# Kanserde Erken Teşhis Tarama Yöntemleri

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# Kaynaklar

**Bu seminer için aşağıdaki kavuzlardan ve bu kılavuzların oluşmasında etkili makalelerden yararlanılmıştır**


- National Cancer Institute(NIH), National Comprehensive Cancer Network(NCCN)
- European Society For Medical Oncology (ESMO)
- United States Preventive Services Task Force (UPSTF)
- American Cancer Society
- American Society for Colposcopy and Cervical Pathology, American Society for Clinical Pathology
- Uptodate

# Ders Planı

- Kanserde tarama yöntemlerini neden kullanırız
- Tarama yöntemleri nelerdir
- Tarama yöntemlerin kazançları
- Tarama yöntemleri handikapları ve olası zararlı sonuçları
- Kolon kanseri, serviks, meme, akciğer, prostat ve diğer kanserlerde erken teşhis ve tarama yöntemleri

# Aşağıdakilerden hangisi prostat kanseri erken teşhis ve taraması için doğrudur?

A-PSA düzeyi yaş ile değişmez

B-Prostat kanseri ırksal farklılık göstermez

C-Yıllık PSA testi tarama amaçlı 55-74 yaş gurubu erkekte istenir

D-PSA düzeyi bening prostat hastalıklarından etkilenmez

E-PSA düzeyi yüksek olanlarda test tekrarlanmalıdır

# Kanserde Tarama Yöntemleri
## Amaç

- Tarama, semptom(bulgu) olmadan, kanser durumunun değerlendirilmesidir
- Temel amaç, erken tanı koymak
- Erken evrede yakalayarak kür elde edilebilirliği artırmak
- Tarama yöntemi ile  erken teşhis konarak, kansere bağlı ölümleri azaltmak.

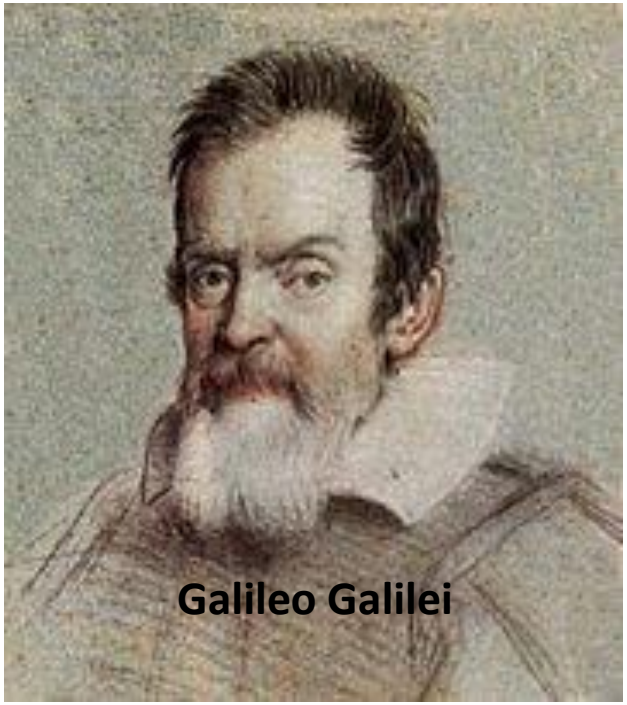
# Kanserde Tarama Yöntemleri

- Anemnez, fizik muayene
- Laboratuar testleri, kan, idrar, doku örnekleri
- Görüntüleme yöntemleri
- Genetik testler

# **Tarama Yöntemlerinin** Handikapları

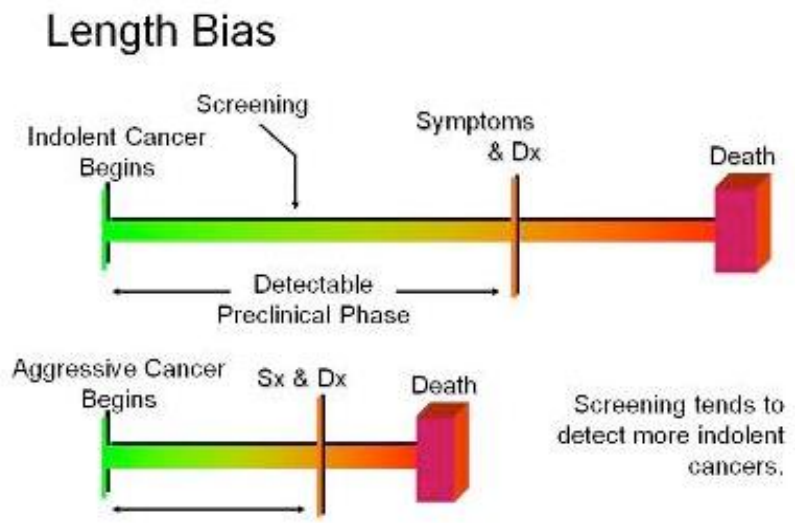
- Tarama testleri yapılırken gerçekleşen **komplikasyonlar**(örn: kolonoskopi kanama)
- **Yalancı pozitiflik**, buna bağlı anksiyete, yapılan fazladan tetkikler, bunların komplikasyonları
- **Yalancı negatiflik**, gecikmiş tanı
- **Overdiagnosis**, yavaş seyir gösteren hastalığın erken tanısının konmasıyla gereksiz(fazladan )yapılan tedaviler(örn: erken evre prostat ca)
- Bazı kanser türlerinde erken teşhisi yaşam kalitesini ve sağkalımı artırmaz

# Tarama Yöntemlerinin Handikapları


Galileo Galilei

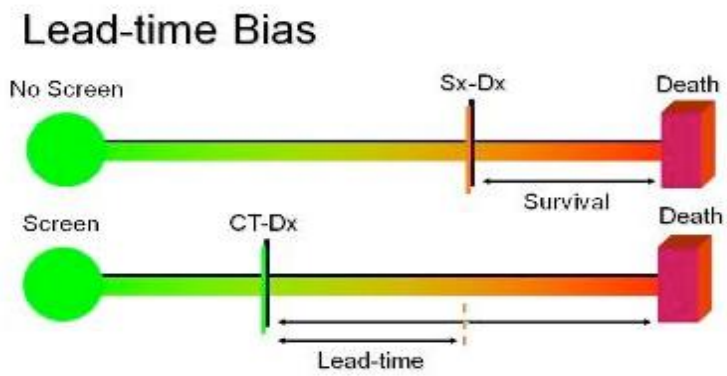
**Evrenin kitabı matematik diliyle yazılmıştır.**

# Tarama Yöntemleri Handikapları
## Length Bias




- **Tarama ile daha yavaş seyirli kanserlerin tanısını koyma daha yüksek olasılıkta olabilir.**
- **Bundan dolayı tarama testi ile teşhis konan kişiler hatalı daha uzun yaşıyor izlenimi verebilir**

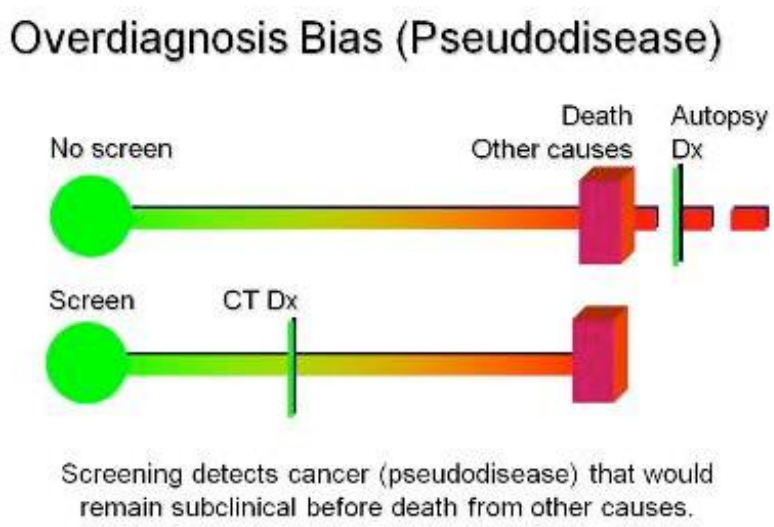
# Tarama Yöntemleri Handikapları
## Lead Time Bias



With screening, the lead time in diagnosis prolongs survival even if death is not delayed.

- ❑Tarama ile kanser tanısını semptom ortaya çıkmadan koydunuz.
- ❑Bu durumda tanı tarihini öne çekiyoruz.
- ❑Fakat iki akciğer kanseri düşünün ve aynı zamanda ölüyor.
- ❑Biri tarama programında ve tanısı 6 ay önce konmuş, diğeri semptomla başvurmuş.
- ❑Tanı öne alındığı için taramadaki daha uzun yaşıyor gözükebilir.

# Tarama Yöntemleri Handikapları
## Overdiagnosis Bias




- 78 yaşında erkek PSA taraması ile prostat kanseri erken evre tanısı koydunuz.
- Hasta 82 yaşında kansere bağlı değil serebrovasküler emboliye bağlı öldü.
- Bu arada prostat kanseri teşhisi nedeniyle, ek tetkik ve tedavi aldı.

# Erken Teşhis ile Sağkalımı Uzatan Tarama Yöntemleri

- Ba**ğırsak kanseri;** Kolonoskopi, sigmoidoskopi, gaita gizli kan testleri
- **Akciğer kanseri;** Düşük doz helikal bilgisayarlı tomografi
- **Meme kanseri;** Mamografi
- **Rahim ağzı kanseri;** Pap smear ve HPV testi

# Kolon Kanseri Risk Faktörleri

- Kolorektal kanserde temel risk faktörü aile öyküsü ve ileri yaş
- Aşırı alkol tüketimi
- Obezite
- Sigara
- Beslenme alışkanları
- İnflamatuar bağırsak hastalıkları
- Herediter durumlar( Lynch sendromu, familyal adenomatozis polipozis)

# Kolon Kanseri Risk Faktörleri

- Kolorektal kanser 3. sıklıkta görülür ve ölüme neden olan 2. kanser türüdür.
- Kolon kanseri genel olarak poliplerden gelişir
- Polipler gene olarak 50 yaş sonrası gelişir
- Poliplerin çoğu bening olmakla beraber, bazı adenom özeliği gösteren poliplerin yüksek malignite riski vardır

# Kolonoskopi, sigmoidoskopi, Gaita gizli kan testleri

- Bu testler kolorektal kansere bağlı ölümleri azaltır
- Aynı zamanda kolonoskopi ve sigmoidoskopi anormal polipleri erken teşhis ederek kolorektal kanser oluşmasında engeller
- 50-75 Yaş gurubunda kolonoskopi ve sigmoidoskopi ve gaitada gizli kan testi tarama amaçlı önerilir.

# Kolorektal Kanser Tarama

- U.S.Preventive Services Task Force(UPSTF) kolorektal kanser için tarama genel popülasyon için 50 yaşında önermektedir
- Fakat, ailesel kanser ve polip öyküsü olan, İnflamatuar bağırsak hastalığı olanlarda, tarama 50 yaş öncesi önerilir.
- Tarama intervali daha kısa ve tarama daha sık yapılabilir.

# Kolorektal Kanserler Tarama

## Gaita gizli kan testleri

- High-sensitivity fecal occult blood tests (FOBT): Polip ve kansere bağlı kanamayı tespit eder. Bening nedenlere bağlı sebeplere bağlı yalancı pozitiflik olabilir(Hemoroid vs.)
- Guaiac FOBT kandaki Heme tespit eder.
- Bu test öncesi yalancı pozitifliği engellemek için gıda kısıtlaması gerekmektedir( Et ve ürünleri ) yalancı pozitifliğe sebep olabilir.
- Fekal immünohistokimyasal yöntem, insan hemoglobinine karşı geliştirilmiş antikor kullanılarak yapılır, diyet kısıtlaması yoktur(İFOBT)
- Gaitada yüksek sensitif gizli kan arama testleri 1 ve 2 yılda bir 50-80 yaşları arasında önerilir.
- Bu testlerle kolorektal kanserlere bağlı mortalite %15-33 oranında azaltılır.
- UPSTF, Gaitada yüksek sensitif gizli kan arama testleri kolorektal kanser taramasında kullanılan tek test ise yılda bir tekrarlamasını önerir.

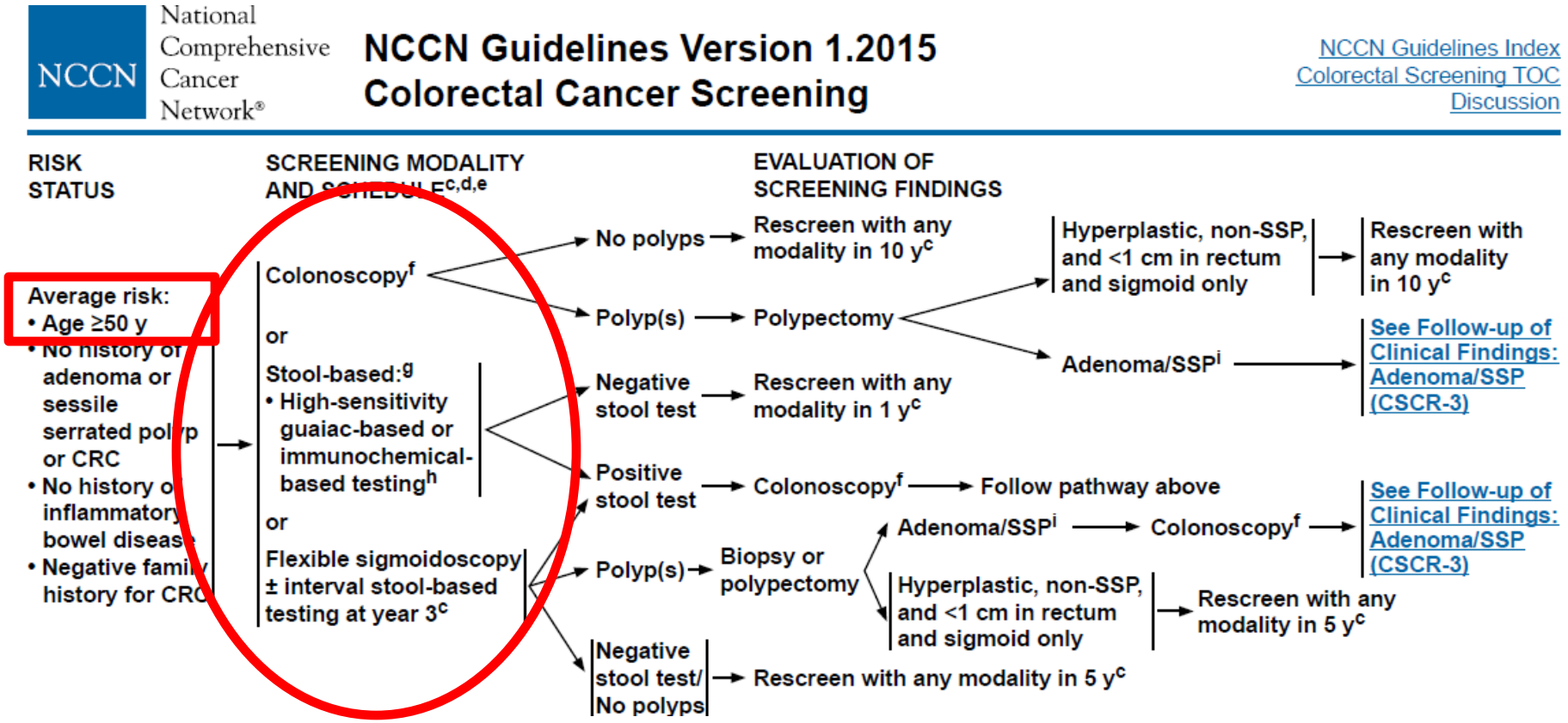
# Kolorektal Kanserler Tarama
## Sigmoidoskopi

- 50 yaş sonrası sigmoidoskopi ile yapılan taramada kolorektal kanserlere bağlı mortalitede %60-70 oranında azalma saptanmış.
- Sigmoidoskopi ile rektum ve aşağı kolon görüntülenebilir
- UPSTF her beş yılda bir Sigmoidoskopi ile birlikte 3 yılda bir Gaitada yüksek sensitif gizli kan tarama testleri ile tarama testi önerir.

# Kolorektal Kanserler Tarama
## Kolonoskopi

- Rektum ve tüm kolon bu yöntem ile incelenebilir.
- Kolonoskopi ile yapılan tarama ile Kolorektal kanserlere bağlı mortalite %60-70 oranında azaltılabilir.
- UPSTF, 50 yaş sonrası  her 10 yılda bir Kolonoskopi ile tarama önerir.

# Kolorektal Kanserler Tarama



# Kolorektal Kanserler Diğer Tarama Yöntemleri

- Kolonoskopi, sigmoidoskopi, Gaita gizli kan Standard kabul edilen ve UPSTF önerdiği testlerdir.
- **Cologuard®:** Fekal immünohistokimyasal yöntem ile gizli kan ile birlikte, 3 genin(APC, KRAS, p53) varlığını gösteren(PCR yöntemi ile 21 mutasyonu tarayarak yapılıyor)
- kanser ve pre-kanser(polip) durumunu gösteren test.
- Gaitada gizli kana göre sensitivitesi daha yüksek
- Bu test pozitif geldiğinde Kolonoskopi öneriliyor.
- FDA onayı var, fakat UPSTF tarama metodu olarak henüz kabul etmedi.

# Kolorektal Kanserler Diğer Tarama Yöntemleri

- Sanal Kolonoskopi:  Kolon temizliği ve BT öncesi karbondioksit pompalayarak bağırsaklarda ki görüntü kalitesi artırılır
- Sedasyon gerekmez, komplikasyon az ve tanı koyma kesinliği Standard Kolonoskopi ile benzer.
- Fakat polip ve anormal görüntü durumunda kolonoskopi ile biyopsi gerekir
- Sanal Kolonoskopi ile yapılan tarama ile sağkalımı artıp artmadığı bilinmemektedir
- UFST ve diğer bazı sağlık sigortaların ödeme kapsamına girmez

# Kolorektal Kanserler Tarama Yöntemleri

## Birinci derece akraba 60 yaş öncesi kolon ca

National Comprehensive Cancer Network®

### NCCN Guidelines Version 1.2015
### Colorectal Cancer Screening

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**INCREASED RISK BASED ON POSITIVE FAMILY HISTORY**

| FAMILY HISTORY CRITERIA[x,y] | SCREENING | |
|---|---|---|
| 1 first-degree relative with CRC aged <60 y or 2 first-degree relatives with CRC at any age | Colonoscopy beginning at age 40 y or 10 y before earliest diagnosis of CRC | Repeat every 5 y[x,z] or if positive, repeat per colonoscopy findings |
| First-degree relative with CRC aged ≥60 y | Colonoscopy beginning at age 50 y | Repeat every 5–10 y[x,z,aa] or if positive, repeat per colonoscopy findings |
| 1 second-degree relative with CRC aged <50 y | Colonoscopy beginning at age 50 y | Repeat every 5–10 y[x,z,aa] or if positive, repeat per colonoscopy findings |
| First-degree relative with confirmed advanced adenoma(s) (ie, high-grade dysplasia, ≥1 cm, villous or tubulovillous histology) | Colonoscopy beginning at age 50 y or at age of onset of adenoma in relative, whichever is first | Repeat every 5–10 y[z,aa] or if positive, repeat per colonoscopy findings |

# Kolorektal Kanserler Tarama Yöntemleri

## Lynch Sendromu

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**Lynch Syndrome**

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**LYNCH SYNDROME MANAGEMENT**

**Surveillance for *MLH1*, *MSH2*, and *EPCAM* Mutation Carriers[i,j]**

**Colon cancer:**

- **Colonoscopy at age 20–25 y or 2–5 y prior to the earliest colon cancer if it is diagnosed before age 25 y and repeat every 1–2 y.**
- **There are data to suggest that aspirin may decrease the risk of colon cancer in LS; however, at this time the data are not sufficiently robust to make a recommendation for its standard use.**

**Extracolonic:**

- **Endometrial and ovarian cancer:**
  - **Prophylactic hysterectomy and bilateral salpingo-oophorectomy (BSO) is a risk-reducing option that should be considered by women who have completed childbearing.**
  - **Patients must be aware that dysfunctional uterine bleeding warrants evaluation.**
  - **There is no clear evidence to support screening for endometrial cancer for LS. However, annual office endometrial sampling is an option.**
  - **While there may be circumstances where clinicians find screening helpful, data do not support routine ovarian screening for LS. Transvaginal ultrasound for ovarian and endometrial cancer has not been shown to be sufficiently sensitive or specific as to support a positive recommendation, but may be considered at the clinician's discretion. Serum CA-125 is an additional ovarian screening test with caveats similar to transvaginal ultrasound.**
- **Gastric and small bowel cancer: There is no clear evidence to support screening for gastric, duodenal, and small bowel cancer for LS. Selected individuals or families or those of Asian descent[k] may consider EGD with extended duodenoscopy (to distal duodenum or into the jejunum) every 3–5 y beginning at age 30–35 y.**
- **Urothelial cancer: Consider annual urinalysis starting at 25–30 y.**
- **Central nervous system (CNS) cancer: Annual physical/neurologic examination starting at 25–30 y; no additional screening recommendations have been made.**
- **Pancreatic cancer: Despite data indicating an increased risk for pancreatic cancer, no effective screening techniques have been identified; therefore, no screening recommendation is possible at this time.**
- **Breast cancer: There have been suggestions that there is an increased risk for breast cancer in LS patients; however, there is not enough evidence to support increased screening above average-risk breast cancer screening recommendations.**

→ See Follow-up of Surveillance Findings (LS-5)

# Kolorektal Kanserler Tarama Yöntemleri

## Lynch Sendromu

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**Lynch Syndrome**

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**AMSTERDAM CRITERIA I**[1,2]

**At least three relatives with CRC; all of the following criteria should be present:**

- **One should be a first-degree relative of the other two;**
- **At least two successive generations must be affected;**
- **At least one of the relatives with CRC must have received the diagnosis before the age of 50 years;**
- **FAP should be excluded;**
- **Tumors should be verified by pathologic examination.**

**AMSTERDAM CRITERIA II**[1,2]

**At least three relatives must have a cancer associated with LS (colorectal, cancer of endometrium, small bowel, ureter, or renal-pelvis); all of the following criteria should be present:**

- **One must be a first-degree relative of the other two;**
- **At least two successive generations must be affected;**
- **At least one relative with cancer associated with LS should be diagnosed before age 50 years;**
- **FAP should be excluded in the CRC case(s) (if any);**
- **Tumors should be verified whenever possible.**

[1]From Vasen HFA. Clinical diagnosis and management of hereditary colorectal cancer syndromes. J Clin Oncol 2000;18(suppl 1):81s-92s.
[2]Approximately 50% of patients with LS will be missed by these criteria, and approximately 50% of patients will meet the criteria and not have LS but a high familial risk of uncertain etiology.

# Kolorektal Kanserler Tarama Yöntemleri

## Familyal Adenomatozis Polipozis

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### NCCN Guidelines Version 2.2015
### Familial Adenomatous Polyposis/AFAP

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**PHENOTYPE**

**Classical FAP**:[a]
- Germline *APC* mutation
- Presence of ≥100 polyps[b] (sufficient for clinical diagnosis) or fewer polyps at younger ages, especially in a family known to have FAP
- Autosomal dominant inheritance[c] (except with de novo mutation)
- Possible associated additional findings
  - Congenital hypertrophy of retinal pigment epithelium (CHRPE)
  - Osteomas, supernumerary teeth, odontomas
  - Desmoids, epidermoid cysts
  - Duodenal and other small bowel adenomas
  - Gastric fundic gland polyps
- Increased risk for medulloblastoma, papillary carcinoma of the thyroid (<2%), hepatoblastoma (1%–2%, usually age ≤5 y)
- Pancreatic cancers (<1%)
- Gastric cancers (<1%)
- Duodenal cancers (4%–12%)

**AFAP**[d]
- Germline *APC* mutation
- Presence of 10–<100 adenomas (average of 30 polyps)
- Frequent right-sided distribution of polyps
- Adenomas and cancers at age older than classical FAP (mean age of cancer diagnosis >50 y)
- Upper GI findings, thyroid and duodenal cancer risks are similar to classical FAP
- Other extraintestinal manifestations, including CHRPE and desmoids, are unusual

**RISK STATUS**

Personal history of classical FAP → See Treatment and Surveillance (FAP-1)

Family history of classical FAP, unaffected (no symptoms, findings, adenomas), family mutation known → See Genetic Testing and Surveillance (FAP-4)

Personal history of AFAP → See Treatment and Surveillance (AFAP-1)

Family history of AFAP, unaffected (no symptoms, findings, adenomas), family mutation known → See Genetic Testing and Surveillance (AFAP-2)

# Kolorektal Kanserler Tarama Yöntemleri

## Familyal Adenomatozis Polipozis

National Comprehensive Cancer Network®

**NCCN Guidelines Version 2.2015**
**Familial Adenomatous Polyposis**

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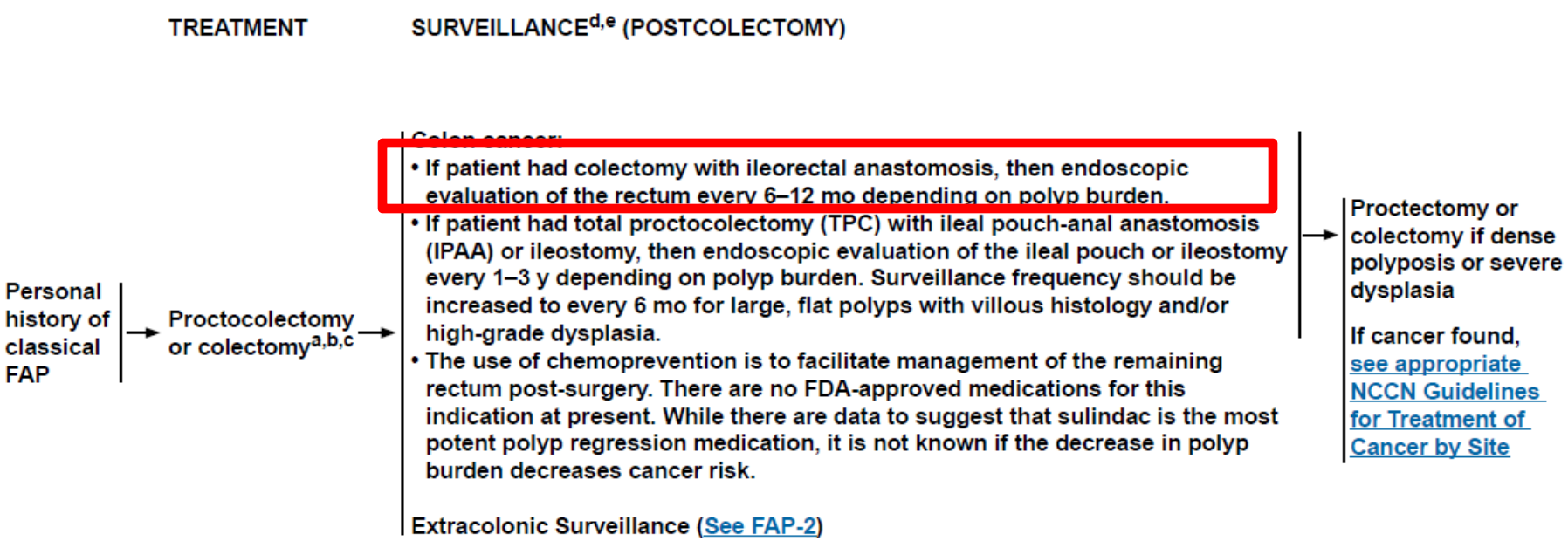
**CLASSICAL FAP TREATMENT AND SURVEILLANCE: PERSONAL HISTORY**



# Kolorektal Kanserler Tarama Yöntemleri

## Familyal Adenomatozis Polipozis

National Comprehensive Cancer Network®

### NCCN Guidelines Version 2.2015
### Familial Adenomatous Polyposis

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**CLASSICAL FAP SURVEILLANCE: PERSONAL HISTORY**

**SURVEILLANCE[d,e] (POSTCOLECTOMY)**

Extracolonic:

- Duodenal or periampullary cancer: Upper endoscopy (including side-viewing examination) starting at age 20–25 y. Consider baseline upper endoscopy earlier, if colectomy before age 20 y. → See Duodenoscopic Findings (FAP-3)
- Gastric cancer: Examine stomach at time of upper endoscopy.
  - Fundic gland polyps occur in a majority of FAP patients, and focal low grade dysplasia can occur but is typically non-progressive. For this reason, special screening or surgery should only be considered in the presence of high-grade dysplasia.
  - Non-fundic gland polyps should be managed endoscopically if possible. Patients with polyps that cannot be removed endoscopically but with high-grade dysplasia or invasive cancer detected on biopsy should be referred for gastrectomy.
- Thyroid cancer: Annual thyroid examination, starting in late teenage years. Annual thyroid ultrasound may be considered, though data to support this recommendation are lacking.
- CNS cancer: An annual physical examination; due to limited data, no additional screening recommendation is possible at this time.
- Intra-abdominal desmoids: Annual abdominal palpation. If family history of symptomatic desmoids, consider abdominal MRI or CT 1–3 y post-colectomy and then every 5–10 y. Suggestive abdominal symptoms should prompt immediate abdominal imaging.
- Small bowel polyps and cancer: Consider adding small bowel visualization to CT or MRI for desmoids as outlined above, especially if duodenal polyposis is advanced.
- Hepatoblastoma: No recommendations have been made for FAP; however, there are other situations where the high risk for hepatoblastoma has been observed and the following recommendations have been considered:
  - Liver palpation, abdominal ultrasound, and measurement of AFP, every 3–6 mo, during the first 5 y of life. Screening in a clinical trial is preferred.
- Pancreatic cancer: Due to limited data, no screening recommendation is possible at this time.

# Akciğer Kanserine Yönelik Tarama Testi

- Low-dose helical computed tomography (CT)
- 55-74 Yaşları arasında, 30 yıl/paket sigara içen bireylere önerilir
- Yılda bir yapılması önerilir
- The National Lung Screening Trial (NLST) çalışması NEJM 2011 tarihinde yayınlaması ile kavuzlara girmiştir.
- Bu çalışmaya göre düşük doz helikal tomografi ile semptom , bulgu ve akciğer kanseri tanısı olmayan bireylerde tarama ile akciğer kanserine bağlı ölüm %15-20 oranında daha az görülmektedir.
- Düşük doz helikal tomografi ile 1000 taramada %24.2 , PA akciğer ile taramada %6.9 oranında akciğer kanseri erken tanısı konmuş.
- Akciğer adeno ve skuamöz kanser erken evrede saptanmış, fakat küçük hücreli akciğer kanseri erken evre tespit edilme oranı çok düşük oranda saptanmış.
- Düşük doz helikal tomografi ile 1000 kişiye uygulanan tarama ile 3 kansere bağlı ölüm engellenmiştir.

# Akciğer Kanserine Yönelik Tarama Testi Handikapları

- Yıllık akciğer kanseri taraması yapılan bireylerde
- Düşük doz helical BT %39.1
- PA akciğer kolunda %16 şüpheli bulgu saptanmış
- Bu bireylerde ileri tetkik yapılma zorunluluğunda kalınmış

# Akciğer Kanserine Yönelik Tarama Testi

## Patient and Physician Guide: National Lung Screening Trial (NLST)

**What is the purpose of this guide?**
To explain the benefits and harms of low-dose computed tomography (CT) screening for lung cancer in people at high risk for the disease. The NLST showed a reduction in deaths from CT screening compared to chest X-ray screening. The Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial recently showed that chest X-ray screening (compared to no screening) did NOT reduce the chance of dying from lung cancer.

**Who participated in the NLST?**
Current or former cigarette smokers within the past 15 years, 55 to 74 years of age, with at least 30 pack-years of smoking [Pack-years = packs per day x number of years smoking]. Participants must have had no symptoms or signs of lung cancer or other serious medical conditions, and be medically fit for surgery.

## Study Findings: Low-dose CT versus Chest X-ray screening

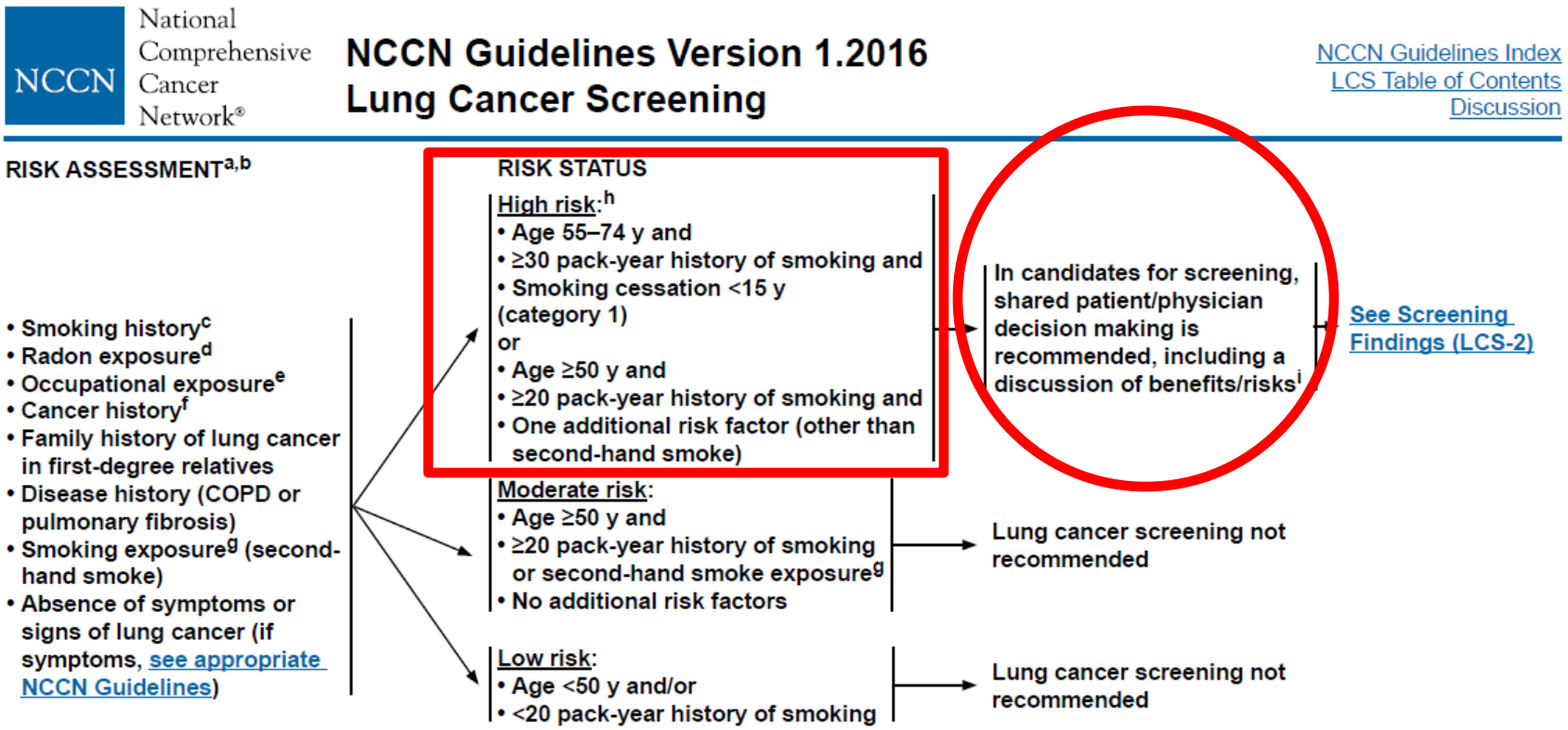
53,454 current and former smokers were randomly assigned to be screened once a year for 3 years with low-dose CT or chest X-ray. Here's what happened after **an average of 6.5 years**:

| | **Low-dose CT** 26,722 people | | **Chest X-ray** 26,732 people |
|---|---|---|---|
| **Benefit: How did CT scans help compared to chest X-ray, an ineffective screening test?** | | | |
| 3 in 1,000 fewer **died from lung cancer** | 18 in 1,000 | *versus* | 21 in 1,000 |
| 5 in 1,000 fewer **died from all causes** | 70 in 1,000 | *versus* | 75 in 1,000 |
| **Harm: What problems did CT scans cause compared to chest X-ray?** | | | |
| 223 in 1,000 more had at least one **false alarm** | 365 in 1,000 | *versus* | 142 in 1,000 |
| 18 in 1,000 more had a **false alarm leading to an invasive procedure,** such as bronchoscopy, biopsy, or surgery | 25 in 1,000 | *versus* | 7 in 1,000 |
| 2 in 1,000 more had a **major complication** from Invasive procedures | 3 in 1,000 | *versus* | 1 in 1,000 |

# Akciğer Kanserine Yönelik Tarama Testi

- USPSTF yıllık düşük doz helikal thoraks BT aşağıdaki bireylere önerir
- 55–80 yaşları arasında ,
- 30 yıl/paket sigara içen ve içmekte olan
- Yada 30 yıl sigara içen ve 15 yıl içinde bırakan
- Yaşam beklentisi uzun, ciddi sağlık problemi olmayan,
- Küratif akciğer kanseri cerrahisine uygun ve istekli bireylere önerir
- Öneri derecesi:  Grade B, orta düzeyde yarar.

# Akciğer Kanserine Yönelik Tarama Testi



# Meme Kanseri Risk Faktörleri

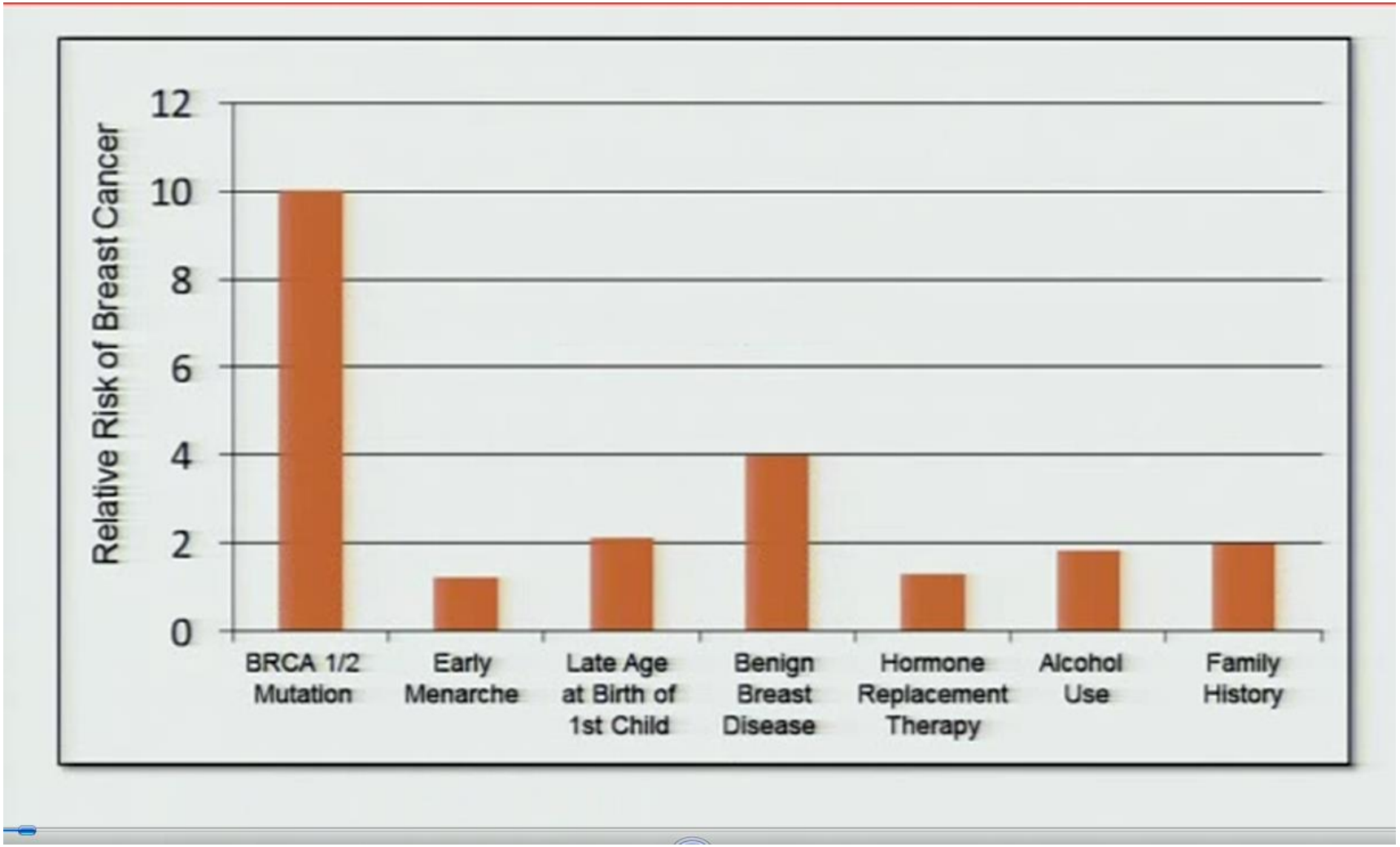
- İleri Yaş
- Meme kanseri öyküsü, bening meme hastalıkları öyküsü
- Ailesel meme kanseri öyküsü
- Genetik yatkınlık
- Endojen östrojen maruziyetti
- Yoğun meme dokusuna sahip olmak
- İlaç şeklinde verilen östrojen bazlı tedaviler
- Göğüs bölgesine radyoterapi almak
- Obezite
- Alkol tüketimi

# Meme Kanseri Risk Faktörleri

## Age-specific probabilities of developing invasive breast cancer

| If current age is ... | The probability of devloping breast cancer in the next 10 years is: | or 1 in: |
|---|---|---|
| 20 | 0.06% | 1,681 |
| 30 | 0.43% | 232 |
| 40 | 1.45% | 69 |
| 50 | 2.38% | 42 |
| 60 | 3.45% | 29 |
| 70 | 3.74% | 27 |
| **Lifetime risk** | 12.15% | 8 |

# Meme Kanseri Risk Faktörleri



# Meme Kanseri Risk Faktörleri

| Benign Breast Disease | | | |
|---|---|---|---|
| No Risk | RR 1.5-2 | | RR 3-5 |
| Cysts | Papilloma | Atypical Ductal Hyperplasia | |
| Duct ecatsia | Sclerosing adenosis | Atypical Lobular Hyperplasia | |
| Fibroadenoma | | | LCIS |
| Mastitis | | | DCIS |
| Fibrosis | | | |

Arpino G, et al. *Ann Intern Med.* 2005;143:446-457.
Travis LB, et al. *J Natl Cancer Inst.* 2005;97:1428-1437.

# Meme Kanseri Tarama Yöntemleri

## Mamografi

- Çok sayıda çalışma yıllık mamografi ile 40–74 yaşları arasında tarama ile meme kanserine bağlı mortalitenin %15–20 oranında azaldığı gösterilmiştir
- Özelikle 50 yaş sonrası bu yarar daha belirgin
- 40 yaş öncesi mamografi ile yapılan taramada sağkalım yararı gösterilmemiş.

# Meme Kanseri Tarama Yöntemleri
# Mamografi

**Handikap–Yalancı Pozitiflik**

- Genç yaş
- Daha önce meme biyopsisi
- Aile öyküsü
- Östrojen bazlı tedavi görenlerde
- Yalancı pozitifliğe bağlı ek test
- Hasta üzerinde oluşturduğu stres
- Armış maliyet

# Meme Kanseri Tarama Yöntemleri
# Mamografi

## Overdiagnosis – Overtreatment

- Ductal carcinoma in situ gibi invazif olmayan kanserlerin mamografide saptanması
- Bu hastaların bir kısmında, hastanın hayat boyu sorun yaratacak invazif kanser gelişmeyeceğine rağmen tedavi edime zorunluluğu

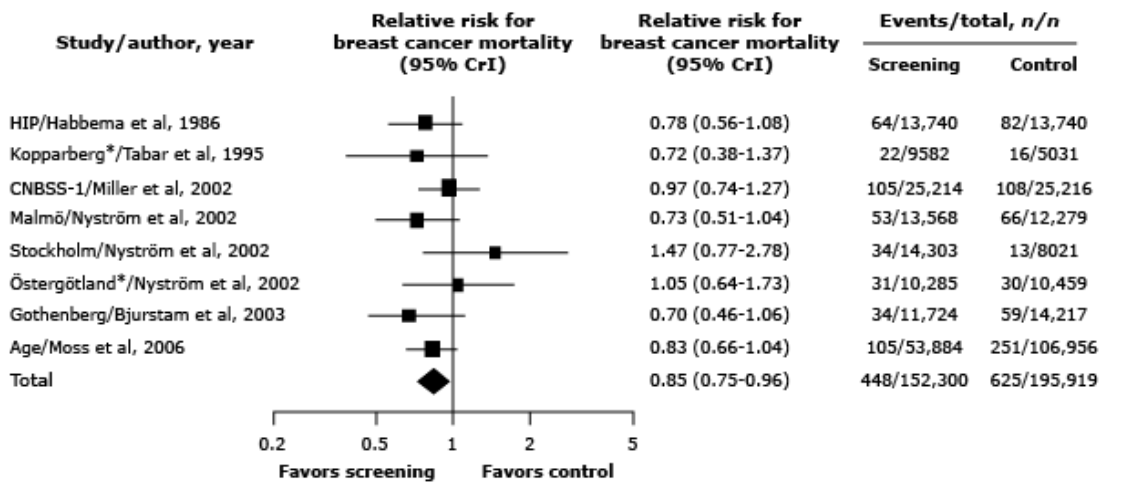
# Meme Kanseri Tarama Yöntemleri
## Mamografi –Handikaplar

- **Yaklaşık olarak %20 yalancı negatiflik mevcut**
  - Genç yaş
  - Meme yapısı yoğun olanlarda daha yüksek
- Meme kanserine bağlı ölüme neden olmayacak indolent erken kanserlerin saptanması buna bağlı ek tanı ve tedaviler
- Rutin taramalara bağlı **X** ışınlarına maruziyet ve bunun olası zararları

# Meme Kanseri Tarama Yöntemleri

## Mamografi

**Pooled relative risk for breast cancer mortality from mammography screening trials compared with control for women aged 39 to 49 years**




CNBSS-1: Canadian National Breast Screening Study-1; CrI: credible interval; HIP: Health Insurance Plan of Greater New York; %: percent.
* Swedish Two-County trial.

*Reproduced with permission from: Nelson HD, Tyne K, Naik A, Bougatsos B, Chan BK, Humphrey L. Screening for Breast Cancer: An Update for the US Preventive Services Task Force. AHRQ Publication No. 10-05142-EF-1. November 2009. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/clinic/uspstf09/breastcancer/brcanupfig1.htm.*

**MAMOGRAFİ İLE YAPILAN TARAMA İLE**

**39–49 YAŞLARI ARASINDA MEME KANSERİNE BAĞLI ÖLÜMLER %15 AZALTIR**

# Meme Kanseri Tarama Yöntemleri

## Mamografi

*Table 1.* Pooled RRs for Breast Cancer Mortality From Mammography Screening Trials for All Ages

| Age | Trials Included, *n* | RR for Breast Cancer Mortality (95% CrI) | NNI to Prevent 1 Breast Cancer Death (95% CrI) |
|---|---|---|---|
| 39–49 y | 8* | 0.85 (0.75–0.96) | 1904 (929–6378) |
| 50–59 y | 6† | 0.86 (0.75–0.99) | 1339 (322–7455) |
| 60–69 y | 2‡ | 0.68 (0.54–0.87) | 377 (230–1050) |
| 70–74 y | 1§ | 1.12 (0.73–1.72) | Not available |

CrI = credible interval; NNI = number needed to invite to screening; RR = relative risk.

* Health Insurance Plan of Greater New York (27), Canadian National Breast Screening Study-1 (28), Stockholm (26), Malmö (26), Swedish Two-County trial (2 trials) (26, 31), Gothenburg trial (30), and Age trial (29).

† Canadian National Breast Screening Study-1 (28), Stockholm (26), Malmö (26), Swedish Two-County trial (2 trials) (26, 31), and Gothenburg trial (30).

‡ Malmö (26) and Swedish Two-County trial (Östergötland) (26).

§ Swedish Two-County trial (Östergötland) (26).

**39–49 YAŞLARI ARASINDA MEME KANSERİNE BAĞLI 1 ÖLÜMÜ AZALTMAK İÇİN 1904 TARAMA YAPMAK LAZIM**

# Meme Kanseri Tarama Yöntemleri

## Mamografi–Olası Zararlı Sonuçları

**Benefit-harm trade-off for a 10-year course of annual screening mammography for women starting at age 40, 50, and 60 years**

| Benefits (lower and upper-bound estimates) | Harms (lower and upper-bound estimates) |
|---|---|
| **Among 1000 *40-year-old* women undergoing annual mammography for 10 years:** | |
| 0.1-1.6 women will avoid dying from breast cancer | 510-690 women will have at least 1 "false alarm" (60-80 of whom will undergo a biopsy) |
| | ?-11 women will be overdiagnosed and treated needlessly with surgery, radiation, and/or chemotherapy |
| **Among 1000 *50-year-old* women undergoing annual mammography for 10 years:** | |
| 0.3-3.2 women will avoid dying from breast cancer | 490-670 women will have at least 1 "false alarm" (70-100 of whom will undergo a biopsy) |
| | 3-14 women will be overdiagnosed and treated needlessly with surgery, radiation, and/or chemotherapy |
| **Among 1000 *60-year-old* women undergoing annual mammography for 10 years:** | |
| 0.5-4.9 women will avoid dying from breast cancer | 390-540 women will have at least 1 "false alarm" (50-70 of whom will undergo a biopsy) |
| | 6-20 women will be overdiagnosed and treated needlessly with surgery, radiation, and/or chemotherapy |

Reducing the frequency from annual to every 2 years has been demonstrated to substantially reduce the harm of false alarms and would be expected to reduce the harm of overdiagnosis.

# Meme Kanseri Tarama Yöntemleri

## Mamografi

**Government/society recommendations for routine mammographic screening in women at average risk**

| Group (date) | Frequency of screening (years) | Initiation of screening | | |
|---|---|---|---|---|
| | | 40 to 49 years of age | 50 to 69 years of age | ≥70 years of age |
| **Government-sponsored groups** | | | | |
| US Preventive Services Task Force (2009)[1] | 2 | Individualize* | Yes | Yes, to age 74 |
| Canadian Task Force on Preventive Health Care (2011)[2] | 2 to 3 | Recommend against* | Yes | Yes, to age 74 |
| National Health Service, United Kingdom (2013)[3] | 3 | Yes, start age 47 | Yes | Yes, to age 73 |
| **Medical societies** | | | | |
| American College of Obstetricians and Gynecologists (2011)[4] | 1 | Yes | Yes | Yes¶ |
| American College of Physicians (2015)[5] | 1 to 2 | Individualize* | Yes | Yes, to age 74 |
| American Academy of Family Physicians (2009)[6] | 2 | Individualize* | Yes | Yes, to age 74 |
| American Cancer Society (2015)[7] | 1 year age 45 to 54 | Yes, start age 45 | Yes | YesΔ |
| | 2 years age ≥55 | | | |
| American College of Radiology (2013)[8] | 1 | Yes | Yes | Yes◇ |
| **Coalitions** | | | | |
| National Comprehensive Cancer Network (2014)[9] | 1 | Yes | Yes | Yes |

* Women should be counseled about the harms and benefits of mammography; individualized decision based on risks and patient preference.
¶ Discuss with doctor and individualize decision after age 75.
Δ If in good health and life expectancy >10 years.
◇ Individualize to current health and life expectancy; if a woman is in reasonably good health and would be a candidate for treatment, then should continue screening.

# Meme Kanseri Tarama Yöntemleri

## Mamografi –Yıllık? İki Yılda bir?

**Chances of breast cancer–related outcomes among 1000 women screened annually or biennially, starting at age 40 or 50 and continuing through age 69 or 74**

| Screening program | | | Cumulative consequences of screening program | | | |
|---|---|---|---|---|---|---|
| **Mammogram frequency** | **Starting age** | **Ending age** | **Lives saved, number** | **Life-yrs gained, number** | **False-positive mammograms, number** | **Unnecessary biopsies, number** |
| **Annual** | | | | | | |
| | 40 | 69 | 8.3 | 164 | 2250 | 158 |
| | 50 | 69 | 7.3 | 132 | 1350 | 95 |
| | 40 | 74 | 10.5 | 188 | 2470 | 173 |
| | 50 | 74 | 9.5 | 156 | 1570 | 110 |
| **Biennial** | | | | | | |
| | 40 | 69 | 6.1 | 120 | 1250 | 88 |
| | 50 | 69 | 5.4 | 99 | 780 | 55 |
| | 40 | 74 | 8.2 | 142 | 1410 | 99 |
| | 50 | 74 | 7.5 | 121 | 940 | 66 |

*Adapted and calculated from: Mandelblatt JS, Cronin KA, Bailey S, et al. Effects of Mammography Screening Under Different Screening Schedules: Model Estimates of Potential Benefits and Harms. Ann Intern Med 2009; 151:738.*

**Yıllık Mamografi, iki Yıllık Mamografiye göre Meme kanserine bağlı ölümü bir miktar azaltıyor. Fakat bunu artmış yanlış pozitif ve artmış gereksiz girişim ile sağlıyor**

# Meme Kanseri Tarama Yöntemleri

## Mamografi –Yıllık? İki Yılda bir?

**Medline ® Abstract for Reference 55**
**of 'Screening for breast cancer: Strategies and recommendations'**

PubMed

Outcomes of screening mammography by frequency, breast density, and postmenopausal hormone therapy.

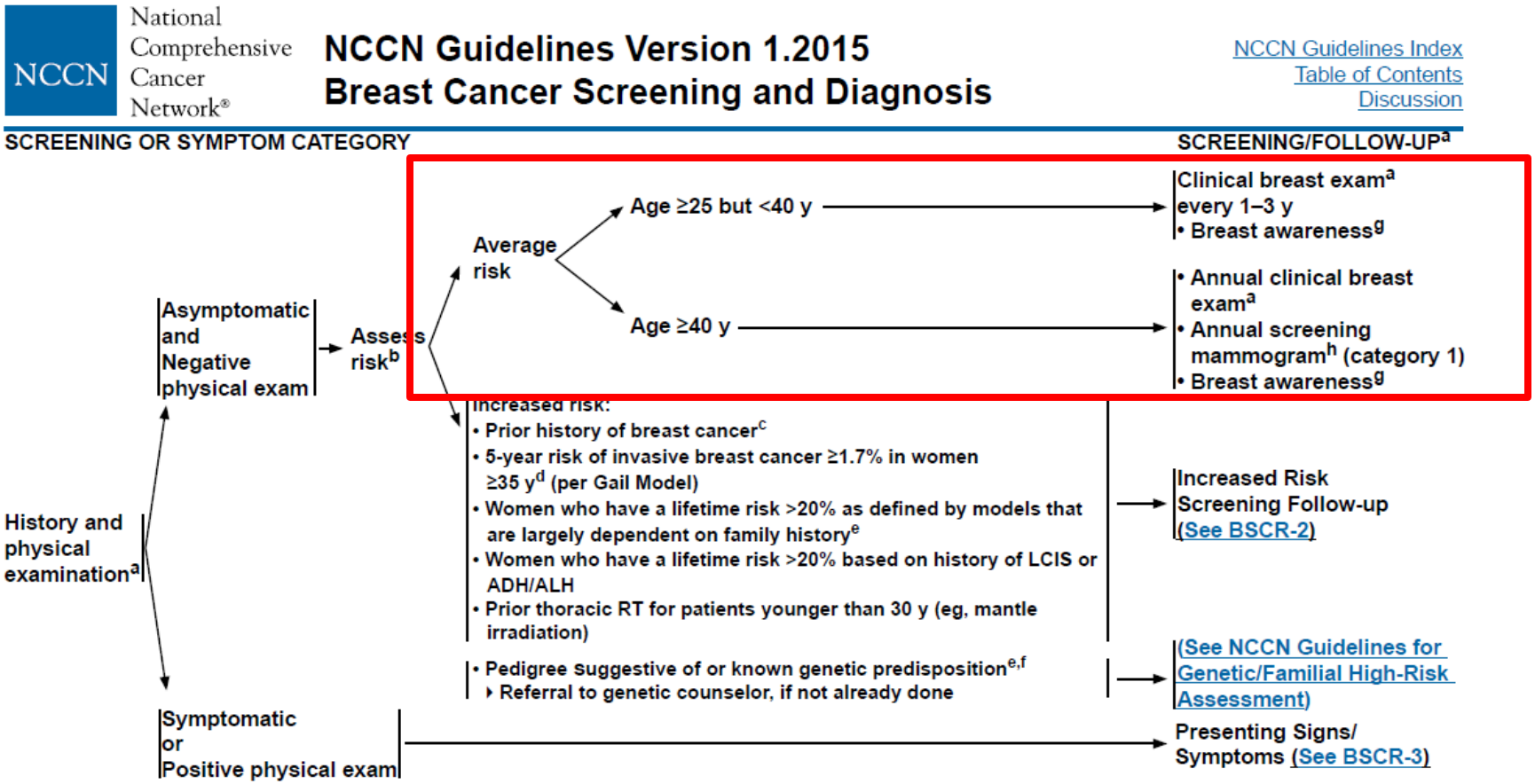
Kerlikowske K, Zhu W, Hubbard RA, Geller B, Dittus K, Braithwaite D, Wernli KJ, Miglioretti DL, O'Meara ES, Breast Cancer Surveillance Consortium

JAMA Intern Med. 2013;173(9):807.

IMPORTANCE Controversy exists about the frequency women should undergo screening mammography and whether screening interval should vary according to risk factors beyond age. OBJECTIVE To compare the benefits and harms of screening mammography frequencies according to age, breast density, and postmenopausal hormone therapy (HT) use. DESIGN Prospective cohort. SETTING Data collected January 1994 to December 2008 from mammography facilities in community practice that participate in the Breast Cancer Surveillance Consortium (BCSC) mammography registries. PARTICIPANTS Data were collected prospectively on 11 474 women with breast cancer and 922 624 without breast cancer who underwent mammography at facilities that participate in the BCSC. MAIN OUTCOMES AND MEASURES We used logistic regression to calculate the odds of advanced stage (IIb, III, or IV) and large tumors (>20 mm in diameter) and 10-year cumulative probability of a false-positive mammography result by screening frequency, age, breast density, and HT use. The main predictor was screening mammography interval. RESULTS Mammography biennially vs annually for women aged 50 to 74 years does not increase risk of tumors with advanced stage or large size regardless of women's breast density or HT use. Among women aged 40 to 49 years with extremely dense breasts, biennial mammography vs annual is associated with increased risk of advanced-stage cancer (odds ratio [OR], 1.89; 95% CI, 1.06-3.39) and large tumors (OR, 2.39; 95% CI, 1.37-4.18). Cumulative probability of a false-positive mammography result was high among women undergoing annual mammography with extremely dense breasts who were either aged 40 to 49 years (65.5%) or used estrogen plus progestogen (65.8%) and was lower among women aged 50 to 74 years who underwent biennial or triennial mammography with scattered fibroglandular densities (30.7% and 21.9%, respectively) or fatty breasts (17.4% and 12.1%, respectively). CONCLUSIONS AND RELEVANCE Women aged 50 to 74 years, even those with high breast density or HT use, who undergo biennial screening mammography have similar risk of advanced-stage disease and lower cumulative risk of false-positive results than those who undergo annual mammography. When deciding whether to undergo mammography, women aged 40 to 49 years who have extremely dense breasts should be informed that annual mammography may minimize their risk of advanced-stage disease but the cumulative risk of false-positive results is high.

**Meme yoğunluğunun fazla oldu 40–49 yaşları arasında, yanlış pozitifliğe rağmen yıllık, 50–74 yaşları arasında iki yılda bir mamografi önerilebilinir.**

# Meme Kanseri Tarama Yöntemleri
# Mamografi



# Meme Kanseri Tarama Yöntemleri
## Dijital—Mamografi

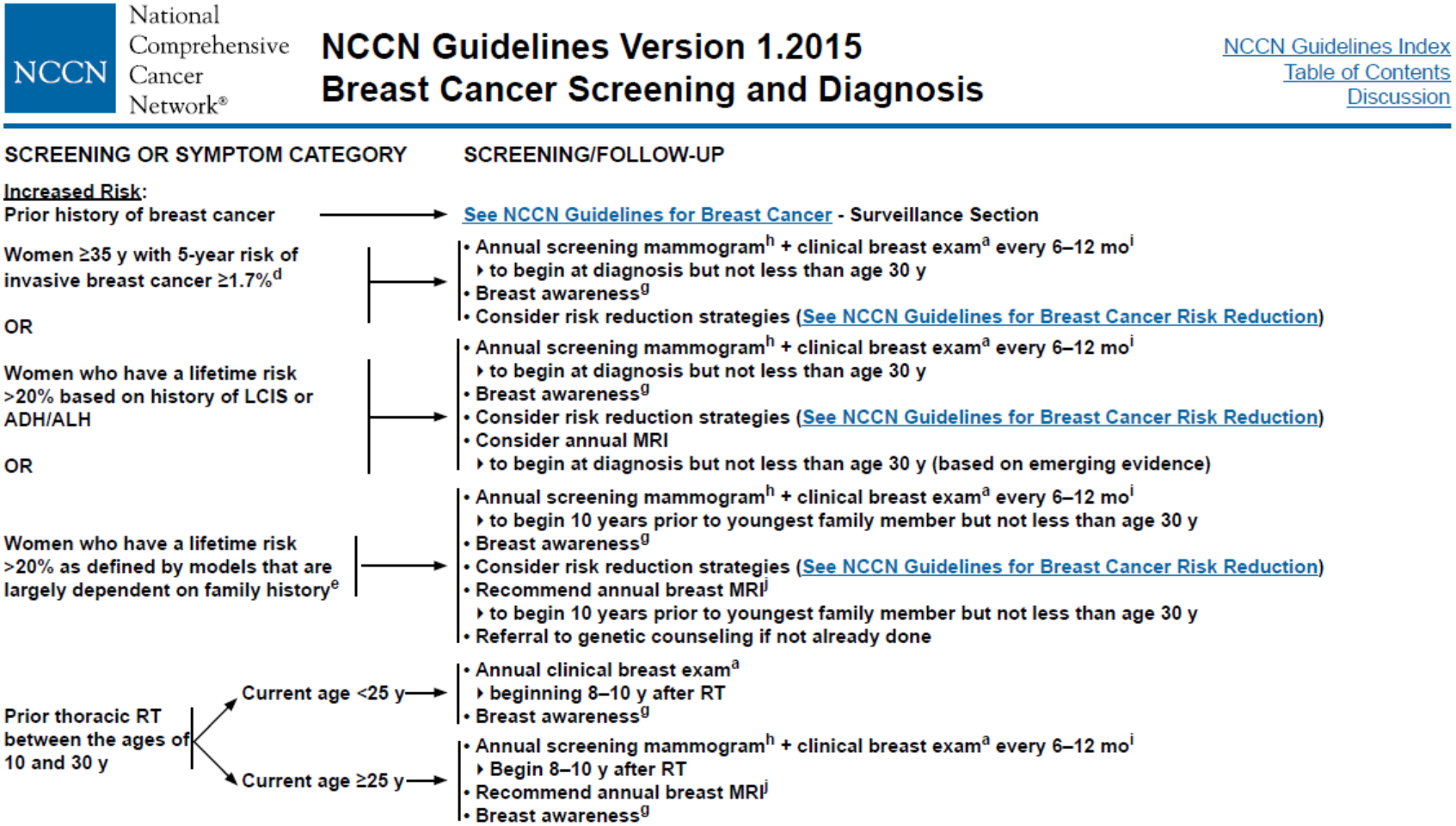
- Dijital mamografi; bilgilerin saklanması, eski ile karşılaştırma olanağının olması ve konsültasyon amaçlı elektronik posta ile yollanması gibi avantajları var
- Fakat normal mamografiye göre meme kanserine bağlı kanser mortalitesini azatlığına dair bulgu yok
- Yoğun(dens) Meme yapısı, BRCA mutasyonu olanlarda daha avantajlı olduğuna dair veriler mevcut.

# Meme Kanseri Tarama Yöntemleri
## 3D—Mamografi

**Three –dimensional(3D) mamografi**

- Üç boyutlu mamografi X ışınlarına maruziyet daha fazladır
- Üç boyutlu mamografinin standart(iki boyutlu) mamografiden üstün olduğunu gösteren karşılaştırmalı çalışma yoktur
- Standart mamografiye göre artı ve eksileri bilinmemektedir.

# Meme Kanseri Tarama Yöntemleri
# Mamografi



# Meme Kanseri Tarama Yöntemleri
## Yüksek Risk Gruplarında

National Comprehensive Cancer Network®

**NCCN Guidelines Version 1.2015**
**Breast Cancer Screening and Diagnosis**

NCCN Guidelines Index
Table of Contents
Discussion

**BREAST SCREENING CONSIDERATIONS**

**RECOMMENDATIONS FOR BREAST MRI SCREENING AS AN ADJUNCT TO MAMMOGRAPHY[3,4]**
**(FOR AGE TO BEGIN SCREENING EXCEPT WHERE NOTED BELOW: SEE BSCR-2)**

**Recommend Annual MRI Screening (Based on Evidence):[5]**
- ***BRCA* mutation, commence at age 25 y**
- **First-degree relative of *BRCA* carrier, but untested: commence at age 25 y**
- **Lifetime risk 20% or greater, as defined by models that are largely dependent on family history[6]**

**Recommend Annual MRI Screening (Based on Expert Consensus Opinion):[7]**
- **Radiation to chest between age 10 and 30 years**
- **Li-Fraumeni syndrome[7] and first-degree relatives**
- **Cowden and Bannayan-Riley-Ruvalcaba syndromes[8] and first-degree relatives**

- **Consider MRI screening for LCIS and ALH/ADH based on emerging evidence**

**Insufficient Evidence to Recommend for or Against MRI Screening:[9]**
- **Lifetime risk 15%–20%, as defined by models that are largely dependent on family history[6]**
- **Heterogeneously or extremely dense breast on mammography**
- **Women with a personal history of breast cancer,[10] including ductal carcinoma in situ (DCIS)**

**Recommend Against MRI Screening (Based on Expert Consensus Opinion):**
- **Women at <15% lifetime risk**

# BRCA1 ve BRCA2 Kimlere Önerilmeli

**United States Preventive Services Task Force 2013 tarihinde BRCA testi kimlere önerilir.**

- **50 yaş öncesi meme kanseri tanısı alan kadın hasta**
- **İkinci primer meme kanseri gelişen kadın hasta**
- **Meme ve over kanseri birlikteliği olan ya da ailesinde meme over kanseri öyküsü olan kadın hasta**
- **Ailesinin bir bireyinde iki ve daha fazla BRCA1 ve BRCA2 ilişkili kanser olan kadın**
- **Erkek meme kanseri**

# Impact of Angelina Jolie's Story on Genetic Testing



RESEARCH AND ADVOCACY

More in this section

- Introduction to Cancer Research
- Research Summaries
- ASCO Annual Meetings
- ASCO Care and Treatment Recommendations for Patients
- patientACCESS
- ASCO Virtual Lectures
- Health Disparities and Cancer
- For Patient Advocates
- Public Policy Advocacy

## 2014 Breast Cancer Symposium Highlights on the Impact of Angelina Jolie's Story on Genetic Testing, with Harold Burstein, MD, PhD

*Breast Cancer Symposium*
*September 5, 2014*

*The following is a transcript of a podcast led by Dr. Harold Burstein, who discusses one study highlighted at the 2014 Breast Cancer Symposium that presents research on the impact that Angelina Jolie's choice of having surgery to prevent breast cancer had on genetic testing for genes linked to breast cancer risk. Dr. Burstein is an associate professor of medicine at Harvard Medical School and a medical oncologist at Dana-Farber Cancer Institute and Brigham and Women's Hospital. Dr. Burstein is also a member of ASCO's Cancer Communications Committee and Chair of the 2014 Breast Cancer Symposium News Planning Team.*

HAROLD BURSTEIN: This is Dr. Harold Burstein from Dana-Farber Cancer Institute and Harvard Medical School in Boston. Today I'm going to be speaking about the recent study on the impact of Angelina Jolie's choice to have a preventive mastectomy based on results of genetic testing for her hereditary risk of breast cancer.

We live in a culture and a society very much affected by celebrity culture. There is a great interest in the activities of celebrities, and many of them are linked to a variety of philanthropic and other causes that they support. The value of this is unknown in the sense of, does it really affect public awareness, and does it affect philanthropic success? In fact, some recent studies which were summarized in *The New York Times* had suggested that having celebrities link

# Tarama Testler
## BRCA1 ve BRCA2 Pozitif Olanlarda

- BRCA1 ve BRCA2 mutasyonları meme kanserinin %5-10 ve over kanserinin %10-15'inde sorumlu
- BRCA1 pozitif bir kadın 70 yaşına kadar, %55–65 oranında meme kanseri olma riski var
- BRCA2 pozitif olması durumunda, %45 oranında meme kanseri olma riski var.

# Tarama Testler
## BRCA1 ve BRCA2 Pozitif Olanlar

- BRCA1 pozitif bir kadın 70 yaşına kadar, %39 oranında over kanseri olma riski var
- BRCA2 pozitif olması durumunda, %11–17 oranında over kanseri olma riski var.

# Tarama Testler
## BRCA1 ve BRCA2 Pozitif Olanlar

American Cancer Society ve National Comprehensive Cancer Network

- Mamografi ve meme MR ile tarama önerir
- 25–35 yaşları arasında fizik muayene ve tarama önerilir
- MR sensitivitesi yüksek, spesifitesi düşük, yalancı pozitif oranı yüksek. Mamografi, MR'ın göremediği lezyonları ek olarak saptayabilir.
- Bazı çalışma grupları, over kanseri erken teşhisine yönelik, yıllık CA125 ve transvaginal USG önerir. Fakat bu tarama metodun over kanserini erken tespit ettiğine yönelik veriler yoktur.

# Serviks Kanserine Yönelik Tarama Testi

- **United States Preventive Services Task Force (UPSTF9), American Cancer Society, American Society for Colposcopy and Cervical Pathology, American Society for Clinical Pathology**
- Mart 2012 tarihinde konsesus olarak serviks kanserine yönelik tarama testini belirlediler.
- Kadınlarda Pap smear testinin 21–29 yaşında 3 yılda bir yapılmasını,
- 30–65 yaşları arasında Pap smear ve HPV DNA 5 yılda bir bakılması ya da 3 yılda bir Pap smear bakılması önerilir.
- Fakat HIV, immün supresyon olan, dietilsitilbestrol maruziyeti, serviks pre-kanser ya da kanser öyküsü olanlarda 65 yaş sonrası taramaya devam edilmesi önerilir.
- Histerektomi(Uterus ve serviks operasyon ile alınmışsa) yapılan kadılarda tarama gerekmez
- HPV aşısı yapılanlar tarama programına dahil edilmelidir.

# Serviks Kanserine Yönelik Tarama Testi

- Pap smear testinin yanında neden HPV-DNA önerilir
- Pap- Smear serviks skuamöz karsinomunda ki anormaliteyi gösterirken, adeno ca değişimlerini göstermede daha az hasas
- HPV-DNA ile birlikte kullanıldığında adeno ca erken evre yakalama oranı artıyor.

# Serviks Kanserine Yönelik Tarama Testi

**Table 1**
**Summary of Recommendations**

| Population | Page Numbers | Recommended Screening Method* | Management of Screen Results | Comments |
|---|---|---|---|---|
| Aged <21 y | 521-522 | No screening | | HPV testing should not be used for screening or management of ASC-US in this age group |
| Aged 21-29 y | 522-523 | Cytology alone every 3 y | HPV-positive ASC-US† or cytology of LSIL or more severe: Refer to ASCCP guidelines[2]<br>Cytology negative or HPV-negative ASC-US†: Rescreen with cytology in 3 y | HPV testing should not be used for screening in this age group |
| Aged 30-65 y | 523-529 | HPV and cytology "cotesting" every 5 y (preferred) | HPV-positive ASC-US or cytology of LSIL or more severe: Refer to ASCCP guidelines[2]<br>HPV positive, cytology negative:<br>Option 1: 12-mo follow-up with cotesting<br>Option 2: Test for HPV16 or HPV16/18 genotypes<br>• If HPV16 or HPV16/18 positive: refer to colposcopy<br>• If HPV16 or HPV16/18 negative: 12-mo follow-up with cotesting<br>Cotest negative or HPV-negative ASC-US: Rescreen with cotesting in 5 y | Screening by HPV testing alone is not recommended for most clinical settingst |
| | | Cytology alone every 3 y (acceptable) | HPV-positive ASC-US† or cytology of LSIL or more severe: Refer to ASCCP guidelines[2]<br>Cytology negative or HPV-negative ASC-US†: Rescreen with cytology in 3 y | |
| Aged >65 y | 529-531 | No screening following adequate negative prior screening | | Women with a history of CIN2 or a more severe diagnosis should continue routine screening for at least 20 y |
| After hysterectomy | 531 | No screening | | Applies to women without a cervix and without a history of CIN2 or a more severe diagnosis in the past 20 y or cervical cancer ever |
| HPV vaccinated | 531-533 | Follow age-specific recommendations (same as unvaccinated women) | | |

ASCCP, American Society for Colposcopy and Cervical Pathology; ASC-US, atypical squamous cells of undetermined significance; CIN2, cervical intraepithelial neoplasia grade 2; HPV, human papillomavirus; LSIL, low-grade squamous intraepithelial lesion.
* Women should not be screened annually at any age by any method.
† ASC-US cytology with secondary HPV testing for management decisions.

# Prostat Kanseri

- Otopsi serileri başka nedenlerle ölen erkeklerde %60–70 oranında prostat kanseri saptanmış.
- Yaşam boyunca erkeklerin %15-20 oranında prostat kanseri tanısı konuyor ve yalnızca %3 prostat kanserine bağlı ölüyor
- Düşük riskli prostat kanserli hastalarda cerrahi ya da hiçbir şey yapmadan gözlem arasında 20 yıllık takiplerde bir fark yok

# Prostat Kanseri
## Tarama amaçlı PSA

- 1986 yılında prostat kanserinin seyrini takip etmek için PSA kullanımı FDA onayı aldı.
- 1994 yılında rektal tuşe ile birlikte PSA kullanımı semptomu olmayan erkeklerde tarama testi olarak kullanımına onay verildi.
- PSA semptomu olan hastalarda problemin kaynağını anlamada yardımcı olabilir
- Bening prostat hipertrofisi, prostatit durumunda artabilir.

# Prostat Kanseri
## Tarama amaçlı PSA

- Yakın zamana kadar 50 yaş sonrası yılık PSA düzeyi ile tarama öneriliyordu.
- Bazı riskli gruplarda, kardeş ve baba prostat kanseri, tarama yaşı 40-45 olarak öneriliyordu.
- Ama son yapılan çalışmalar PSA taraması ile artmış aşırı tetkik ve girişim buna bağlı artan komplikasyonlar, PSA rutin kullanımını tartışmalı yapmış
- PSA istenecek ise oluşabilecek zarar ve yarar konusunda hasta mutlaka bilgilendirilmelidir.
- PSA 4 ng/ml üstünde olanlarda tekrarlanan test pozitif ise prostat biyopsisi önerilir

# Prostat Kanseri
## PSA–Handikapları

### Overdiagnosis ve Overtreatment

- PSA ile tarama küçük semptomatik olmayan ve indolent gidecek tümörleri saptayabilir
- Buna bağlı gereksiz girişim ve tedavilere neden olabilir
- Yanlış pozitif buna bağlı gereksiz tetkik ve psikolojik stres
- PSA yüksek olanların %25 prostat ca tanısı alıyor
- Yanlış negatif PSA normal aralıkta olmasına rağmen prostat ca olabilir
- İki büyük çalışma %17–50 oranında Overdiagnosis saptanmış

# Prostat Kanseri PSA Tarama
## ERSPC Çalışması

N Engl J Med. 2012 Mar 15;366(11):981-90. doi: 10.1056/NEJMoa1113135.

### Prostate-cancer mortality at 11 years of follow-up.

Schröder FH, Hugosson J, Roobol MJ, Tammela TL, Ciatto S, Nelen V, Kwiatkowski M, Lujan M, Lilja H, Zappa M, Denis LJ, Recker F, Páez A, Määttänen L, Bangma CH, Aus G, Carlsson S, Villers A, Rebillard X, van der Kwast T, Kujala PM, Blijenberg BG, Stenman UH, Huber A, Taari K, Hakama M, Moss SM, de Koning HJ, Auvinen A; ERSPC Investigators.

Collaborators (165)

**Erratum in**
N Engl J Med. 2012 May 31;366(22):2137.

**Abstract**

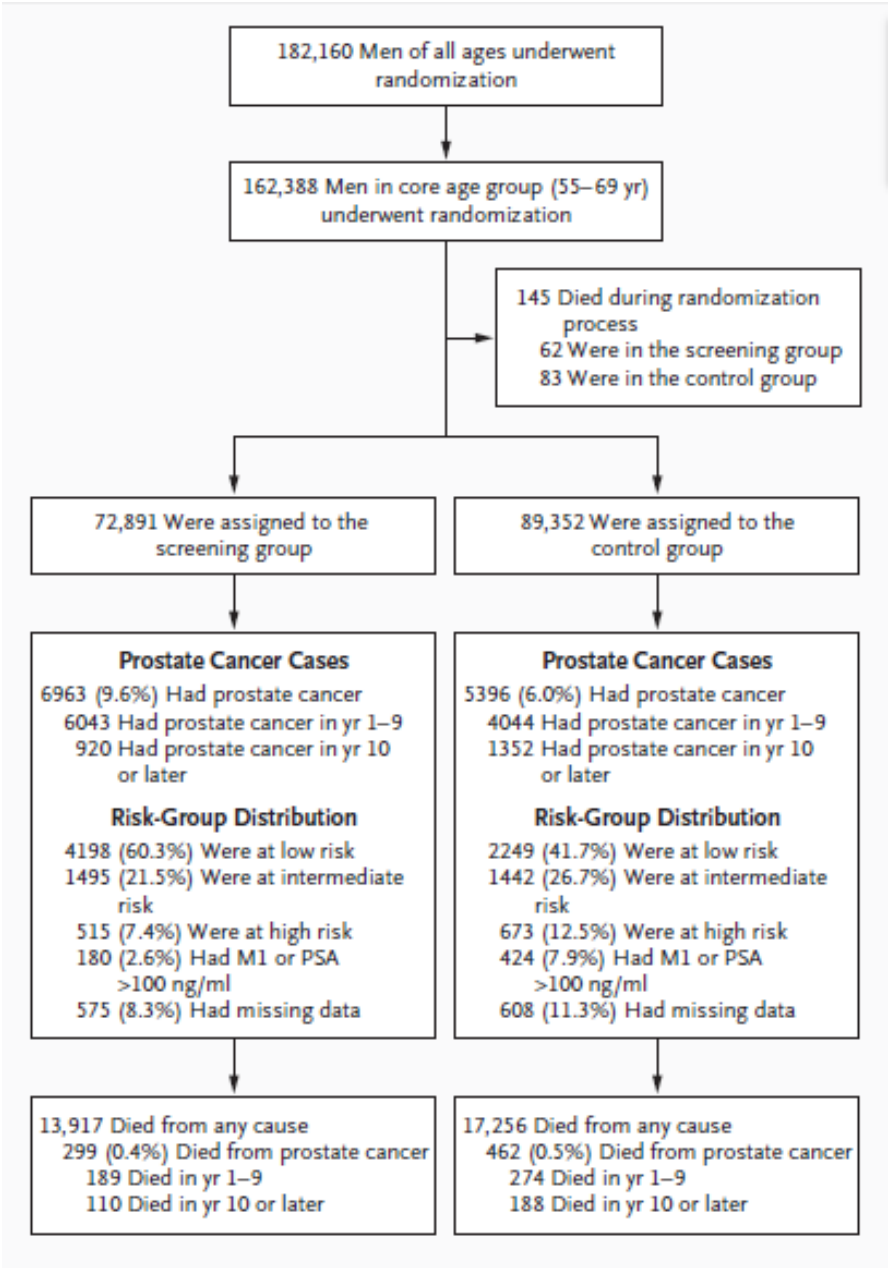
**BACKGROUND:** Several trials evaluating the effect of prostate-specific antigen (PSA) testing on prostate-cancer mortality have shown conflicting results. We updated prostate-cancer mortality in the European Randomized Study of Screening for Prostate Cancer with 2 additional years of follow-up.

**METHODS:** The study involved 182,160 men between the ages of 50 and 74 years at entry, with a predefined core age group of 162,388 men 55 to 69 years of age. The trial was conducted in eight European countries. Men who were randomly assigned to the screening group were offered PSA-based screening, whereas those in the control group were not offered such screening. The primary outcome was mortality from prostate cancer.

**RESULTS:** After a median follow-up of 11 years in the core age group, the relative reduction in the risk of death from prostate cancer in the screening group was 21% (rate ratio, 0.79; 95% confidence interval [CI], 0.68 to 0.91; P=0.001), and 29% after adjustment for noncompliance. The absolute reduction in mortality in the screening group was 0.10 deaths per 1000 person-years or 1.07 deaths per 1000 men who underwent randomization. The rate ratio for death from prostate cancer during follow-up years 10 and 11 was 0.62 (95% CI, 0.45 to 0.85; P=0.003). To prevent one death from prostate cancer at 11 years of follow-up, 1055 men would need to be invited for screening and 37 cancers would need to be detected. There was no significant between-group difference in all-cause mortality.

**CONCLUSIONS:** Analyses after 2 additional years of follow-up consolidated our previous finding that PSA-based screening significantly reduced mortality from prostate cancer but did not affect all-cause mortality. (Current Controlled Trials number, ISRCTN49127736.).

# Prostat Kanseri PSA Tarama: ERSPC Çalışması



# Prostat Kanseri PSA Tarama: ERSPC Çalışması

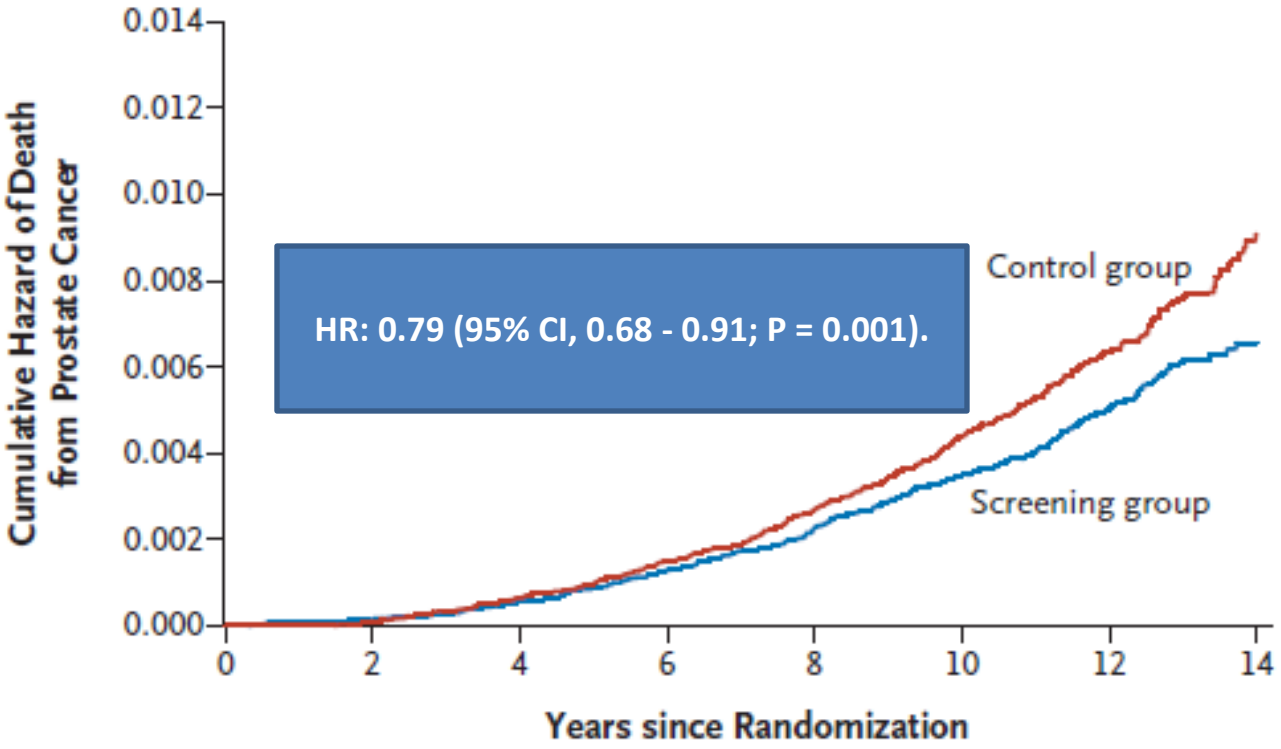



**Figure 2. Cumulative Hazard of Death from Prostate Cancer among Men 55 to 69 Years of Age.**

Values are not included for centers in France because of the short follow-up period (median, 4.6 years). The Nelson–Aalen method was used to calculate the cumulative hazard of death from prostate cancer.

# Prostat Kanseri
## PSA Tarama–Handikapları

**Bir Kırlangıç ile bahar gelmez**

**Bir tesadüf, iki bahar geliyor**

# Prostat Kanseri
# PLCO Çalışması

Abstract ▾ Send to: ▾

J Natl Cancer Inst. 2012 Jan 18;104(2):125-32. doi: 10.1093/jnci/djr500. Epub 2012 Jan 6.

## Prostate cancer screening in the randomized Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial: mortality results after 13 years of follow-up.

Andriole GL[1], Crawford ED, Grubb RL 3rd, Buys SS, Chia D, Church TR, Fouad MN, Isaacs C, Kvale PA, Reding DJ, Weissfeld JL, Yokochi LA, O'Brien B, Ragard LR, Clapp JD, Rathmell JM, Riley TL, Hsing AW, Izmirlian G, Pinsky PF, Kramer BS, Miller AB, Gohagan JK, Prorok PC; PLCO Project Team.

⊕ Collaborators (18)

⊕ Author information

### Abstract

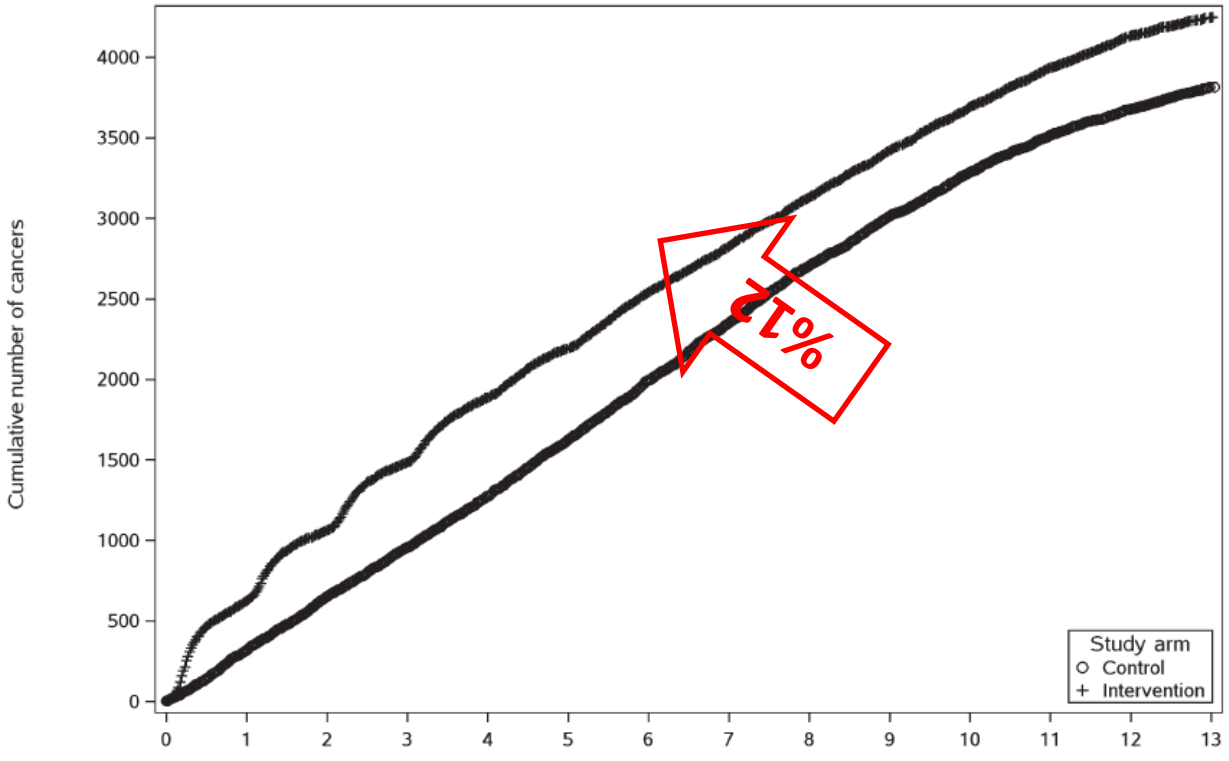
**BACKGROUND:** The prostate component of the Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial was undertaken to determine whether there is a reduction in prostate cancer mortality from screening using serum prostate-specific antigen (PSA) testing and digital rectal examination (DRE). Mortality after 7-10 years of follow-up has been reported previously. We report extended follow-up to 13 years after the trial.

**METHODS:** A total of 76 685 men, aged 55-74 years, were enrolled at 10 screening centers between November 1993 and July 2001 and randomly assigned to the intervention (organized screening of annual PSA testing for 6 years and annual DRE for 4 years; 38 340 men) and control (usual care, which sometimes included opportunistic screening; 38 345 men) arms. Screening was completed in October 2006. All incident prostate cancers and deaths from prostate cancer through 13 years of follow-up or through December 31, 2009, were ascertained. Relative risks (RRs) were estimated as the ratio of observed rates in the intervention and control arms, and 95% confidence intervals (CIs) were calculated assuming a Poisson distribution for the number of events. Poisson regression modeling was used to examine the interactions with respect to prostate cancer mortality between trial arm and age, comorbidity status, and pretrial PSA testing. All statistical tests were two-sided.

**RESULTS:** Approximately 92% of the study participants were followed to 10 years and 57% to 13 years. At 13 years, 4250 participants had been diagnosed with prostate cancer in the intervention arm compared with 3815 in the control arm. Cumulative incidence rates for prostate cancer in the intervention and control arms were 108.4 and 97.1 per 10 000 person-years, respectively, resulting in a relative increase of 12% in the intervention arm (RR = 1.12, 95% CI = 1.07 to 1.17). After 13 years of follow-up, the cumulative mortality rates from prostate cancer in the intervention and control arms were 3.7 and 3.4 deaths per 10 000 person-years, respectively, resulting in a non-statistically significant difference between the two arms (RR = 1.09, 95% CI = 0.87 to 1.36). No statistically significant interactions with respect to prostate cancer mortality were observed between trial arm and age (P (interaction) = .81), pretrial PSA testing (P(interaction) = .52), and comorbidity (P(interaction) = .68).

**CONCLUSIONS:** After 13 years of follow-up, there was no evidence of a mortality benefit for organized annual screening in the PLCO trial compared with opportunistic screening, which forms part of usual care, and there was no apparent interaction with age, baseline comorbidity, or pretrial PSA testing.

# Prostat Kanseri
# PSA Tarama-PLCO Çalışması

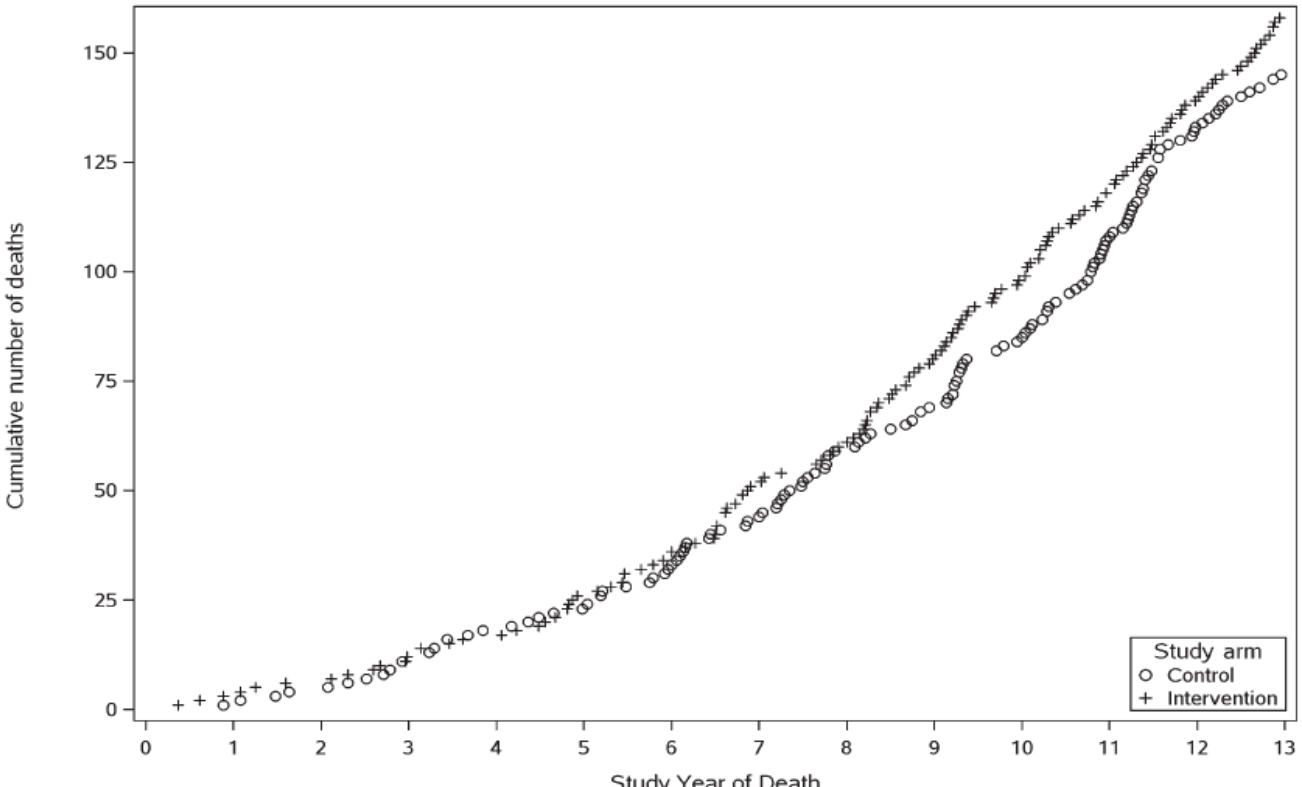



| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cumulative cancers - I | 622 | 1060 | 1485 | 1886 | 2190 | 2541 | 2830 | 3132 | 3426 | 3698 | 3939 | 4138 | 4250 |
| Cumulative PY - I | 37560 | 74193 | 109937 | 144808 | 178854 | 212064 | 244376 | 275790 | 306070 | 334050 | 357928 | 377196 | 392022 |
| Cumulative cancers - C | 313 | 648 | 953 | 1274 | 1624 | 1997 | 2351 | 2710 | 3021 | 3288 | 3521 | 3681 | 3815 |
| Cumulative PY - C | 37674 | 74605 | 110719 | 145980 | 180338 | 213709 | 246077 | 277429 | 307582 | 335355 | 359107 | 378262 | 392977 |

**Figure 2.** Cumulative number of prostate cancers in the intervention and control arms from year 1 to year 13. C = control arm; I = intervention arm; PY = person-years.

# Prostat Kanseri

## PSA Tarama-PLCO Çalışması




| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cumulative deaths - I | 3 | 6 | 12 | 16 | 26 | 36 | 51 | 61 | 80 | 98 | 118 | 140 | 158 | * |
| Cumulative PY - I | 38217 | 76112 | 113629 | 150725 | 187382 | 223541 | 259118 | 294052 | 328048 | 359768 | 387164 | 409535 | 426977 | * |
| Cumulative deaths - C | 1 | 4 | 11 | 18 | 23 | 33 | 44 | 59 | 69 | 85 | 108 | 133 | 145 | * |
| Cumulative PY - C | 38223 | 76132 | 113635 | 150689 | 187278 | 223329 | 258811 | 293631 | 327455 | 358904 | 386109 | 408262 | 425439 | * |

**Figure 3.** Cumulative deaths from prostate cancer in the intervention and control arms from year 1 to year 13. C = control arm; I = intervention arm; PY = person-years.

# Prostat Kanseri
# PSA–Handikapları

Ann Intern Med. 2012 Jul 17;157(2):120-34. doi: 10.7326/0003-4819-157-2-201207170-00459.

## Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement.

Moyer VA; U.S. Preventive Services Task Force.

Collaborators (18)

**Abstract**

**DESCRIPTION:** Update of the 2008 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening for prostate cancer.

**METHODS:** The USPSTF reviewed new evidence on the benefits and harms of prostate-specific antigen (PSA)-based screening for prostate cancer, as well as the benefits and harms of treatment of localized prostate cancer.

**RECOMMENDATION:** The USPSTF recommends against PSA-based screening for prostate cancer (grade D recommendation).This recommendation applies to men in the general U.S. population, regardless of age. This recommendation does not include the use of the PSA test for surveillance after diagnosis or treatment of prostate cancer; the use of the PSA test for this indication is outside the scope of the USPSTF.

**Comment in**

Words of wisdom: Re: Screening for prostate cancer: US Preventive Services Task Force recommendation statement. [Eur Urol. 2013]
Prostate cancer: New PSA screening guideline faces widespread opposition. [Nat Rev Urol. 2012]
Re: Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. [J Urol. 2012]

**Summary for patients in**

Summaries for patients. Screening for prostate cancer: U.S. Preventive Services Task Force recommendation statement. [Ann Intern Med. 2012]

PMID: 22801674 [PubMed - indexed for MEDLINE]

# Prostat Kanseri
# PSA–Handikapları

**Annals of Internal Medicine**

U.S. Preventive Services TASK FORCE
www.USPreventiveServicesTaskForce.org

## SCREENING FOR PROSTATE CANCER

CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION

| | |
|---|---|
| **Population** | **Adult Males** |
| **Recommendation** | **Do not use prostate-specific antigen (PSA)–based screening for prostate cancer.** |
| | **Grade: D** |

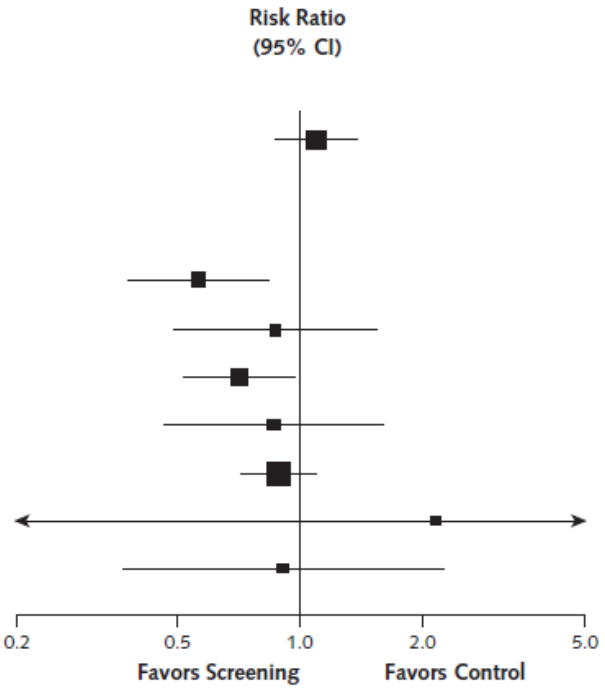
| | |
|---|---|
| Screening Tests | Contemporary recommendations for prostate cancer screening all incorporate the measurement of serum PSA levels; other methods of detection, such as digital rectal examination or ultrasonography, may be included.<br>There is convincing evidence that PSA-based screening programs result in the detection of many cases of asymptomatic prostate cancer, and that a substantial percentage of men who have asymptomatic cancer detected by PSA screening have a tumor that either will not progress or will progress so slowly that it would have remained asymptomatic for the man's lifetime (i.e., PSA-based screening results in considerable overdiagnosis). |
| Interventions | Management strategies for localized prostate cancer include watchful waiting, active surveillance, surgery, and radiation therapy. There is no consensus regarding optimal treatment. |
| Balance of Harms and Benefits | The reduction in prostate cancer mortality 10 to 14 years after PSA-based screening is, at most, very small, even for men in the optimal age range of 55 to 69 years.<br>The harms of screening include pain, fever, bleeding, infection, and transient urinary difficulties associated with prostate biopsy, psychological harm of false-positive test results, and overdiagnosis.<br>Harms of treatment include erectile dysfunction, urinary incontinence, bowel dysfunction, and a small risk for premature death. Because of the current inability to reliably distinguish tumors that will remain indolent from those destined to be lethal, many men are being subjected to the harms of treatment for prostate cancer that will never become symptomatic.<br>The benefits of PSA-based screening for prostate cancer do not outweigh the harms. |
| Other Relevant USPSTF Recommendations | Recommendations on screening for other types of cancer can be found at www.uspreventiveservicestaskforce.org. |

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.

# Prostat Kanseri
## PSA Tarama–Handikapları

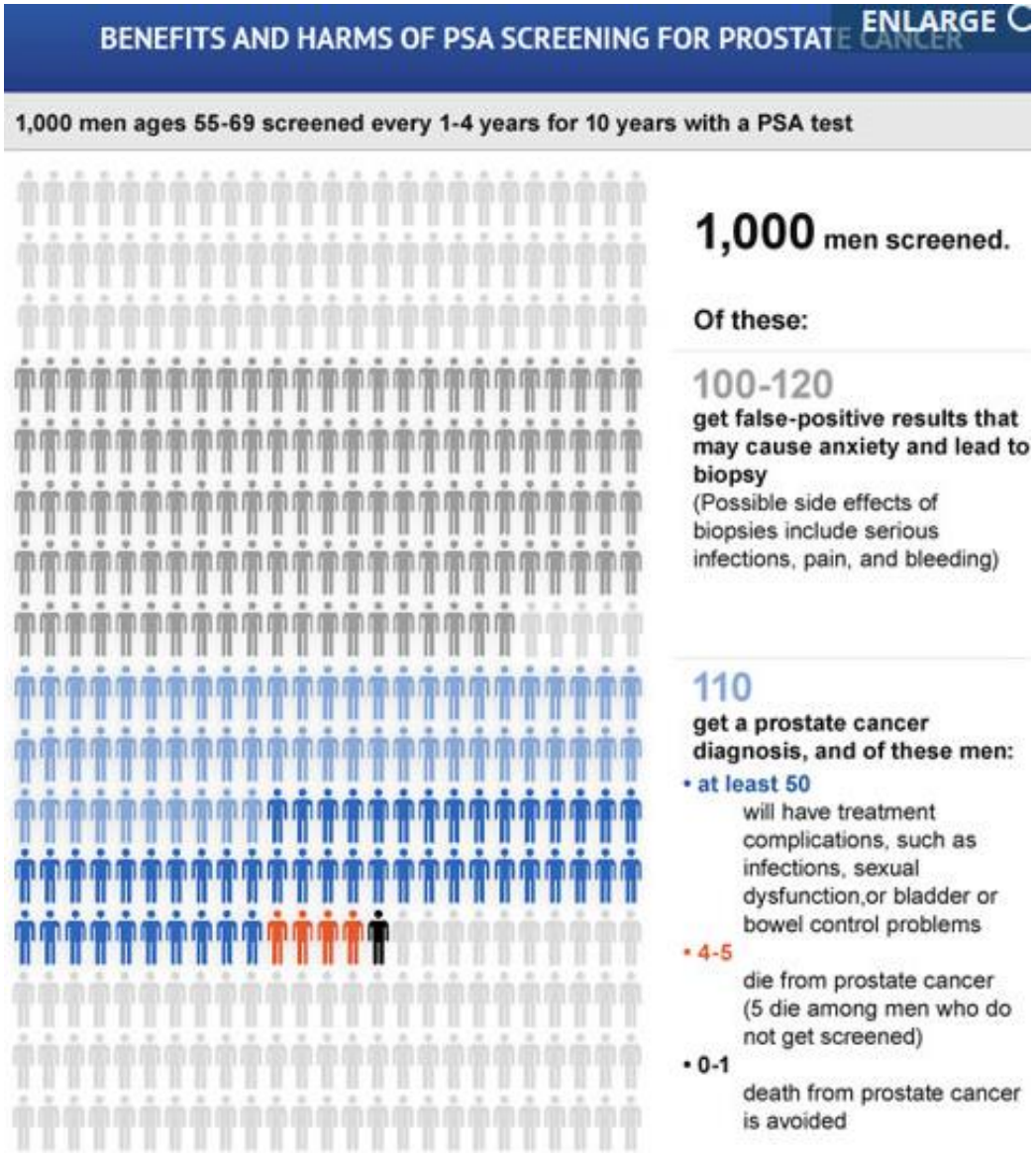
*Figure 2.* Relative risk of prostate cancer death for men screened with PSA versus control participants, by country.

| Country | Screened | | Control | | Risk Ratio (95% CI) |
|---|---|---|---|---|---|
| | Deaths | Total | Deaths | Total | |
| **PLCO trial** | | | | | |
| United States | 158 | 38 340 | 145 | 38 345 | 1.09 (0.87–1.36) |
| **ERSPC trial** | | | | | |
| Sweden | 39 | 5901 | 70 | 5951 | 0.56 (0.38–0.83) |
| Belgium | 22 | 4307 | 25 | 4255 | 0.86 (0.48–1.52) |
| Netherlands | 69 | 17 443 | 97 | 17 390 | 0.71 (0.52–0.96) |
| Italy | 19 | 7266 | 22 | 7251 | 0.86 (0.46–1.58) |
| Finland | 139 | 31 970 | 237 | 48 409 | 0.89 (0.72–1.09) |
| Spain | 2 | 1056 | 1 | 1141 | 2.15 (0.20–23.77) |
| Switzerland | 9 | 4948 | 10 | 4955 | 0.89 (0.36–2.20) |




ERSPC = European Randomized Study of Screening for Prostate Cancer; PLCO = Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial; PSA = prostate-specific antigen.

# Prostat Kanseri
## PSA–Handikapları



# Prostat Kanseri
# PSA–Handikapları



*Table 1.* **What the USPSTF Grades Mean and Suggestions for Practice**

| Grade | Definition | Suggestions for Practice |
|---|---|---|
| A | The USPSTF recommends the service. There is high certainty that the net benefit is substantial. | Offer/provide this service. |
| B | The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. | Offer/provide this service. |
| C | *Note: The following statement is undergoing revision.* Clinicians may provide this service to selected patients depending on individual circumstances. However, for most persons without signs or symptoms there is likely to be only a | Offer/provide this service only if other considerations support offering or providing the service in an individual patient. |
| D | The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. | Discourage the use of this service. |
| I statement | The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. | Read the clinical considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms. |

# Prostat Kanseri
## PSA Tarama

- American Urological Association (AUA)
- American Cancer Society (ACS)

  50-70 Yaşları arasında bireylerin fayda ve zararları konusunda bilgilendirilmesi ve hasta onay verirse yapılması

- ESMO, rutinde önermez, yüksek riskli bireylerde önerilebilir

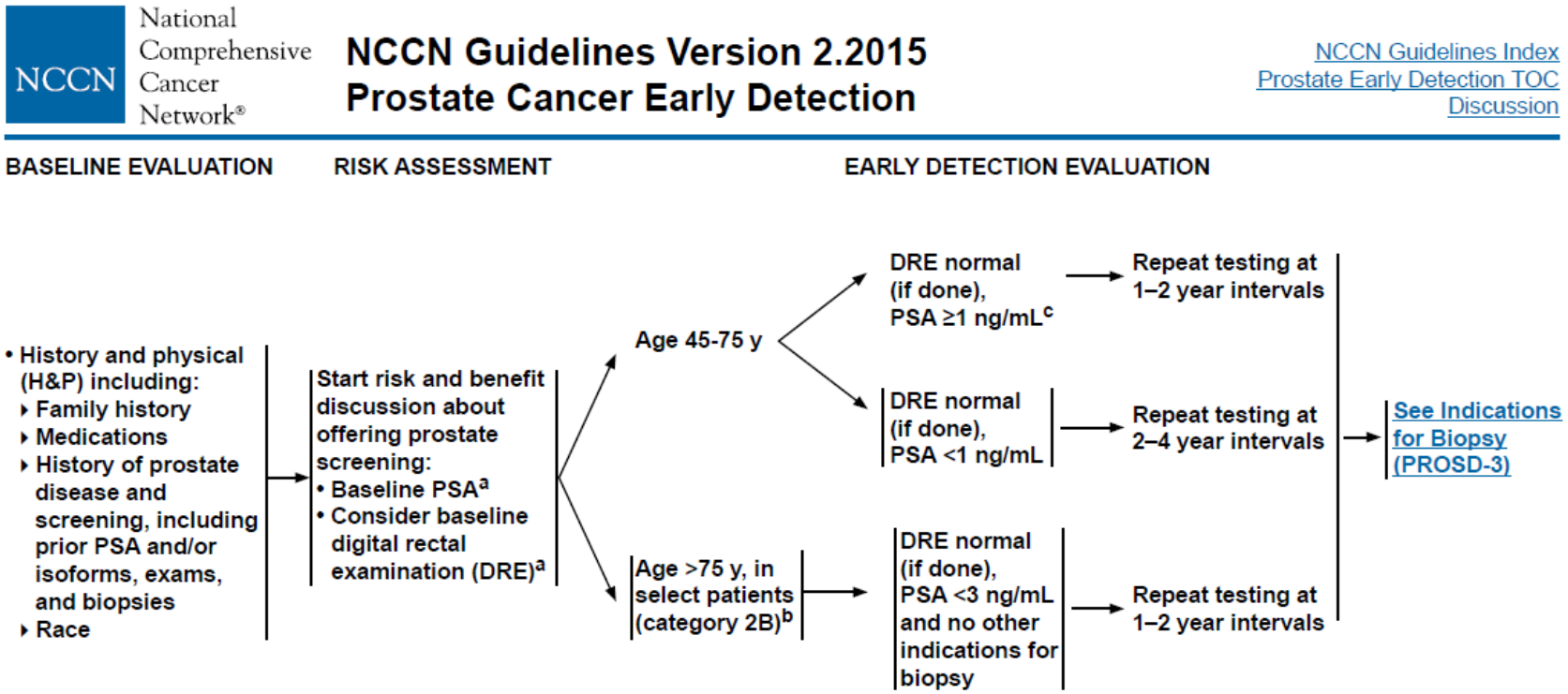
- American College of Physicians (ACP)
- Canadian Task Force on Preventive Health Care

  PSA rutin taramada kullanımı önermez

# Prostat Kanseri Yüksek Risk Grubu

- Aile birinci derece akrabalarda 60 yaş öncesi prostat ca öyküsü, 2-2.5 x
- BRCA1, BRCA2 mutasyou 2-6x
- Lynch sendromu 2-5x
- BRCA mutasyonu olanlarda tarama yaşı 40

# Prostat Kanseri
## PSA Tarama



# Diğer Tarama Testler

AFP/ Karaciğer USG

- Yüksek riskli hastalarda Hepatoselüler kanser erken teşhisinde katkıda bulunabilir

- Yanlış pozitiflik ve buna bağlı komplikasyonlar

Yanlış negatiflik ve buna bağlı geç tanı handikaplarıdır

# Over kanseri erken teşhisi için aşağıda yapılan tarama testlerin hangisi önerilir

A-Yıllık pelvik muyene

B-Yıllık CA125 düzeyi bakmak

C-CA125 ve Transvaginal USG

D-Hepsi

E-Hiçbiri

**Rastgele tümör markırı istemek, Hiroşimaya atom bombası atan pilotun yaptığı iş kadar basit ama sonuçları bir o kadar yıkıcı olabilir**

# Over, Fallop tüpleri, Primer periton kanserlerinde Erken Tanı- Tarama

- Pelvik Muayane
- Transvaginal USG
- Ca 125

National Cancer Institute çalışması, bu testlerin semptomsuz kadınlarda kombine olarak kullanılmasının sağkalım üzerinde olumlu bir etkisi saptamamış.

- Rutin tarama amaçlı önerilmez

# SONUÇ

**Kadınlar için önerilen ve yaşamı uzattığı gösterilmiş tarama testleri**

- Kolonoskopi, sigmoidoskopi, Gaita gizli kan testleri, 50–70 yaşları arasında
- Pap smear testinin 21–29 yaşında 3 yılda bir yapılması. 30–65 yaşları arasında Pap smear ve HPV DNA 5 yılda bir bakılması ya da 3 yılda bir Pap smear bakılması önerilir.
- 25-40 yaşları arasında 1-3 yılda meme muayenesi, 40 yaş ve sonrası yıllık mamografi ya da 2 yılda bir mamografi
- 55-74 Yaşları arasında, 30 yıl/paket sigara içen bireylere düşük doz helikal tomografi

# SONUÇ

**Erkekle için önerilen ve  yaşamı uzattığı gösterilmiş tarama testleri**

- Kolonoskopi, sigmoidoskopi, Gaita gizli kan testleri, 50–70 yaşları arasında
- 55-74 Yaşları arasında, 30 yıl/paket sigara içen bireylere düşük doz helikal tomografi
- PSA istenmesi konusunda fikir birliği yoktur. Yüksek riskli olmayan bireylere yaygın görüş  PSA ile taramama yönündedir. PSA istenecekse mutlaka fayda ve zararları konusunda bilgilendirme yapılmalıdır.

# Aşağıdakilerden hangisi prostat kanseri erken teşhis ve taraması için doğrudur?

A-PSA düzeyi yaş ile değişmez

B-Prostat kanseri ırksal farklılık göstermez

C-Yıllık PSA testi tarama amaçlı 55-74 yaş gurubu erkekte istenir

D-PSA düzeyi bening prostat hastalıklarından etkilenmez

E-PSA düzeyi yüksek olanlarda test tekrarlanmalıdır