Screening for Prostate Cancer with Prostate-Specific Antigen (PSA) Testing

Provisional Clinical Opinion
Introduction

- The American Society of Clinical Oncology (ASCO) has established a rigorous, evidence-based approach—the provisional clinical opinion (PCO)—to offer a rapid response to emerging data in clinical oncology.

- This PCO addresses use of prostate-specific antigen (PSA) testing in the screening of asymptomatic men in the general population.
Statement of the Clinical Issue

• Prostate cancer is the second leading cause of cancer deaths among American men
• The rationale for screening asymptomatic men is the potential to reduce prostate cancer death through early detection
• Controversy exists between the potential harms of screening and the potential benefits
Clinical Question

For asymptomatic men in the general population, do the benefits of PSA testing for prostate cancer screening outweigh the potential harms?
The Provisional Clinical Opinion

Based on the identified evidence and the expert opinion of the ASCO expert panel:

• In men with a life expectancy ≤10 years*, it is recommended that general screening for prostate cancer with total PSA be discouraged, because harms appear to outweigh potential benefits.

  – *Type and Strength of Recommendation: Evidence-based – Strong
  – Strength of Evidence: Moderate
The Provisional Clinical Opinion, cont’d

• In men with a life expectancy >10 years*, it is recommended that physicians discuss with their patients if PSA testing for prostate cancer screening is appropriate for them. PSA testing may save lives, but is associated with harms, including complications, from unnecessary biopsy, surgery, or radiation treatment.
  
  – *Type and Strength of Recommendation: Evidence-based – Strong
  – *Strength of Evidence: For benefit = Moderate, For harm = Strong
• It is recommended that information written in lay language be available to clinicians and their patients to facilitate the discussion of the benefits and harms associated with PSA testing prior to the routine ordering of a PSA test
  – *Type and Strength of Recommendation: Informal consensus – Strong*
  – *Strength of Evidence: Indeterminate*

*Calculation of life expectancy is based on a variety of individual factors and circumstances. A number of life expectancy calculators (e.g. http://www.socialsecurity.gov/OACT/population/longevity.html) are available in the public domain; however ASCO does not endorse any one calculator over another.*
PCO Methodology

• An Ad Hoc Expert Panel reviewed relevant medical literature
• Primary source: Agency for Healthcare Research and Quality (AHRQ) 2011 systematic review
• An update search was conducted to March 16, 2012 for further evidence
• Databases searched:
  – PubMed (2010-2012)
The Evidence

- The PCO is based primarily on two large randomized controlled trials (RCTs)
  - Randomized Prostate, Lung, Colorectal, and Ovarian (PLCO) (13 year follow-up)
  - European Randomised Study of Screening for Prostate Cancer (ERSPC) (11 year follow-up)

- For adverse events:
  - 2 population-based cohort studies
  - Analysis from the Rotterdam section of the ERSPC RCT

See PCO for references
Benefits:

• Although PSA-based screening lead to more prostate cancer diagnoses, no statistically significant differences in overall or prostate cancer-specific mortality were detected between study groups.

• In a planned analysis of 162,388 men between 55 and 69 years of age, the ERSPC trial reported a 20% reduction in prostate cancer-specific mortality for men in the screening arm.
Harms:

- In the PLCO trial, reported harms associated with diagnostic evaluations, including biopsy, were infection, bleeding and urinary difficulty.
- In one ERSPC trial center, reported harms were fever, urinary retention, hospitalization for signs of prostatitis or urosepsis, as well as hematuria and hematospermia > 3 days after biopsy.
Harms:

- Two population-based studies reported an increase over time in the 30 day hospitalization rate for infection-related causes (<5% of patients)
- False positives: The rate associated with PSA screening was 12.9% in the PLCO trial after four rounds of screening, and 12.5% in one center of the ERSPC trial after 3 rounds of screening
Limitations of the Literature

- AHRQ rated the PLCO and ERSPC trials as fair quality
- Reasons for downgrading the RCTs included insufficient follow-up, differences in the proportion of men with prior PSA testing, noncompliance, contamination, and differences in PSA cut-off levels, screening intervals, and treatment choices
Discussion

• Due to limitations in literature, making definitive recommendations around PSA testing is difficult
• PSA-based screening leads to significantly more diagnoses of prostate cancer
  – A large proportion of these cancers pose a low risk to men, especially those who are older or who have co-morbidities
• The issue of surgery versus watchful waiting for early prostate cancer is uncertain at this time
Discussion, cont’d

• Better evidence is needed regarding the benefits and risks of screening in high-risk subgroups, including those with family history and African American decent. There is no evidence that populations with a higher overall prevalence of prostate cancer have a different degree of benefit or risk related to PSA screening compared to the general population.
Conclusion

• It is uncertain whether the benefits associated with PSA testing for prostate cancer screening are worth the harms associated with screening and subsequent unnecessary treatment

• Because the evidence does not clearly inform the issue around PSA testing and its downstream effects, the importance of informed and shared decision-making becomes paramount
Future Research

• Identify which men will benefit from screening and its downstream consequences and which men will not

• Other screening approaches that improve the predictive accuracy of PSA for clinically meaningful outcomes

• Determine how patients perceive their individual risk threshold probabilities for prostate cancer
  – to better evaluate the impact of prostate cancer risk calculators in the context of a prostate cancer screening program
Future Research (cont’d)

• Evidence on benefits and risks of screening in high-risk subgroups, including those with family history and African American descent
• Evidence of benefit before new biomarkers use
• High-quality evidence comparing radiation to surgery for screen-detected localized prostate cancer
Decision Making

• Decision Aids have been shown to influence men facing the decision of whether or not to screen for prostate cancer with the PSA test

• Multiple information sources and decision aids available
Information Sources

Prostate Cancer Risk Calculator for the General Population

• Prostate Cancer Prevention Trial (PCPT) Prostate Cancer Risk Calculator
  – [http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp](http://deb.uthscsa.edu/URORiskCalc/Pages/uroriskcalc.jsp)

• Sunnybrook Nomogram–based prostate cancer risk calculator (SRC)
  – [www.prostaterisk.ca](http://www.prostaterisk.ca)

• European Randomised Study of Screening for Prostate Cancer (ERSPC) Risk Calculator
Clinical Tools and Resources

Screening for Prostate Cancer

• American Cancer Society. Testing for Prostate Cancer: “Should I be tested? Is this the right choice for me?”

• CDC. Prostate Cancer Screening: A Decision Guide (also one specific to African-American men) 2006 pdf decision guides
  – [http://www.cdc.gov/cancer/prostate/basic_info/screening.htm](http://www.cdc.gov/cancer/prostate/basic_info/screening.htm)
Clinical Tools and Resources

Screening for Prostate Cancer

• Health Dialog. Is a PSA test right for you? 2011 web booklet and videos

• Prosdex. University of Cardiff. 2005 online resource
  – http://www.prosdex.com/index_content.htm

• Healthwise - Prostate cancer screening: Should I have a PSA test? 2010 decision aid
Clinical Tools and Resources

Screening for Prostate Cancer


- USPSTF: How to Talk with Your Patients When Evidence Is Insufficient. 2008 Short Video
  - [http://www.uspreventiveservicestaskforce.org/uspstf/uspsprca.htm](http://www.uspreventiveservicestaskforce.org/uspstf/uspsprca.htm)
# PCO Methodology: Ad Hoc Expert Panel Members

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Additional ASCO Resources

- The PCO was published in the *Journal of Clinical Oncology* [http://jco.ascopubs.org/](http://jco.ascopubs.org/)
- The PCO, patient guide, and additional resources are available at [http://www.asco.org/pco/psa](http://www.asco.org/pco/psa)
- The patient guide is also available at [http://www.cancer.net](http://www.cancer.net)
ASCO Guidelines

This resource is a practice tool for physicians based on an ASCO® Provisional Clinical Opinion (PCO). The PCO and this presentation are not intended to substitute for the independent professional judgment of the treating physician. PCOs do not account for individual variation among patients and may not reflect the most recent evidence. This presentation does not recommend any particular product or course of medical treatment. Use of the PCO and this resource is voluntary. The full PCO and additional information are available at http://www.asco.org/pco/psa. Copyright © 2012 by American Society of Clinical Oncology®. All rights reserved.