

# Prostate Cancer Screening and the USPSTF

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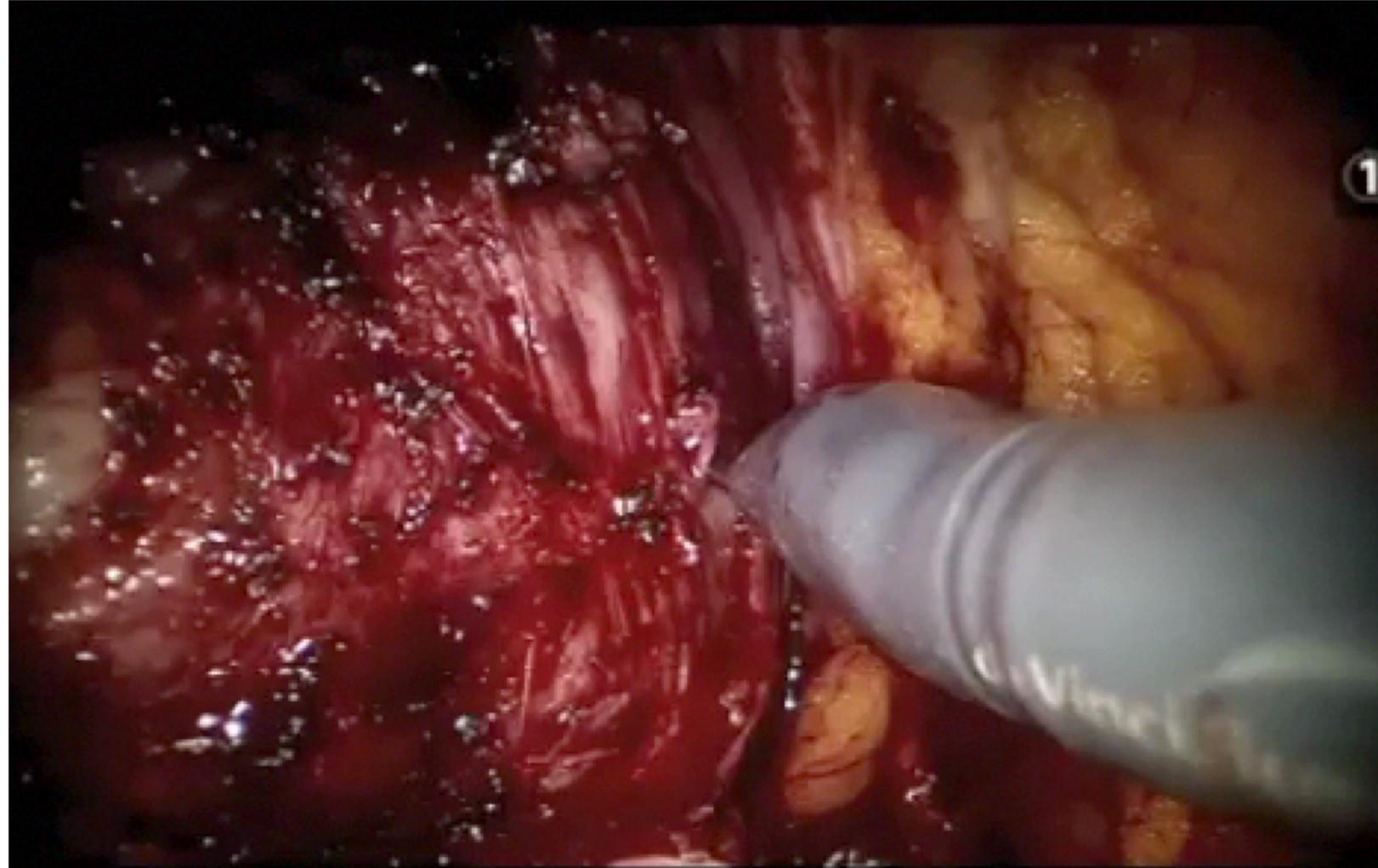
USA

# The Goldilocks Phenomenon in Prostate Cancer



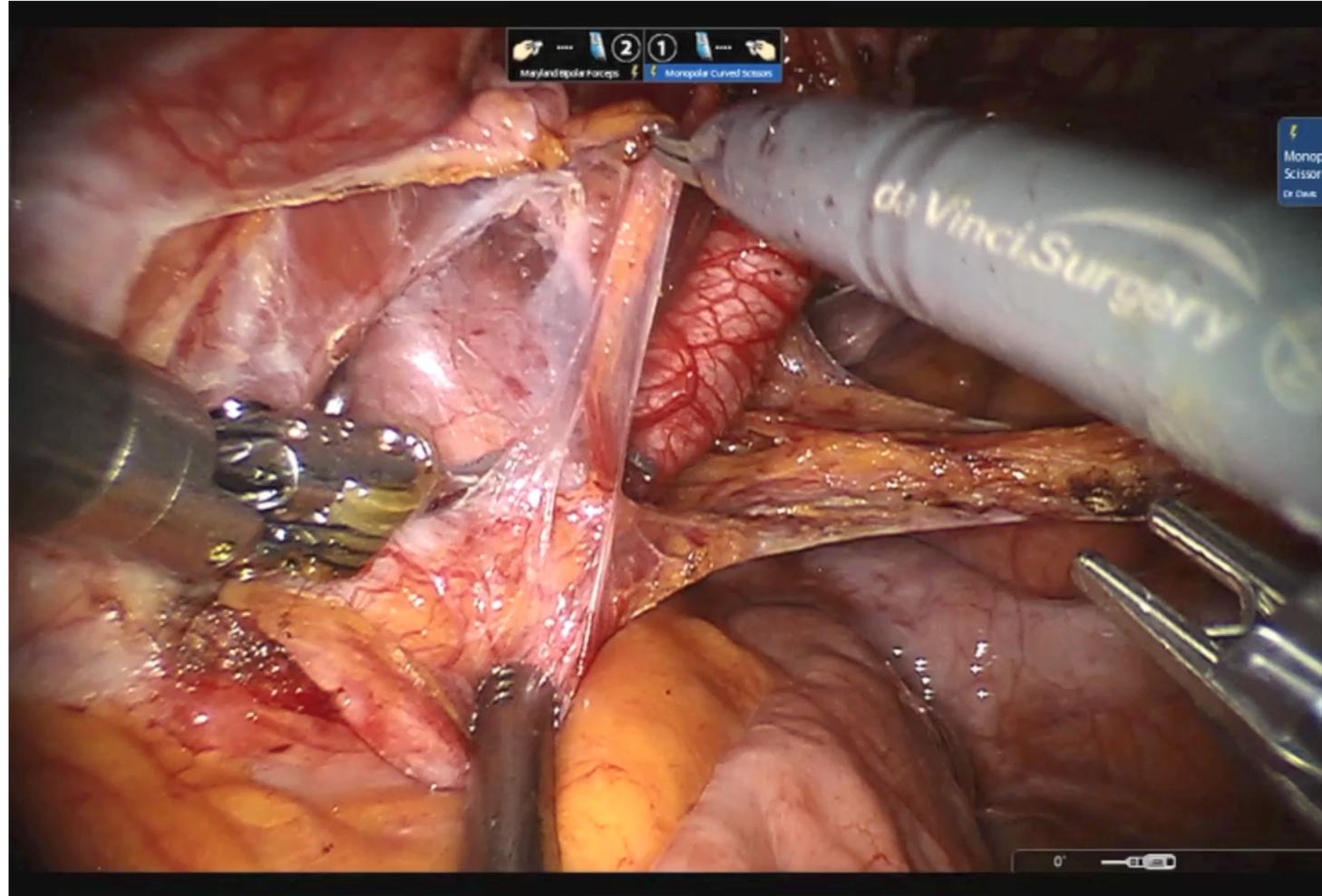
# Up Close: Overtreatment

- 70 y/o, thin, healthy
- PSA 4-5, 2 cores GS 3+3
- AS recommended
- RARP –BNS, no nodes
- Path pT2 GS 3+4 R0Nx



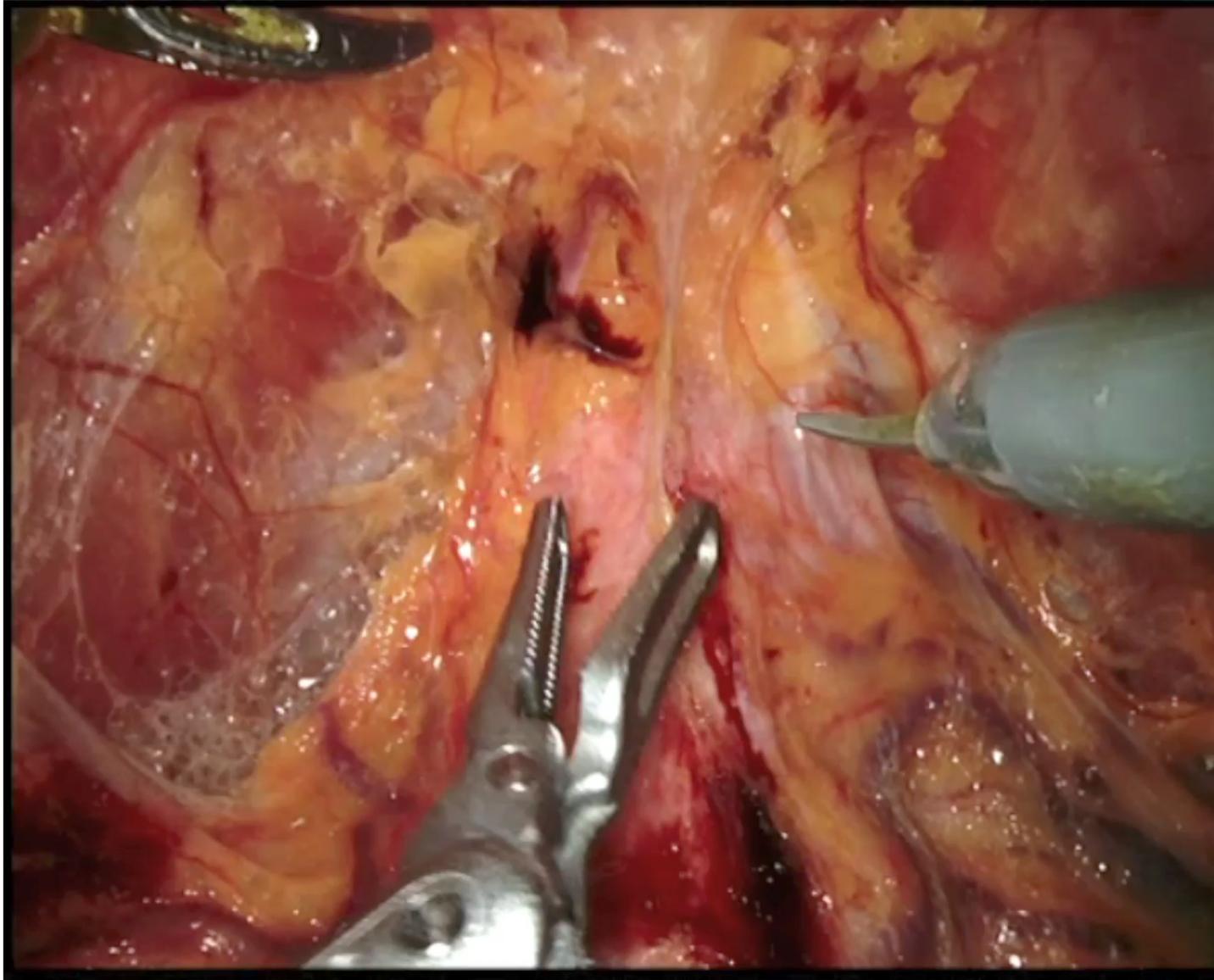
# Up Close: Late!

- 58 y/o AAM
- 1<sup>st</sup> screen PSA 24
- High vol GS 3+4, cT1c
- MRI—organ confined
- RARP with BNS/E-PLND
- Path —pT3b, 4+3, N1, R1



# Up Close: Just Right

- 46 y/o with Family history of PCa
- Multi-core GS 3+4 and 3+3
- Favorable MRI
- Significant delay—fear of side effects, single/dating
- RARP: pT2 3+4, R0 Nx
- Immediately continent/potent



# 2012 USPSTF on Prostate Cancer Screening

The screenshot shows the U.S. Preventive Services Task Force website. The main heading is "Prostate Cancer: Screening" with a release date of May 2012. A large pink box contains the text: "The U.S. Preventive Services Task Force (USPSTF) recommends against prostate-specific antigen (PSA)-based screening for prostate cancer." To the right of this text is a large red letter "D". Below the main heading, there are several sections: "Read Full Recommendation Statement" (with a PDF version link), "Related Information for Consumers" (including a consumer guide), "Related Information for Health Professionals" (including a 2012 summary and various articles), "Final Evidence Review: Treatments for Localized Prostate Cancer", "Evidence Summary", and "How Did the USPSTF Arrive at This Recommendation?". A "Clinical Summary" section is also present, intended for primary care clinicians. The website header includes the USPSTF logo, a search bar, and options for email updates and text size.

Current as of: May 2012

# Evolution of USPSTF Guidelines

- Prior to 2008: “I” recommendation for insufficient evidence to recommend for or against
- 2008: “D” recommendation for screening > 75 years old
- 2012: “D” recommendation against screening for men of all ages (draft October 2011)

# Underpinnings of 2012 USPSTF Recommendation

- Review of 3 Significant randomized controlled trials of PSA Screening
  1. Prostate, Lung, Colon and Ovarian screening trial (PLCO)
  2. European Randomized Study of Screening for Prostate Cancer (ERSPC)
  3. Goteborg trial

# PLCO (prostate arm)

## Annual PSA screening and DRE Versus “Usual Care”

- Demonstrated no statistically significant difference in mortality rates between the screening and usual care groups
- Over 90% of men in the ‘usual care’ arm had some degree of PSA testing, the PLCO trial was actually a trial of annual vs. opportunistic PSA screening rather than a trial of screening vs. no screening

# ERSPC

- 12-29% relative REDUCTION in prostate cancer mortality
  - 1410 men screened
  - 48 men treated (number needed to treat)
    - Assumes ALL Diagnosed prostate cancer is treated.
  - Prevent 1 death
- NND (Number needed to diagnose) = 2 to 9 based on a lifetime impact of screening\*
  - Similar to other preventive practices in medicine

# Goteborg trial

- 44% relative risk reduction for prostate cancer mortality with screening
- NND = 12
- Trial was mislabeled by the USPSTF as a subset analysis of ERSPC and therefore ignored by USPSTF in 2012 statement.

# Harms of Prostate Cancer Treatment rather than Prostate Cancer Screening

- Focused more on harms of treatment rather than of screening per se and selectively emphasized literature quoting high-outlier rates of morbidity and reductions in psychological quality of life.
- Assumed all men diagnosed with prostate cancer receive treatment.
- Ignored multiple series reporting more favorable outcomes as well as the psychological reassurance gained by the majority of men who are screened and found to have a low PSA carrying a low risk of prostate cancer mortality\*

\*Detsky A. Underestimating the Value of Reassurance. JAMA 2012

# National Health Interview Survey (NHIS)

- National Health Interview Survey (NHIS)
  - is a face-to-face, computer-assisted, cross-sectional survey annually performed in the United States. It is one of the major data collection programs from the Centers for Disease Control and Prevention.

# Impact of 2012 USPSTF “D” Recommendation *PSA Screening*

- PCA screening rates among men  $\geq 40$  years in the years 2005, 2010, and 2013.\*
  - absolute and relative screening rates decreased by 8 and 25% from 2010 to 2013

\*Drazer MW, et al. National Prostate Cancer Screening Rates After the 2012 US Preventive Services Task Force Recommendation Discouraging Prostate-Specific Antigen-Based Screening. J Clin Oncol 2015

- 10% INCREASE of PSA screening rates 2005 → 2008<sup>#</sup>
- 18% DECREASE of PSA screening rates 2010 → 2013<sup>#</sup>

<sup>#</sup>Jemal A, et al. Prostate Cancer Incidence and PSA Testing Patterns in Relation to USPSTF Screening Recommendations. JAMA 2015

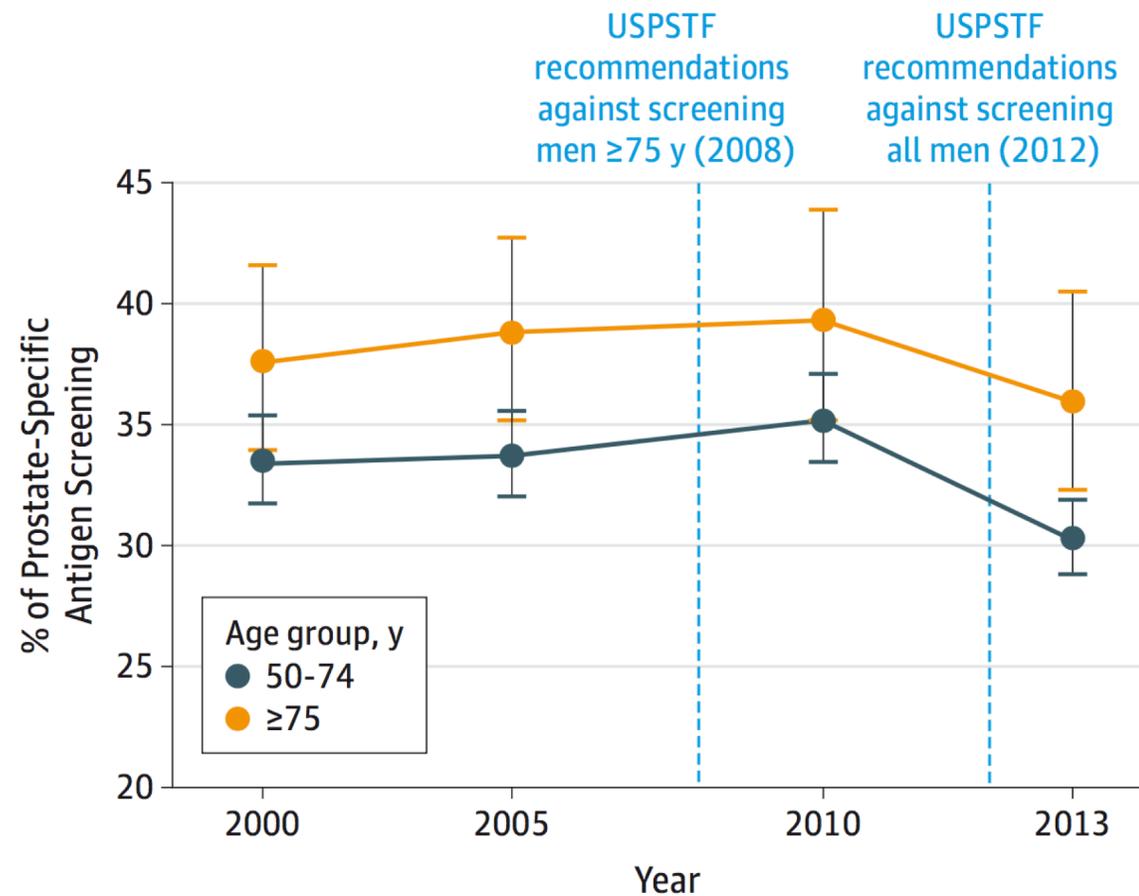
# Impact of 2012 USPSTF “D” Recommendation *PSA Screening*

- Decrease in PSA screening prevalence from 36 to 31% overall between 2010 and 2013.
- The year 2013 was associated with lower odds of PSA screening [odds ratio 0.79 (95% confidence interval, 0.71– 0.88)] compared with 2010.

# Sammon J

- JAMA 2015

Figure. Prevalence of Prostate-Specific Antigen Screening From National Health Interview Survey (2000, 2005, 2010, and 2013)



No. surveyed

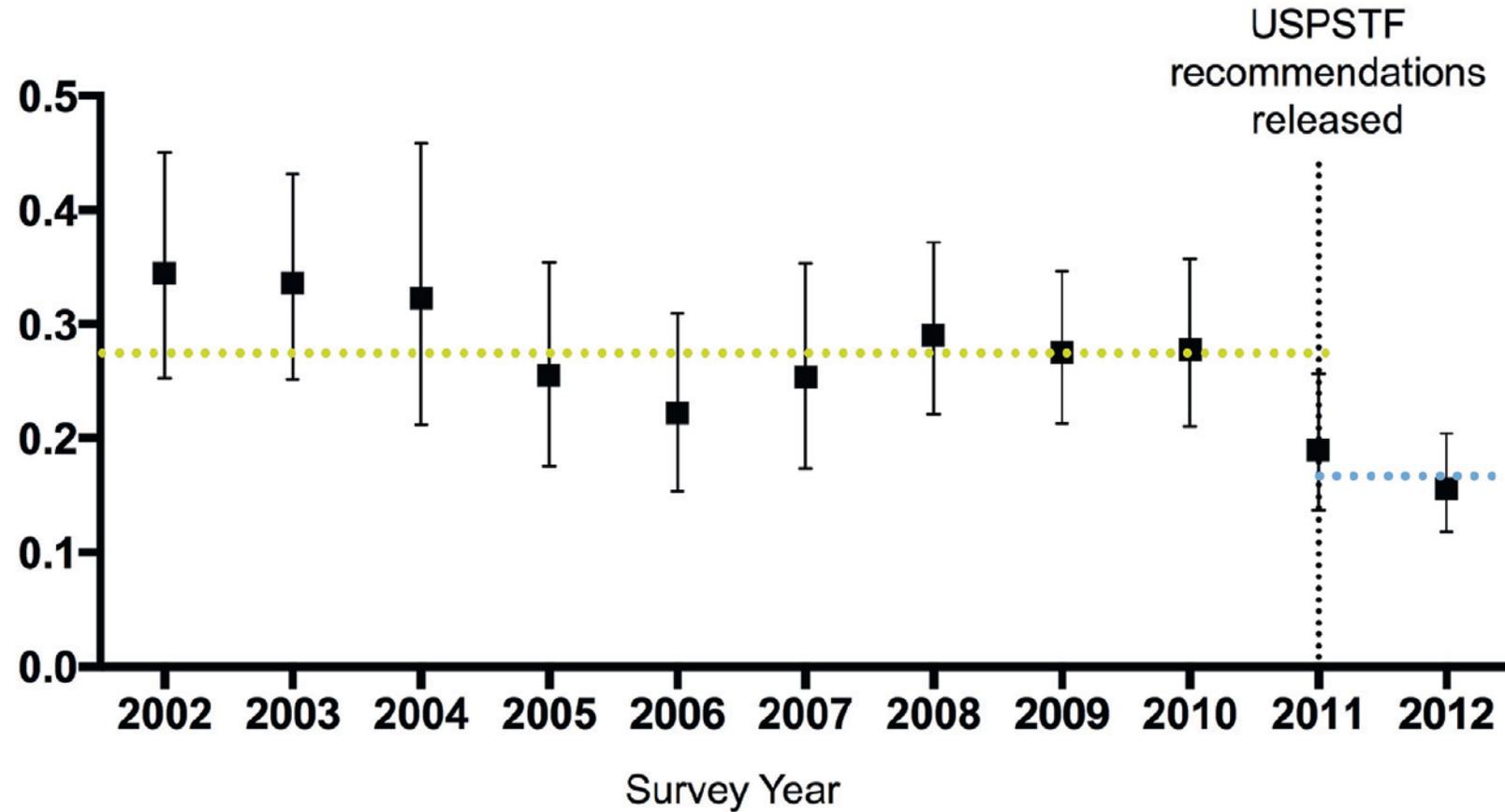
With age ≥75 y	761	834	707	984
With age 50-74 y	3937	4277	3891	5366

Error bars indicate 95% confidence intervals.

# Shoag J Urol 2016

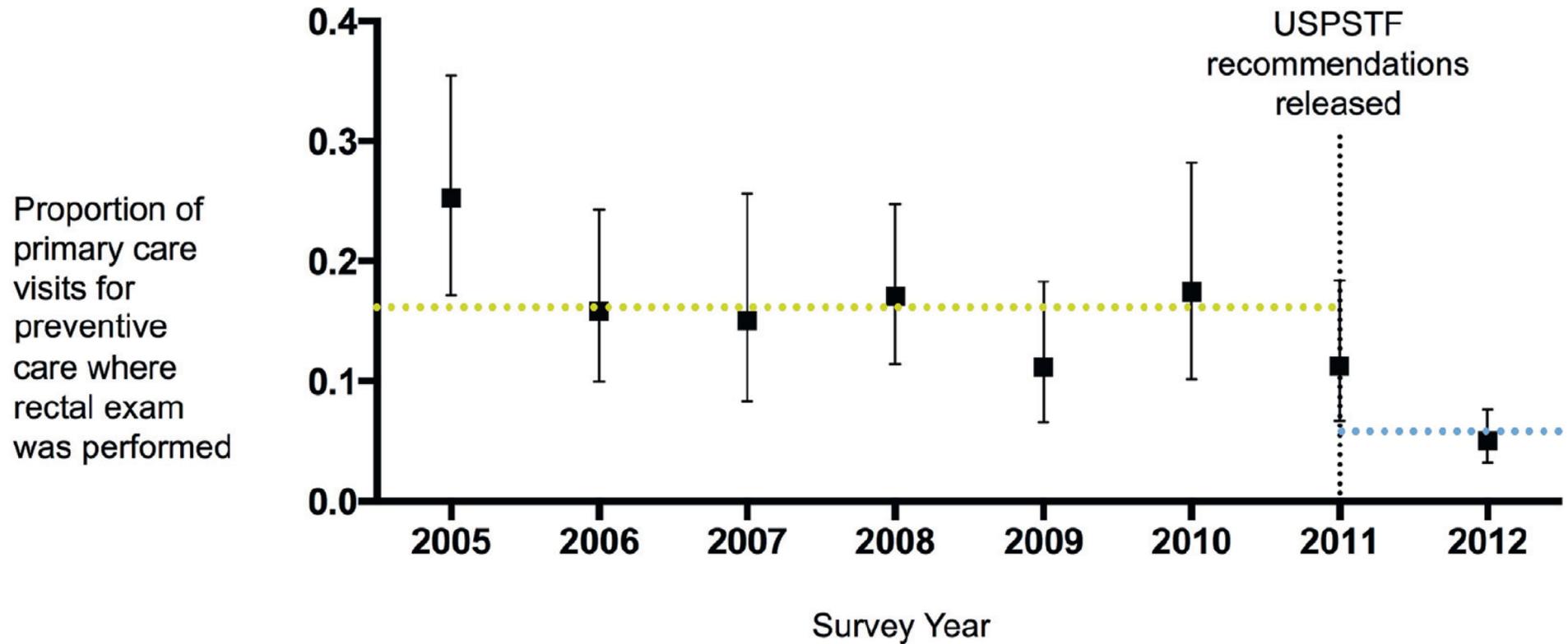
**A**

Proportion of primary care visits for preventive care with PSA testing

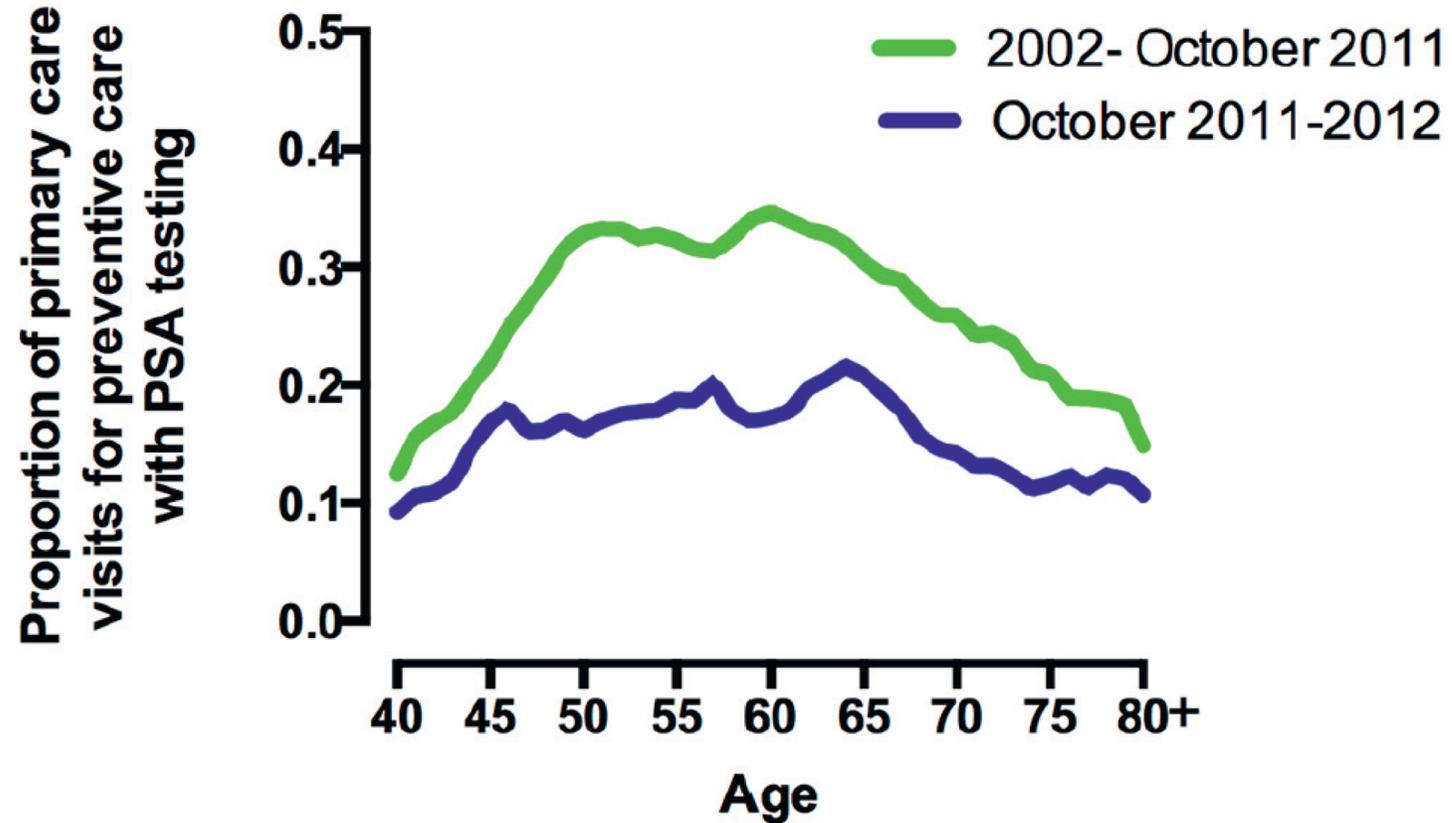


# Shoag J Urol 2016

**B**



# Shoag J Urol 2016



**Figure 2.** Smoothed curve demonstrates PSA screening by age in men presenting to PCP for preventive care.

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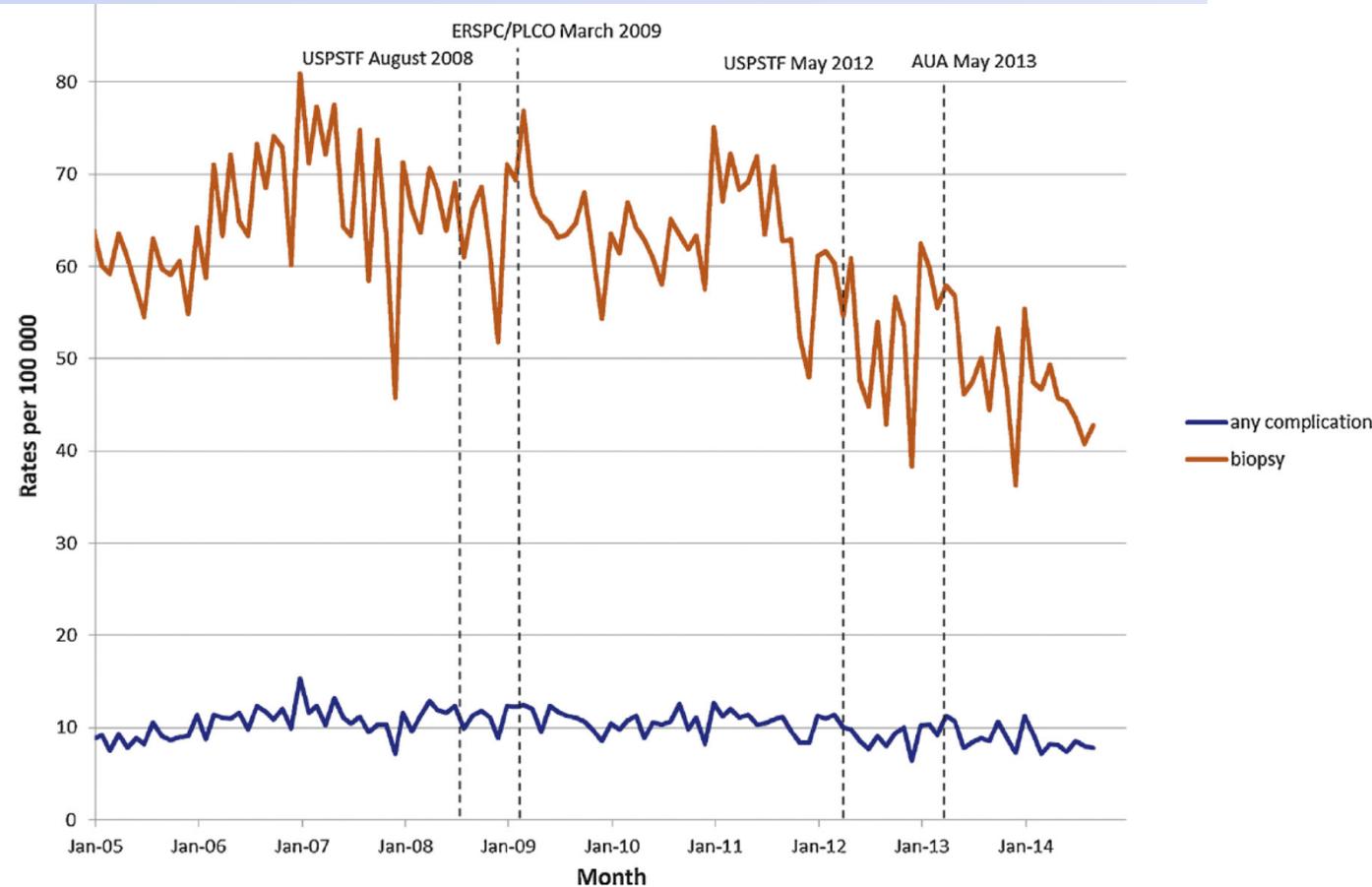
# Impact of 2012 USPSTF “D” Recommendation *Prostate Biopsy*

- operative procedure logs from the American Board of Urology for urologists applying for certification\*
- An overall decrease of 28.7% in biopsy volume following 2012
- The greatest decrease in biopsy volume was observed in men with abnormal PSA, whereas biopsy volume in men under surveillance for confirmed prostate cancer significantly increased by 28.8%.

\*Halpern JA, Shoag JE, Artis AS, Ballman KV. National Trends in Prostate Biopsy and Radical Prostatectomy Volumes Following the United States Preventative Services Task Force Guidelines Against JAMA 2016

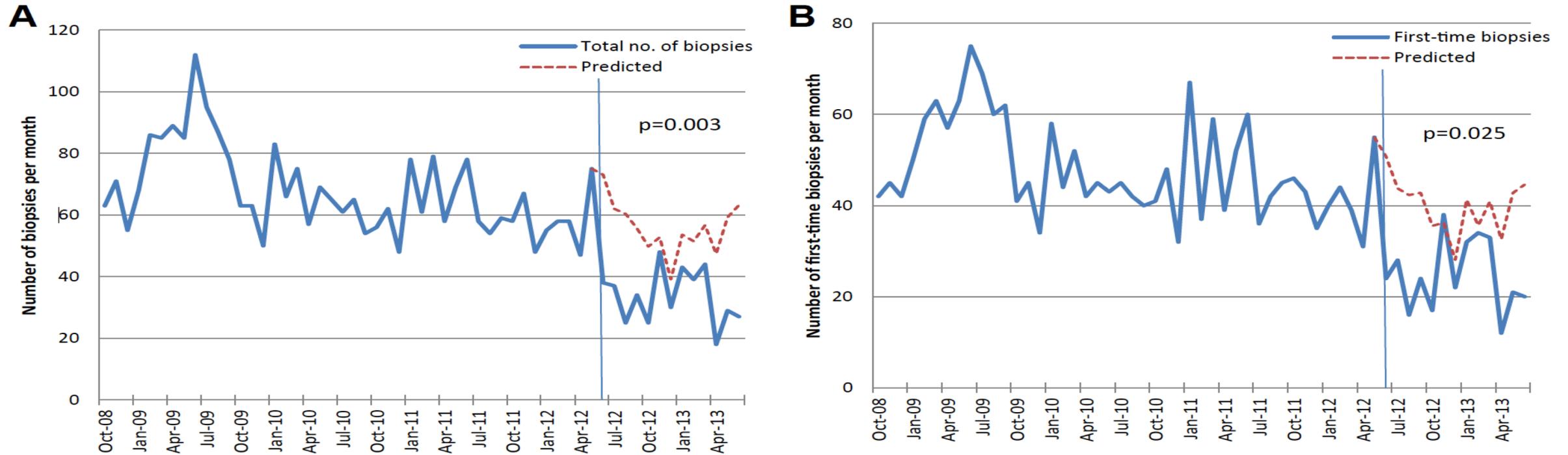
# Impact of 2012 USPSTF “D” Recommendation *Prostate Biopsy*

- 33% DECLINE Prostate Biopsy
  - 64.1 to 42.8 per 100 000 person-months from 2005 to 2014, with the greatest decrease following the 2012



# Impact of 2012 USPSTF “D” Recommendation

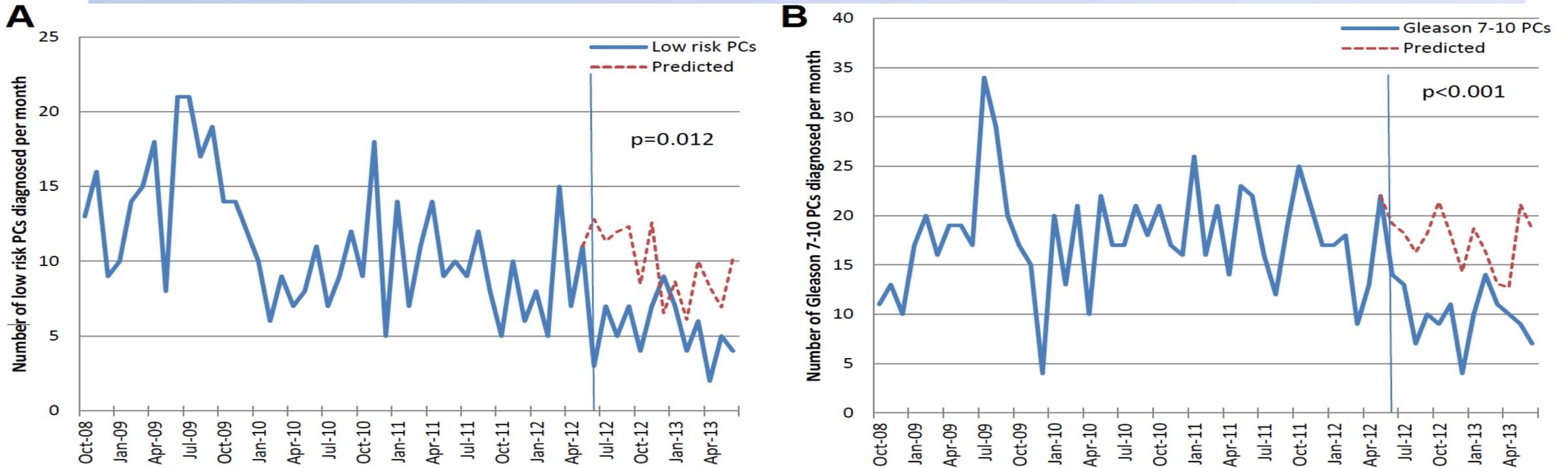
## *Number of biopsies per month*



**Figure 1.** Total number (A) and first-time (B) biopsies per month in relation to release of USPSTF recommendations (vertical line)

# Impact of 2012 USPSTF “D” Recommendation

## *Number of biopsies per month*

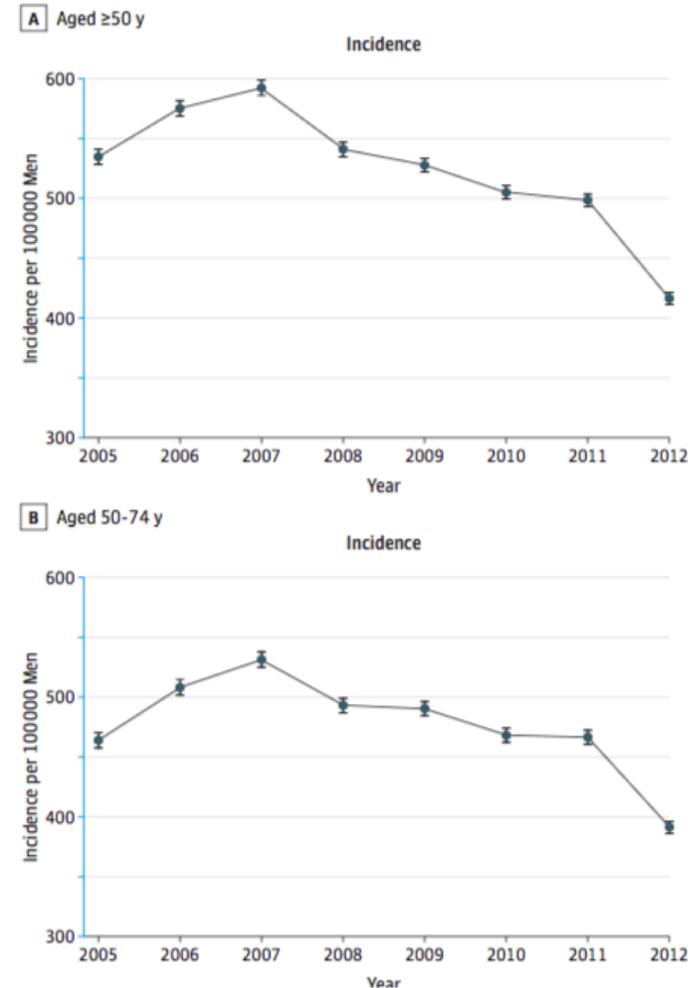


**Figure 2.** Number of low risk (A) and Gleason 7-10 (B) prostate cancers diagnosed per month

# Impact of 2012 USPSTF “D” Recommendation

## *PCA Incidence and Stage at Diagnosis*

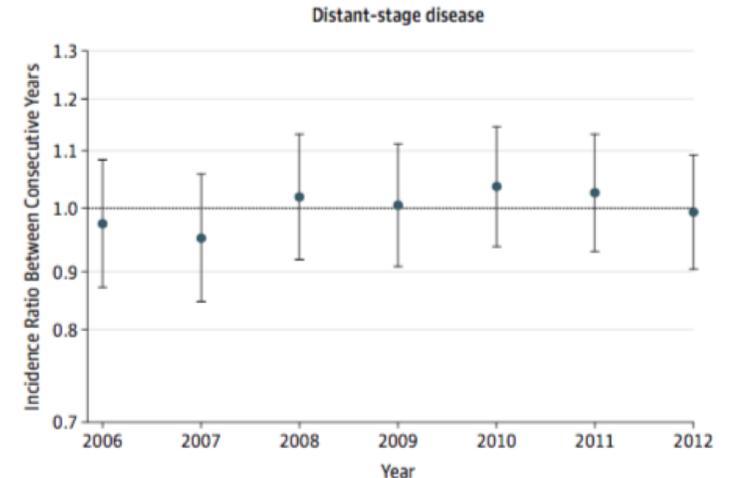
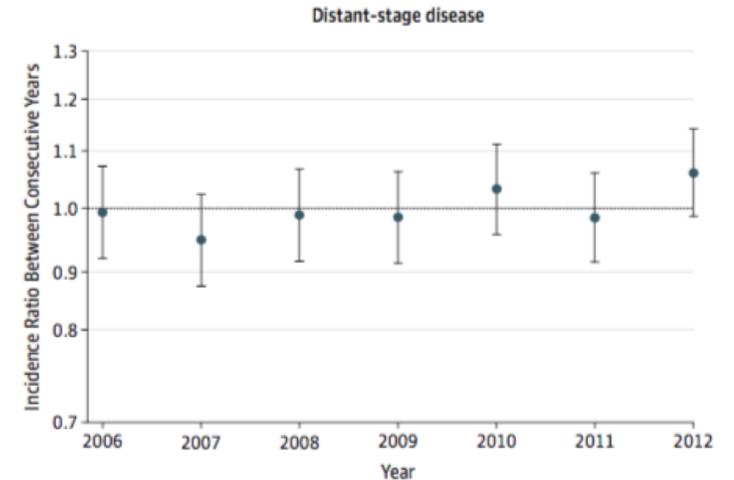
- SEER data
- Decreasing prostate cancer incidence rates for the first time in 2008; the largest decrease occurred between 2011 and 2012, from 498.3 to 416.2 per 100000 men aged 50 years and older



#Jemal A, et al. Prostate Cancer Incidence and PSA Testing Patterns in Relation to USPSTF Screening Recommendations. JAMA 2015

# Impact of 2012 USPSTF “D” Recommendation *PCA Incidence and Stage at Diagnosis*

- SEER data



#Jemal A, et al. Prostate Cancer Incidence and PSA Testing Patterns in Relation to USPSTF Screening Recommendations. JAMA 2015

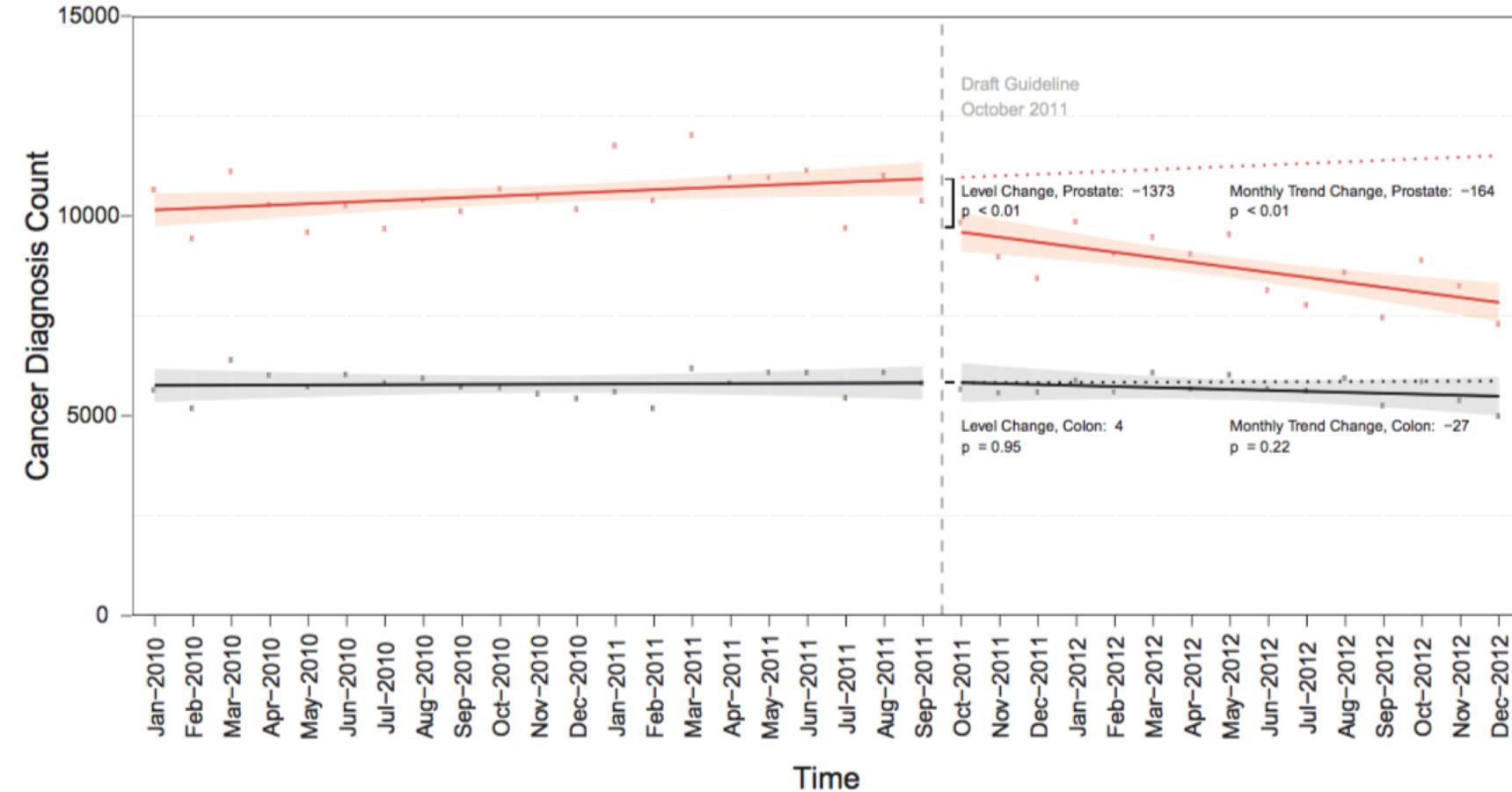
# Impact of 2012 USPSTF “D” Recommendation

## *PCA Incidence and Stage at Diagnosis*

- National Cancer Database
- Incident diagnoses of immediately decreased by 12.2% in the month after drafting the USPSTF guideline, with a continuous reduction of 1.8% per month compared with baseline.
- 28% overall reduction in incident prostate cancer diagnoses in the year following USPSTF grade D.
- This analysis included analysis of colon cancer rates as a comparison, and these were stable throughout the study period.

#Barocas DA, et al. The effect of the United States Preventive Services Task Force grade D recommendation against screening for prostate cancer on incident prostate cancer. J Urol 2015

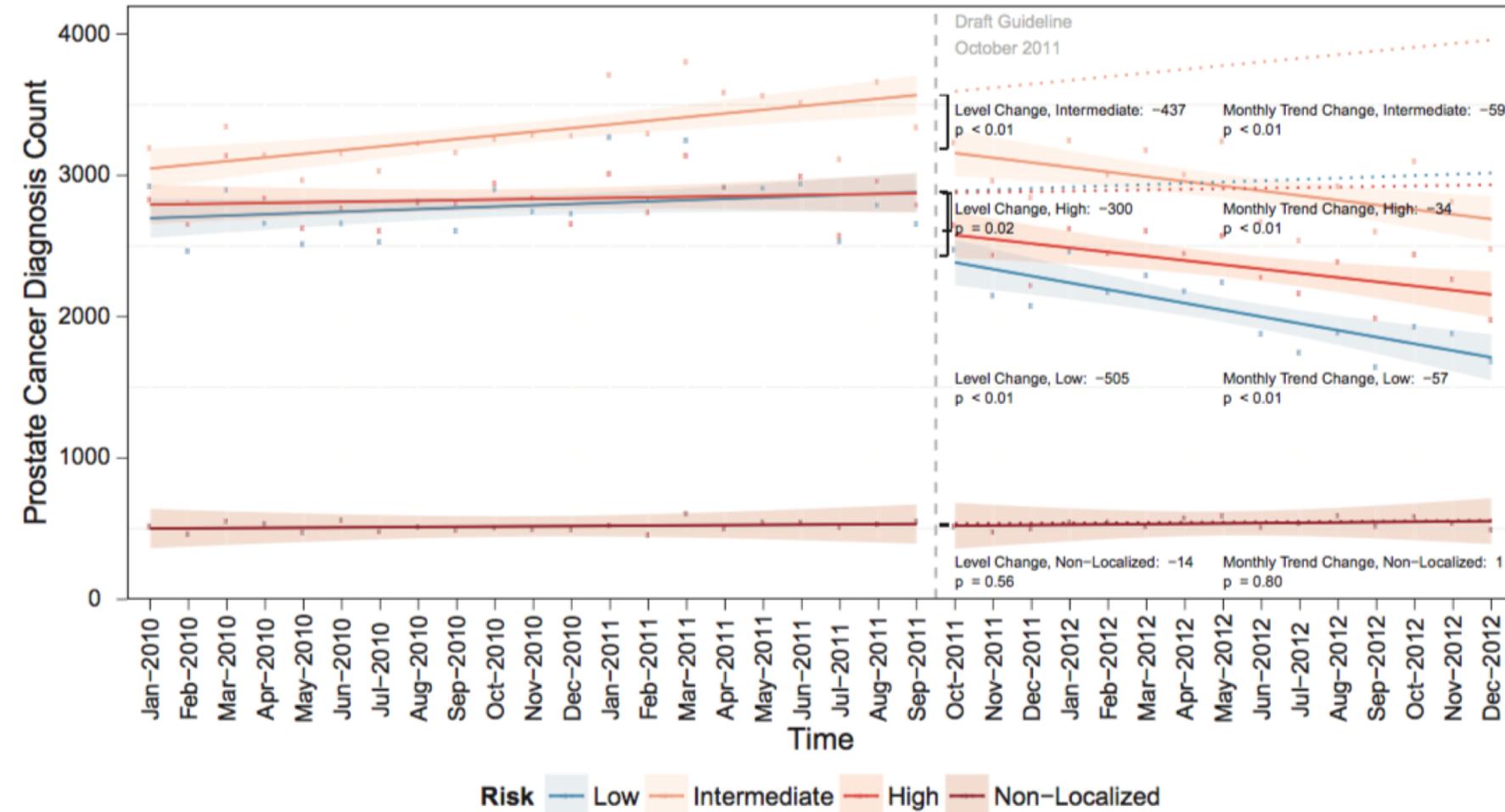
# Impact of 2012 USPSTF “D” Recommendation *PCA Incidence and Stage at Diagnosis*



New cancer diagnoses from 2010-12.  
**Red** curve is **PCA**  
**Black** Curve is **Colorectal CA**  
--- **Dots** indicate continuation of trend

#Barocas DA, et al. The effect of the United States Preventive Services Task Force grade D recommendation against screening for prostate cancer on incident prostate cancer. J Urol 2015

# Impact of 2012 USPSTF “D” Recommendation *PCA Incidence and Stage at Diagnosis*



**New Pca from 2010-12 by risk**  
 37.9% decrease in Low-risk cancers  
 28.1% decrease in intermediate risk  
 23.1% decrease in high-risk disease

# Summary of Studies Of USPSTF “D” Reccomendation

- **Reduced primary care DRE/PSA visits**
  - Shoag J Urol 16
- **Reduced PSA screening incidence—age < 75**
  - Sammon J JAMA 15; Jemal JAMA 15
- **Reduced number of biopsies**
  - Bhindi J Urol 15
  - Gershman Eur Urol 16
- **Reduced detection of low grade biopsies**
  - Bhindi J Urol 15
  - Barocas J Urol 15
- **Reduced detection of Gleason 7-10 biopsies**
  - Bhindi J Urol 15
  - Barocas J Urol 15
- **Reduced prostate cancer incidence and incidence ratios**
  - Jemal JAMA 15
- **Decreased diagnosis of local/regional stage since 2008**
  - Jemal JAMA 15

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## Draft Recommendation Statement

### Prostate Cancer: Screening

This opportunity for public comment expired on May 8, 2017 at 8:00 PM EST

**Note: This is a Draft Recommendation Statement. This draft is distributed solely for the purpose of receiving public input. It has not been disseminated otherwise by the USPSTF. The final Recommendation Statement will be developed after careful consideration of the feedback received and will include both the Research Plan and Evidence Review as a basis.**

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

For more information on the draft recommendation on screening for prostate cancer, go to [www.screeningforprostatecancer.org](http://www.screeningforprostatecancer.org).

#### Send Us Your Comments

In an effort to maintain a high level of transparency in our methods, we open our draft Recommendation Statements to a public comment period before we publish the final version.

Comment period is not open at this time.

#### Draft: Recommendation Summary

Population	Recommendation	Grade (What's This?)
Men ages 55 to 69 years	<p>The USPSTF recommends that clinicians inform men ages 55 to 69 years about the potential benefits and harms of prostate-specific antigen (PSA)-based screening for prostate cancer.</p> <p>The decision about whether to be screened for prostate cancer should be an individual one. Screening offers a small potential benefit of reducing the chance of dying of prostate cancer. However, many men will experience potential harms of screening, including false-positive results that require additional testing and possible prostate biopsy; overdiagnosis and overtreatment; and treatment complications, such as incontinence and impotence. The USPSTF recommends individualized decisionmaking about screening for prostate cancer after discussion with a clinician, so that each man has an opportunity to understand the potential benefits and harms of screening and to incorporate his values and preferences into his decision.</p> <p>Please refer to the Clinical Considerations sections on screening in <a href="#">African American men</a> and <a href="#">men with a family history</a> of prostate cancer for more information on these higher-risk populations.</p>	<b>C</b>
Men age 70 years and older	The USPSTF recommends against PSA-based screening for prostate cancer in men age 70 years and older.	<b>D</b>

# Why the change?

- Additional evidence that increased the USPSTF's certainty about the reductions in risk of dying of prostate cancer and risk of metastatic disease.
  - Longer-term follow-up of the ERSPC trial and some ERSPC sites f
  - PSA-based screening prevents 1 to 2 men from dying of prostate cancer for every 1,000 men screened.
  - Additionally, a subset of ERSPC sites has since reported that screening 1,000 men ages 55 to 69 years may prevent approximately 3 men from developing metastatic prostate cancer.

# Estimated Effects After 13 Years of Inviting U.S. Men Ages 55 to 69 Years to PSA-Based Screening for Prostate Cancer

	Number of Men Affected
Men invited to screening	1,000
Men who receive at least 1 positive PSA test result	240
Men who have 1 or more transrectal prostate biopsies	220 <sup>†</sup>
Men hospitalized for a biopsy complication	2
Men diagnosed with prostate cancer	100
Men who initially receive active treatment with radical prostatectomy or radiation therapy	65
Men who initially receive active surveillance	30
Men who initially receive active surveillance who go on to receive active treatment with radical prostatectomy or radiation therapy	15
Men with sexual dysfunction who received initial or deferred treatment	60
Men with urinary incontinence who received initial or deferred treatment	15
Men who avoid metastatic prostate cancer	3
Men who die of causes other than prostate cancer	200
Men who die of prostate cancer despite screening, diagnosis, and treatment	5
Men who avoid dying of prostate cancer	1 to 2

Estimates based on benefits observed in the ERSPC trial

# Recommendations of others

- The American Academy of Family Physicians<sup>33</sup> in 2012 and the Canadian Task Force on Preventive Health Care<sup>34</sup> in 2014 recommended against PSA-based screening for prostate cancer.
- The American Academy of Family Physicians is currently reviewing its recommendation.
- The American College of Physicians<sup>35</sup> in 2013 recommended that physicians discuss the benefits and harms of screening with men ages 50 to 69 years and only recommend screening for men who prioritize screening and have a life expectancy of more than 10 to 15 years.
- The American Urological Association<sup>36</sup> in 2013 recommended that men ages 55 to 69 years with a life expectancy of more than 10 to 15 years be informed of the benefits and harms of screening and engage in shared decision making with their physician, taking into account each man's values and preferences.
- It noted that to reduce the harms of screening, the screening interval should be 2 or more years. The American Urological Association also noted that decisions about screening, including potentially starting screening before age 55 years, should be individual ones for African American men and men with a family history of prostate cancer.
- The American Cancer Society<sup>37</sup> adopted detailed screening recommendations in 2016 that highlight the importance of shared decision making and the need for informed discussion of the uncertainties, risks, and potential benefits of screening. It recommends conversations about screening beginning at age 50 years and earlier for African American men and men with a father or brother with a history of prostate cancer before age 65 years.

# Summary

- USPSTF recommendations have effected PSA, biopsy, and detection rates—10-30% ranges quoted
- Screening continues, however, and hopefully with shared decision making
- Reduced detection not specific to low-grade disease
- Impact on advanced stage, mortality, etc. too preliminary
- Impact of grade inflation (D → C)....we shall see....