More Aggressive Prostate Cancer Screening is Better

Advancing Men’s Health: Updates in Urology
Acknowledgement is made on behalf of the Department that there is no commercial support for this talk.

There are no conflicts of interest.
Prostate cancer is common

10 Leading Cancer Types

<table>
<thead>
<tr>
<th>Estimated New Cases</th>
<th>Estimated Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td><strong>Males</strong></td>
</tr>
<tr>
<td>Prostate</td>
<td>Lung &amp; bronchus</td>
</tr>
<tr>
<td>164,690 (19%)</td>
<td>83,550 (26%)</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>Prostate</td>
</tr>
<tr>
<td>121,680 (14%)</td>
<td>29,430 (9%)</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>Colon &amp; rectum</td>
</tr>
<tr>
<td>75,610 (9%)</td>
<td>27,390 (8%)</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>Pancreas</td>
</tr>
<tr>
<td>62,380 (7%)</td>
<td>23,020 (7%)</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>Liver &amp; intrahepatic bile duct</td>
</tr>
<tr>
<td>55,150 (6%)</td>
<td>20,540 (6%)</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>Leukemia</td>
</tr>
<tr>
<td>42,680 (5%)</td>
<td>14,270 (4%)</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>Esophagus</td>
</tr>
<tr>
<td>41,730 (5%)</td>
<td>12,850 (4%)</td>
</tr>
<tr>
<td>Oral cavity &amp; pharynx</td>
<td>Urinary bladder</td>
</tr>
<tr>
<td>37,160 (4%)</td>
<td>12,520 (4%)</td>
</tr>
<tr>
<td>Leukemia</td>
<td>Non-Hodgkin lymphoma</td>
</tr>
<tr>
<td>35,030 (4%)</td>
<td>11,510 (4%)</td>
</tr>
<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>Kidney &amp; renal pelvis</td>
</tr>
<tr>
<td>30,610 (4%)</td>
<td>10,010 (3%)</td>
</tr>
<tr>
<td>All Sites</td>
<td>All Sites</td>
</tr>
<tr>
<td>856,370 (100%)</td>
<td>323,630 (100%)</td>
</tr>
</tbody>
</table>

Cancer Statistics, 2018

CA Cancer J Clin 2018;00:00–00
Rebecca L. Siegel, MPH \(^1\*\); Kimberly D. Miller, MPH \(^2\); Ahmedin Jemal, DVM, PhD \(^3\)
Risk Factors for Prostate Cancer

**YES**
- Age
- Ethnicity
- Family History
- Geographic Variation
- BRCA2

**NO**
- Obesity
- Smoking
- Diet
- Inflammation
- STDs
Age/Ethnicity

Prostate cancer rates in the US data from SEER

Incidence per 100,000

Age at diagnosis
Family History

- 10% are familial
- Most occur in patients < age 55
- Those with family hx have higher risk:
  - 1 relative: 2X
  - 2 relatives: 5X
  - 3 relatives: 11X
Geographic Variation
Interim Results from Impact Study: Evidence for PSA Screening in BRCA2 Mutation Carriers Page


- BRCA mutation carriers were associated with higher incidence of CaP
- Younger age at diagnosis
- Clinically significant tumors
Presentation has changed dramatically

- **1950**
  - 28% localized
  - 72% locally-extensive / metastatic

- **2000**
  - 80% localized (no symptoms)
  - 20% locally-extensive / metastatic
Prostate-cancer mortality in the USA and UK in 1975–2004: an ecological study

Simon M Collin, Richard M Martin, Chris Metcalfe, David Gunnell, Peter C Albertsen, David Neal, Freddie Hamdy, Peter Stephens, J Athene Lane, Rollo Moore, Jenny Donovan

(A) Age-adjusted prostate-cancer mortality (all ages)

Prostate cancer screening has been associated with a significant decrease in prostate cancer mortality.

Screening has also resulted in overdiagnosis and overtreatment, exposing men to harms of treatment without benefit.
Final Report

PSA screening given a “D” rating

D.— The USPSTF recommends against routinely providing PSA-based screening for prostate cancer. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

Ann Intern Med 2012; 157:120
Overdetection

The diagnosis of screen-detected indolent prostate cancer that, left untreated, would otherwise not provoke symptoms or diminish overall or prostate cancer-specific survival.

Overtreatment

- Treatment of screen-detected indolent cancers that may expose patients to substantial risks of treatment-related morbidity.
• No mortality benefit for annual screening
• Problem: contamination >50 % of men in the control group had PSA testing
Reported a 21% reduction in prostate cancer mortality in men aged 55-69
Estimated that 1410 men screened to detect 37 men for every PCA death averted
Mortality results from the Göteborg randomised population-based prostate-cancer screening trial

Jonas Hugosson, Sigrid Carlsson, Gunnar Aus, Svante Bergdahl, Ali Khatami, Pär Lodding, Carl-Gustaf Pihl, Johan Stranne, Erik Holmberg, Hans Lilja

- 20,000 men randomized to biannual screening or standard therapy
- 44% risk reduction in prostate cancer-related deaths in screening arm

Figure 2: Cumulative incidence of prostate cancer in the screening group and in the control group

Number at risk
Screening group 9952 8961 7847 6761
Control group 9952 9214 8185 7168
Screening trials collectively show reduction in prostate cancer mortality
Effect of USPSTF Recommendation Against Screening for Prostate Cancer

Number of new diagnoses decreased by 37.9% for low risk, 28.1% for intermediate risk, 23.1% for high risk, and 1.1% for non-localized disease one year after draft guidelines.

Decreased rates did not vary across age, comorbidity strata, socioeconomic strata, or poorly resourced populations.

Rates of other cancers remained stable throughout this period.

J Urol Dec 2015, Vol194,1587-1593
So what now...?

7 years after USPSTF 2012 recommendations
Several studies now demonstrate increasing incidences in metastatic prostate cancer


Potential Impact of Eliminating PSA Screening

Increase CaP related death and morbidity associated with metastatic disease
Screen to Treat
Screen to Detect
Recommendations for prostate cancer screening for 2020

- Follow guidelines for screening put forward by The European Association of Urology and the American Urologic Association

- Men at risk should have a baseline PSA blood test at age 40

- Level of this test, combined with family history, ethnicity, and other factors, can be used for follow up

- MRI and novel biomarkers should be used to determine which men need biopsy and how an cancers should be treated
Thank you