



## NATIONAL GUIDELINE CLEARINGHOUSE™ (NGC) GUIDELINE SYNTHESIS

### SCREENING FOR PROSTATE CANCER

#### Guidelines

1. **American Cancer Society (ACS)**. [Recommendations from the American Cancer Society Workshop on Early Prostate Cancer Detection, May 4-6, 2000 and ACS guideline on testing for early prostate cancer detection: update 2001](#). CA Cancer J Clin 2001 Jan-Feb;51(1):39-44 [181 references].
2. **American College of Preventive Medicine (ACPM)**. [Screening for prostate cancer in U.S. men](#). Am J Prev Med 2008 Feb;34(2):164-70. [60 references]
3. **University of Michigan Health System (UMHS)**. [Adult preventive health care: cancer screening](#). Ann Arbor (MI): University of Michigan Health System; 2004 May. 12 p. [4 references].

#### INTRODUCTION:

A direct comparison of the American Cancer Society (ACS), American College of Preventive Medicine (ACPM), and the University of Michigan Health System (UMHS) recommendations for screening for prostate cancer is provided in the following tables.

The tables below provide a side-by-side comparison of key attributes of each guideline, including specific interventions and practices that are addressed. The language used in these tables, particularly that which is used in [Table 3](#), [Table 4](#), and [Table 5](#) is in most cases taken verbatim from the original guidelines:

- [Table 1](#) provides a quick-view glance at the primary interventions considered by each group and which make up the focus of this guideline synthesis.
- [Table 2](#) provides a comparison of the overall scope of the included guidelines.
- [Table 3](#) provides a more detailed comparison of the specific recommendations offered by each group for the topics under consideration in this synthesis, including:
  - [Whom to Screen and Screening Modality](#)
  - [Screening Education/Counseling](#)
- [Table 4](#) lists the potential benefits and harms associated with the implementation of each guideline as stated in the original guidelines.
- [Table 5](#) presents the rating schemes used by the guideline groups to rate the level of evidence and the strength of the recommendations.

A summary discussion of the [areas of agreement](#) and [areas of differences](#) among the guidelines is presented following the content comparison tables.

Abbreviations:

- ACPM, American College of Preventive Medicine
- ACS, American Cancer Society
- DRE, digital rectal examination
- PSA, prostate specific antigen
- UMHS, University of Michigan Health System

**TABLE 1: COMPARISON OF INTERVENTIONS AND PRACTICES CONSIDERED**

*("✓" indicates topic is addressed)*

	<b>ACS (2001 reviewed 2006)</b>	<b>ACPM (2008)</b>	<b>UMHS (2004)</b>
<b>Whom to Screen and Screening Modality</b>	✓	✓	✓
<b>Screening Education/Counseling</b>	✓	✓	✓

**TABLE 2: COMPARISON OF SCOPE AND CONTENT**

<b>Objective and Scope</b>	
<b>ACS (2001 reviewed 2006)</b>	<ul style="list-style-type: none"> <li>• To update the 1997 American Cancer Society guideline pertaining to prostate cancer screening</li> <li>• To offer recommendations to health care professionals and the public for informed decision-making related to early detection of prostate cancer</li> </ul>
<b>ACPM (2008)</b>	To review the efficacy of DRE and PSA for prostate cancer screening found in the medical literature prior to July 2007
<b>UMHS (2004)</b>	To implement an evidenced-based strategy for cancer screening in adults
<b>Target Population</b>	
<b>ACS (2001 reviewed 2006)</b>	<ul style="list-style-type: none"> <li>• Men aged 50 years and older who have a life expectancy of at least 10 years and younger men who are at high risk for prostate cancer</li> <li>• Men aged 45 years and older of Sub-Saharan African descent or with first-degree relative diagnosed at a young age</li> <li>• Men 40 and older with multiple first-degree relatives</li> </ul>

	diagnosed with prostate cancer at an early age
<b>ACPM (2008)</b>	American men
<b>UMHS (2004)</b>	<ul style="list-style-type: none"> <li>• Men &gt;age 50</li> <li>• Men with positive family history and for African Americans, consider starting PSA screening at age 40</li> </ul>
<b>Intended Users</b>	
<b>ACS (2001 reviewed 2006)</b>	Advanced Practice Nurses Allied Health Personnel Health Care Providers Health Plans Hospitals Managed Care Organizations Nurses Patients Physician Assistants Physicians Public Health Departments
<b>ACPM (2008)</b>	Physicians
<b>UMHS (2004)</b>	Physicians

<b>TABLE 3: COMPARISON OF RECOMMENDATIONS FOR PROSTATE CANCER SCREENING</b>	
<b>Whom to Screen and Screening Modality</b>	
<b>ACS (2001 reviewed 2006)</b>	<p>ACS recommends that both the PSA test and the DRE should be offered annually beginning at age 50, to men who have a life expectancy of at least 10 years. Men at high risk, including men of African descent (specifically, sub-Saharan African descent) and men with a first-degree relative diagnosed at a younger age should begin testing at age 45.</p> <p>Men at even higher risk of prostate cancer due to multiple first-degree relatives diagnosed with prostate cancer at an early age could begin testing at age 40. However, if PSA is less than 1.0</p>

	<p>ng/mL, no additional testing is needed until age 45. If PSA is greater than 1.0 ng/mL but less than 2.5 ng/mL, annual testing is recommended. If PSA is 2.5 ng/mL or greater, further evaluation with biopsy should be considered.</p>
<p><b>ACPM (2008)</b></p>	<p><b>Recommendation of the ACPM</b></p> <p>The ACPM concludes that there is currently insufficient evidence to recommend routine population screening with DRE or PSA, concurring with the USPSTF recommendation.</p> <p>Pending resolution of ongoing controversies, screening for prostate cancer among African-American men and those with a family history of prostate cancer has the potential to detect treatable forms of disease that are more likely to occur in these groups than in the general population. While the usual age for prostate cancer screening is between 50 to 70 years in average risk men, it has been suggested that those who are at high risk may benefit from earlier screening beginning at age 45, while higher-risk men (those with two or more first-degree relatives with prostate cancer before age 65) be screened at age 40. Granted that prostate cancer is more likely to be found in high-risk men, issues pertaining to tumor grade have yet to be resolved (that is, optimal grade of tumor that a screening test should detect to confer a benefit in survival or morbidity), and there is still no evidence establishing effectiveness of screening in high-risk men. In the meantime further studies are needed to establish the efficacy and optimal age at which prostate cancer screening should be initiated in these high-risk population groups.</p>
<p><b>UMHS (2004)</b></p>	<p><b>Modality.</b> PSA and DRE. Both have specificity limitations.</p> <p><b>Initiate.</b> Clinicians who screen for prostate cancer should share decision making with patients [<b>A</b>], giving objective information about the potential risks and benefits of screening.</p> <ul style="list-style-type: none"> <li>• Average risk. For men &gt;age 50, consider initiating PSA screen.</li> <li>• High-risk. For men with positive family history and for African Americans, consider starting PSA screening at age 40 [<b>D</b>].</li> </ul> <p><b>Frequency.</b> Annually</p> <p><b>Terminate.</b> Stop when life expectancy is less than 10 to 15 years [<b>C</b>].</p> <p>There is considerable controversy surrounding screening for prostate cancer. Early detection and treatment may avert future prostate cancer-related illness, but treatment includes some risk of sexual dysfunction and incontinence and a small risk of treatment-induced mortality. At this time, no trials of sufficient power are</p>

	available to document the benefit of aggressive treatment (e.g. surgery, radiation) versus conservative management and hormonal therapy. Similarly, there is no conclusive evidence that routine screening for prostate cancer is beneficial, and there is no consensus concerning the role of DRE and PSA testing in screening.
<b>Screening Education/Counseling</b>	
<b>ACS (2001 reviewed 2006)</b>	<p>Information should be provided to all patients about the benefits and limitations of testing. Specifically, prior to testing, men should have an opportunity to learn about the benefits and limitations of testing for early prostate cancer detection and treatment so that they can make an informed decision with the clinician's assistance.</p> <p>Men who ask the clinician to make the testing decision on their behalf should be tested. A policy of not discussing testing, or discouraging testing in men who request early prostate cancer detection tests, is inappropriate.</p>
<b>ACPM (2008)</b>	<p><b>Recommendation of the ACPM</b></p> <p>The College is in agreement with the American College of Physicians (ACP) that men should be given information about the potential benefits and harms of screening and limits of current evidence in order to make an informed decision about screening. Discussion about screening should occur annually, during the routine periodic examination, or in response to a request by the patient. The effectiveness of prostate cancer screening is questionable in elderly men with competing co-morbidities and men with life expectancies of less than 10 years. Ultimately, a man should be allowed to make his own choice about screening, in consultation with his physician, taking into consideration personal preferences and life expectancy. If the patient prefers to defer to the clinician or is unable to make a decision regarding screening, then testing should not be offered as long as the patient understands the benefits, potential limitations, and adverse effects associated with screening. Key points that should be communicated during the patient encounter regarding prostate cancer screening are listed in Table 1 of the original guideline document.</p>
<b>UMHS (2004)</b>	<b>Initiate.</b> Clinicians who screen for prostate cancer should share decision making with patients [ <b>A</b> ], giving objective information about the potential risks and benefits of screening.

<b>TABLE 4: BENEFITS AND HARMS</b>
<b>Benefits</b>

<p><b>ACS (2001 reviewed 2006)</b></p>	<p>Prostate cancer screening may result in the diagnosis of earlier-stage disease in younger men, which may decrease prostate cancer mortality rates.</p> <p>However, no direct evidence exists to show that prostate-specific antigen (PSA) screening decreases prostate cancer mortality rates.</p>
<p><b>ACPM (2008)</b></p>	<p>Benefits of screening include early detection and treatment of potentially curable stage of prostate cancer (i.e., better chances of survival with localized disease) and reassurance of being at low risk of cancer.</p> <p><b>Subgroups Most Likely to Benefit</b></p> <p>Men with a first-degree relative (e.g., father, brother) with prostate cancer and African-American men are at higher risk of both developing and dying from prostate cancer.</p>
<p><b>UMHS (2004)</b></p>	<p>Early detection and treatment may avert future cancer-related illness.</p>
<p><b>Harms</b></p>	
<p><b>ACS (2001 reviewed 2006)</b></p>	<p>Since prostate-specific antigen is prostate-tissue specific and not prostate-cancer specific, there is no absolute value that is applicable to all men. The range of "normal" prostate-specific antigen levels has conventionally been considered to be between zero and 4.0 ng/dl. A lower cut-off value of 2.5 ng/dl has been shown to improve the early detection of organ-confined prostate cancers; however, this also increases the number of men undergoing biopsy in whom no cancer is detected.</p>
<p><b>ACPM (2008)</b></p>	<p>Both screening and treatment can be harmful:</p> <ul style="list-style-type: none"> <li>• A false positive result may lead to increased anxiety and having to experience the discomfort and possible complications associated with biopsy (e.g., pain, hematospermia/hematuria, and infection)</li> <li>• Prostate cancer may be slow growing and may never advance or progress to cause significant disease or death. Treatment can cause both short- and long-term side effects (e.g., pain, urinary incontinence, and impotence).</li> <li>• Men who received false-positive PSA test results reported having thought and worried more about prostate cancer despite receiving a negative follow-up (prostate biopsy) result. Thus screening may cause undesirable mental health consequences.</li> <li>• False reassurance from a normal test (false negative), leading to a delayed diagnosis of prostate cancer.</li> </ul>

<p><b>UMHS (2004)</b></p>	<p><b>DRE</b></p> <p>Although DRE can successfully detect some prostate cancers, it is less effective in detecting tumors deep within the prostate gland, and its impact on prostate cancer mortality has been shown to be limited. DRE has a significant subjective component that is manifested by only fair inter-examiner agreement. In addition, it has been suggested that 25 to 35% of prostate cancers occur in areas of the prostate not accessible to the examining finger. The sensitivity of DRE ranges from 18 to 68% with significantly lower specificity.</p> <p><b>PSA</b></p> <p>PSA is generally specific to prostate tissue; however, it is not specific to only prostate cancer. Older men may develop benign prostatic hyperplasia which often elevates PSA, and hence, the specificity of PSA decreases with age.</p>
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<p><b>TABLE 5: EVIDENCE RATING SCHEMES AND REFERENCES</b></p>	
<p><b>ACS (2001 reviewed 2006)</b></p>	<p>Not applicable</p>
<p><b>ACPM (2008)</b></p>	<p>Not applicable</p>
<p><b>UMHS (2004)</b></p>	<p><b>Levels of Evidence Reflect the Best Available Literature in Support of an Intervention or Test</b></p> <ul style="list-style-type: none"> <li>A. Randomized controlled trials</li> <li>B. Controlled trials, no randomization</li> <li>C. Observational trials</li> <li>D. Opinion of expert panel</li> </ul>

**GUIDELINE CONTENT COMPARISON**

The American Cancer Society (ACS), American College of Preventive Medicine (ACPM), and the University of Michigan Health System (UMHS) present recommendations for screening men for prostate cancer and provide explicit reasoning behind their judgments.

In addition to prostate cancer screening, the UMHS guideline provides screening recommendations for breast cancer, cervical cancer, ovarian cancer, and colorectal cancer (see related cancer screening syntheses).

## **Areas of Agreement**

### *Screening in Average-Risk, Asymptomatic Men*

All three organizations cite a lack of conclusive evidence that screening can reduce mortality from prostate cancer. All three groups also address the clear potential that screening may increase treatment-related morbidity. Nonetheless, ACS and UMHS agree that screening should be offered to average-risk, asymptomatic men beginning at age 50. They also agree that men to be screened should generally have a life expectancy of at least ten years. These groups' recommendations regarding which screening tests should be offered differ somewhat. Refer to [Areas of Differences](#) below for these differences as well as for ACPM screening recommendations in this population.

### *Screening in High-Risk Men*

ACS and UMHS agree that screening should be offered to high-risk men at an earlier age than average risk men. UMHS recommends that screening be offered African American men and men with a positive family history of prostate cancer at age 40. ACS similarly recommends that men of African descent and men with a first-degree relative diagnosed at a younger age begin testing at age 45.

ACS continues to note that men at even higher risk of prostate cancer due to multiple first-degree relatives diagnosed with prostate cancer at an early age could begin testing at age 40. They then provide subsequent testing recommendations according to the patient's PSA level obtained during screening.

While ACPM falls short of making an explicit recommendation, they acknowledge that screening for prostate cancer among African-American men and those with a family history of prostate cancer has the potential to detect treatable forms of disease that are more likely to occur in these groups than in the general population. They add that while the usual age for prostate cancer screening is between 50 to 70 years in average risk men, it has been suggested that those who are at high risk may benefit from earlier screening beginning at age 45, while higher-risk men (those with two or more first-degree relatives with prostate cancer before age 65) be screened at age 40. They continue to note, however, that further studies are needed to establish the efficacy and optimal age at which prostate cancer screening should be initiated in these high-risk population groups.

### *Screening Education/Counseling*

All three organizations assert that men should make an informed decision regarding prostate cancer screening with the help of their physicians. There is overall agreement that clinicians should share decision making regarding screening with the patient, providing the patient with clear information regarding the benefits and risks of screening. ACPM notes that discussion about screening should occur annually, during the routine periodic examination, or in response to

a request by the patient. They also provide a listing of key points that should be communicated during the patient encounter regarding prostate cancer screening.

### *Screening Tests*

When the decision to screen is made, there is agreement among the groups that PSA and DRE are the primary screening tests for prostate cancer.

ACS mentions transrectal ultrasound once in their guideline in terms of biopsy. Similarly, UMHS refers to the use of transrectal ultrasound and/or needle biopsy of the prostate, in the context of appropriate follow-up tests for abnormal initial screening tests.

## **Areas of Differences**

### *Screening in Average-Risk, Asymptomatic People*

In contrast to ACS and UMHS, ACPM concludes that there is currently insufficient evidence to recommend routine population screening with DRE or PSA. This conclusion is in agreement with the 2002 recommendation made by the United States Preventive Services Task Force (USPSTF).

**NGC note:** Because of its 2002 publication date, the USPSTF guideline no longer meets the NGC Inclusion Criteria.

### *Screening Education/Counseling*

While both ACS and ACPM recommend that men make an informed decision regarding prostate cancer screening with the help of their physicians, their recommendations pertaining to men who defer the decision to screen to their physicians differ. ACS states that men who ask the clinician to make the testing decision on their behalf should be tested. ACPM, on the other hand, states that if the patient prefers to defer to the clinician or is unable to make a decision regarding screening, then testing should not be offered as long as the patient understands the benefits, potential limitations, and adverse effects associated with screening.

### *Screening Tests*

Although there is agreement among the groups on the use of PSA and DRE as the primary screening tools for prostate cancer, ACS explicitly recommends combining the two to improve accuracy. UMHS notes that the combined use of DRE and PSA will decrease the rate of false positives (e.g., when both PSA and DRE are suspicious), but at the expense of reduced sensitivity (ability of the combined tests to identify patients with prostate cancer). UMHS' formal recommendation only addresses PSA, which they recommend be initiated in average risk men over the age of 50.

This Synthesis was prepared by NGC on December 28, 1998 and has been revised a number of times. The most current version of this Synthesis incorporates new guidelines from UMHS and removes recommendations of the American Urological Association (2000) and Singapore Ministry of Health (2000). The information was verified by UMHS on August 23, 2005. This synthesis was updated on December 6, 2007 to remove recommendations from USPSTF. This synthesis was revised most recently on June 13, 2008 to add ACPM recommendations. The information was verified by ACPM on July 17, 2008.

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