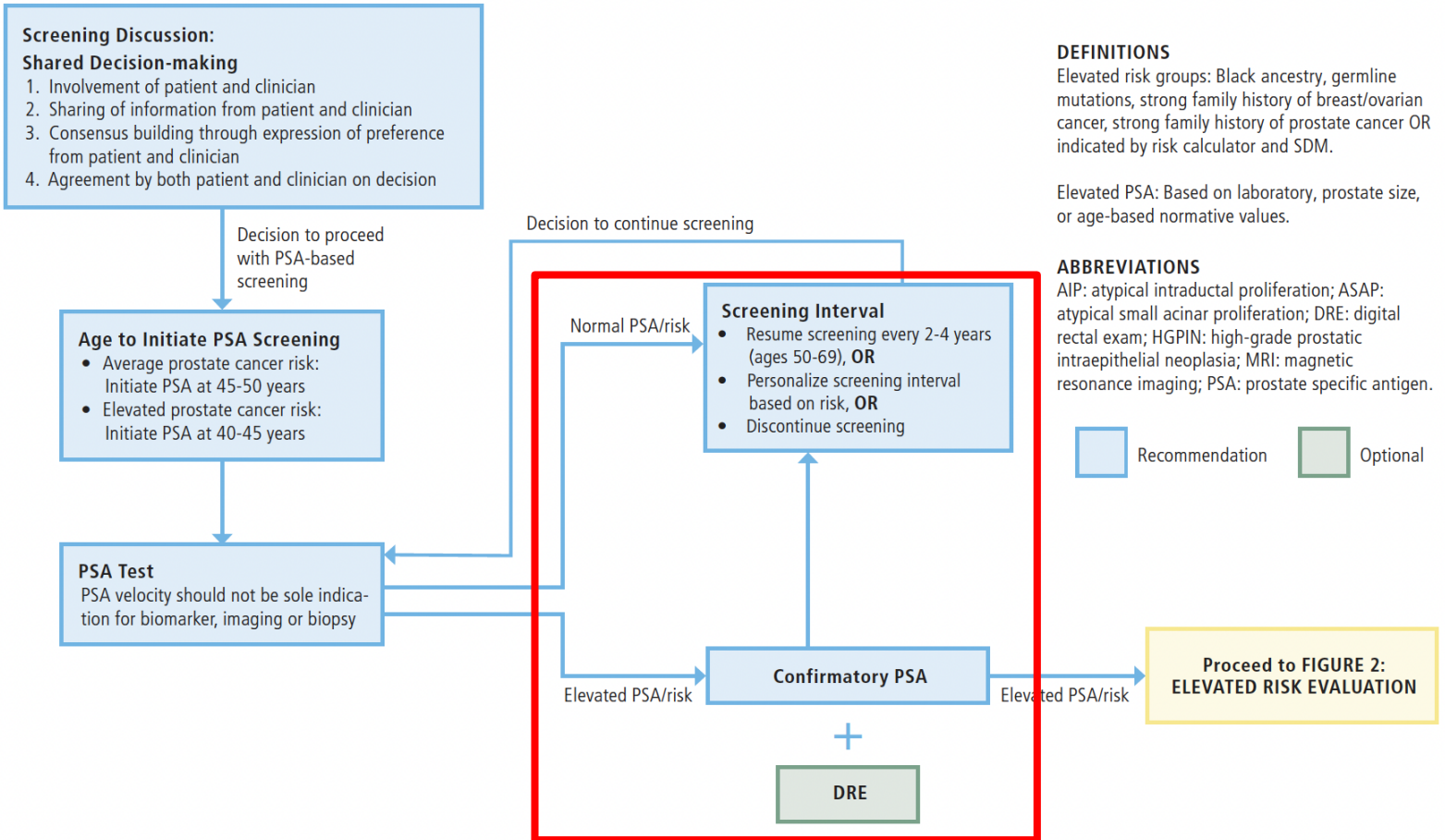
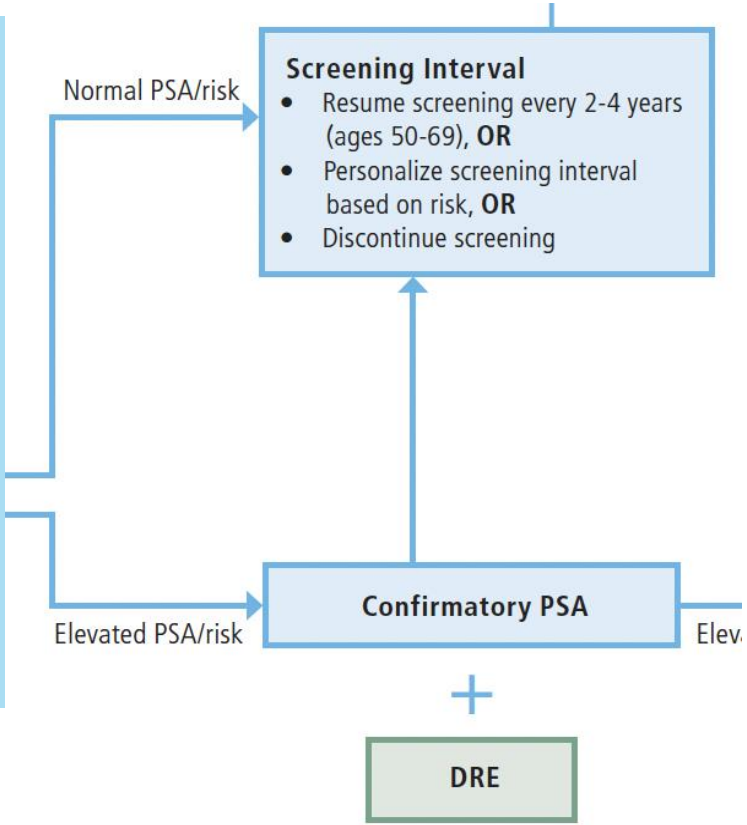


AUA/SUO Screening Algorithm: When to Screen

- Clinicians should offer regular prostate cancer screening every 2 to 4 years to people aged 50 to 69 years (strong recommendation; evidence level: grade A)

- Clinicians may personalize the screening interval, or decide to discontinue screening, based on patient preference, age, PSA, and prostate cancer risk, life expectancy, and general health following SDM



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Prostate Cancer Screening

How often should we screen?

When should we discontinue screening?

When to Screen

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AUA/SUO Screening Algorithm: When to Screen

Continue screening every 2 to 4 years in patients with estimated life expectancy of at least 10 years

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Prostate Cancer Screening

Who to Screen

- SDM
- Baseline screening: 45-50 years old (average risk)
- 40-45 years old (high risk)

How to Screen

- Use PSA for screening
- DRE is optional
- For newly elevated PSA, PSA should be repeated prior to next steps
- Consider MRI prostate

Early referral to Urology
Age 40 – 49: PSA 2.5
Age 50 – 59: PSA 3.5
Age 60+: PSA 4

When to Screen

- Frequency: every 2-4 years (age 50– 69)
- Personalize screening interval based on risk

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Take-home points

- WHO: Baseline PSA should be considered after shared decision-making in:

  Patients age 45 – 50 (average risk)

  Patients age 40 – 45 (elevated risk)

- HOW: PSA with repeat PSA; DRE is optional!
  - MRI prostate improves diagnostic accuracy of prostate biopsy
  - Early referral to Urology
- WHEN: Repeat PSA should be considered every 2-4 years (ages 50 – 69)
- Screening may be stopped when patient has <10 year life expectancy

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Thank you.

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