Rastreo de enfermedad oncológica

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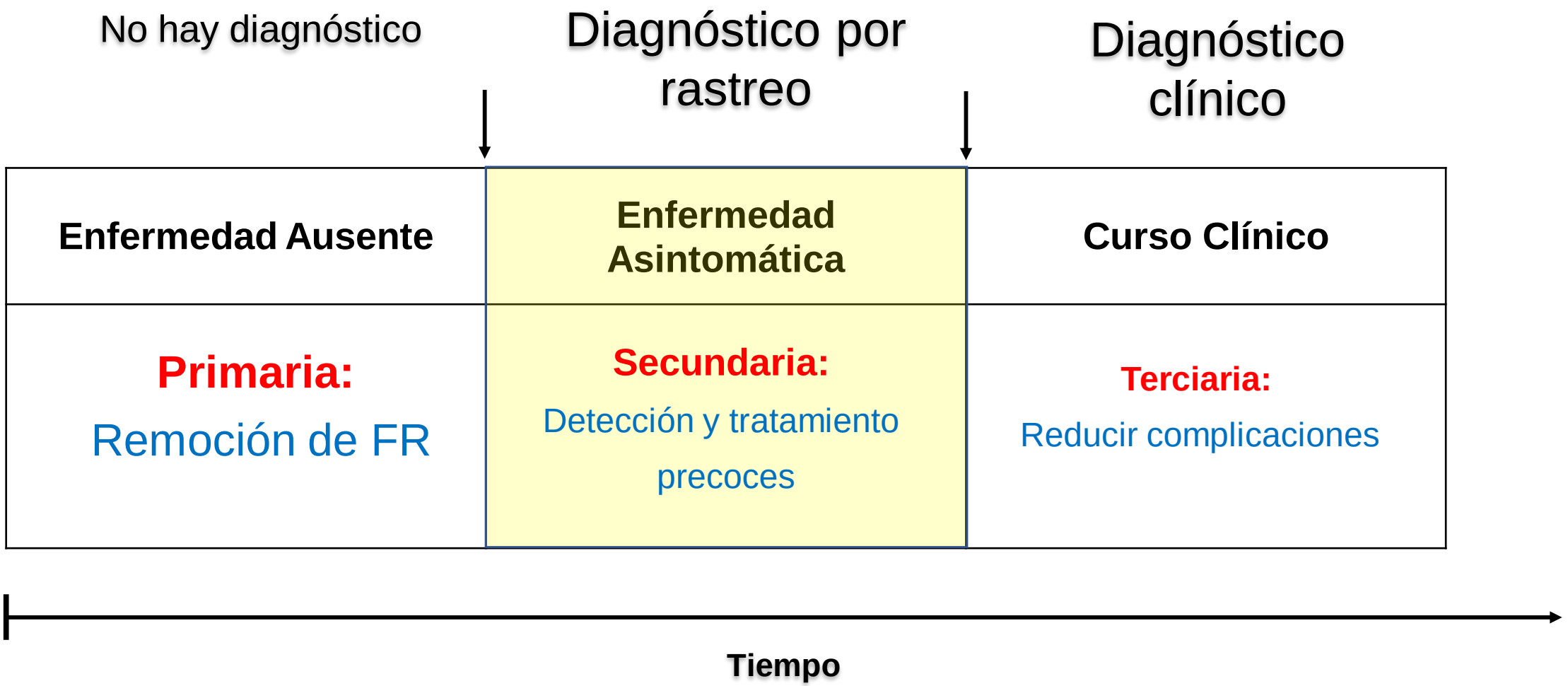
ÍTEM PLANTEADO	CONFLICTO DE INTERESES PARA DECLARAR SÍ/NO
CONSEJO CONSULTIVO CIENTÍFICO	**No**
INVESTIGACIÓN PARA LA INDUSTRIA	**No**
EMPLEADO/A	**No**
ACCIONISTA	**No**
CONSULTOR/A	**No**
DISERTANTE	**No**
HONORARIOS	**No**

No

Grados de recomendación para exámenes periódicos de salud (USPSTF)

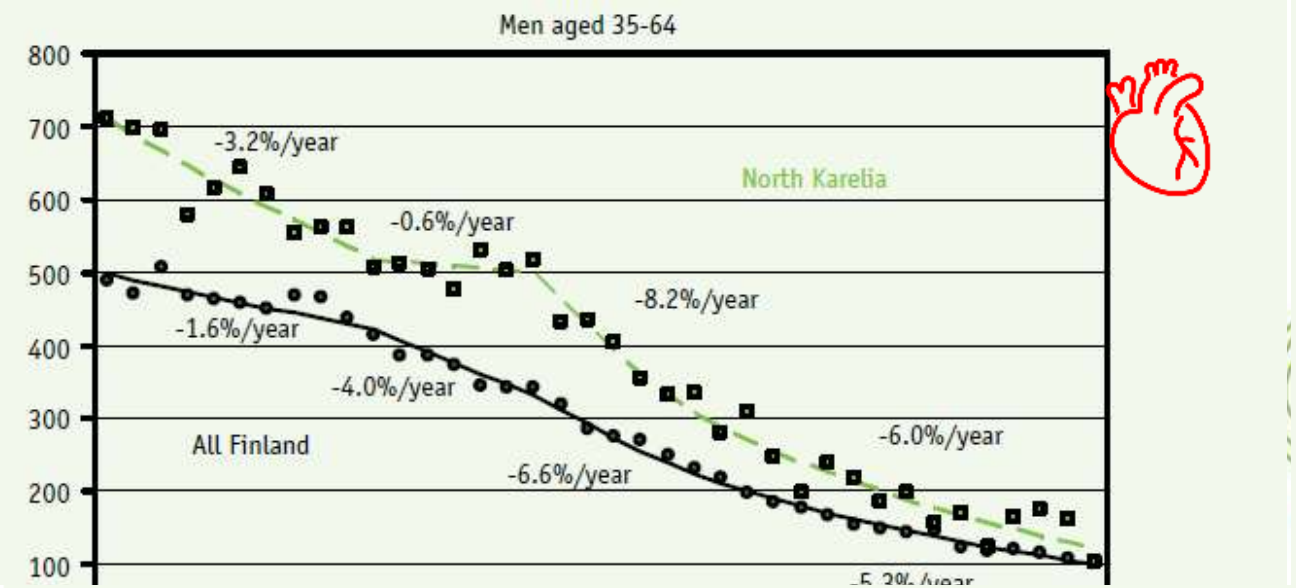
Recomendación	Interpretación	Sugerencia para la práctica
A	Se recomienda la acción preventiva. Existe alta certeza que el beneficio neto es substancial	Ofrecer o proporcionar este servicio
B	Se recomienda la acción preventiva. Hay una alta certeza de que el beneficio neto es moderado o existe moderada certeza de que el beneficio neto es de moderado a sustancial	Ofrecer o proporcionar este servicio
C	Se recomienda selectivamente el ofrecimiento o la prestación de este servicio a los pacientes individuales basadas en criterios profesionales y las preferencias del paciente. Hay por lo menos moderada certeza que el beneficio neto es pequeño	Ofrecer o proporcionar este servicio para los pacientes seleccionados en función de las circunstancias individuales
D	NO se recomienda la acción preventiva. Hay certeza moderada o alta que el servicio no tiene ningún beneficio neto o que los daños son mayores que los beneficios	Desalentar el uso de este servicio
I	Se concluye que la evidencia actual es insuficiente para evaluar el equilibrio entre los beneficios y los daños de la acción preventiva. La evidencia es deficiente, de mala calidad, o es contradictoria, y el balance de riesgos y beneficios no se puede determinar	Lea la sección de consideraciones clínicas de las recomendaciones de la USPSTF. Si el servicio es ofrecido, los pacientes deben comprender la incertidumbre que existe sobre el equilibrio entre beneficios y daños

Niveles de Prevención



THE NORTH KARELIA PROJECT:
FROM NORTH KARELIA TO NATIONAL ACTION

Pekka Puska, Erkki Vartiainen, Tiina Laatikainen, Pekka Jousilahti, Meri Paavola (editors)



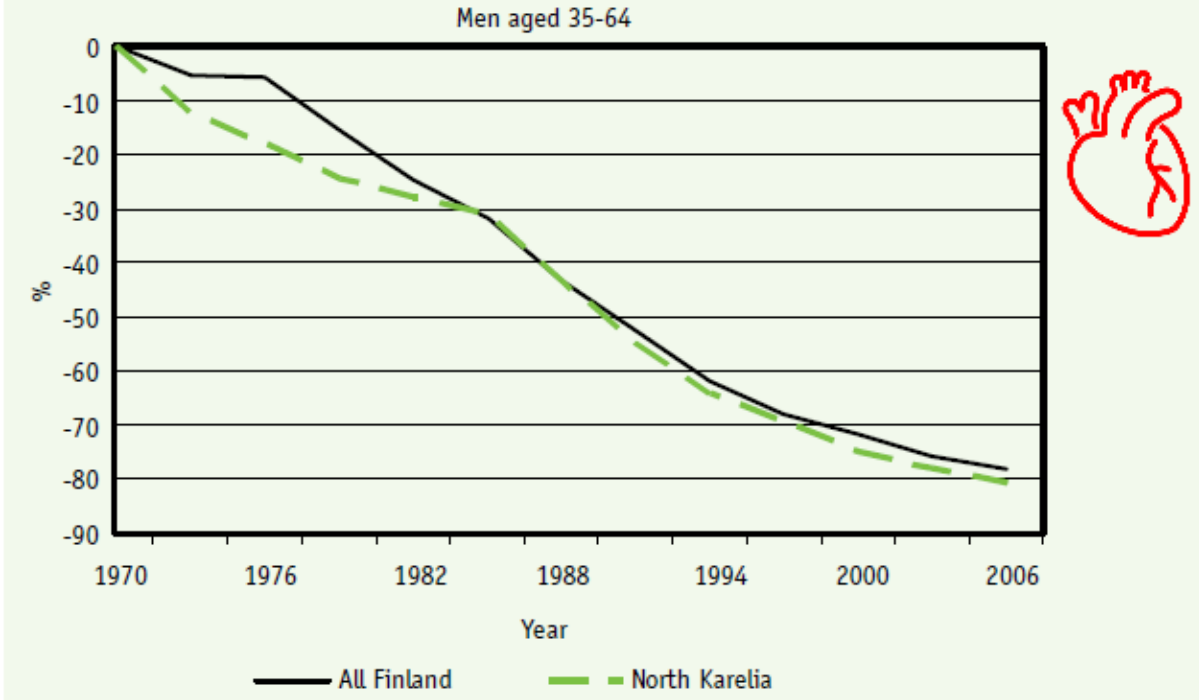
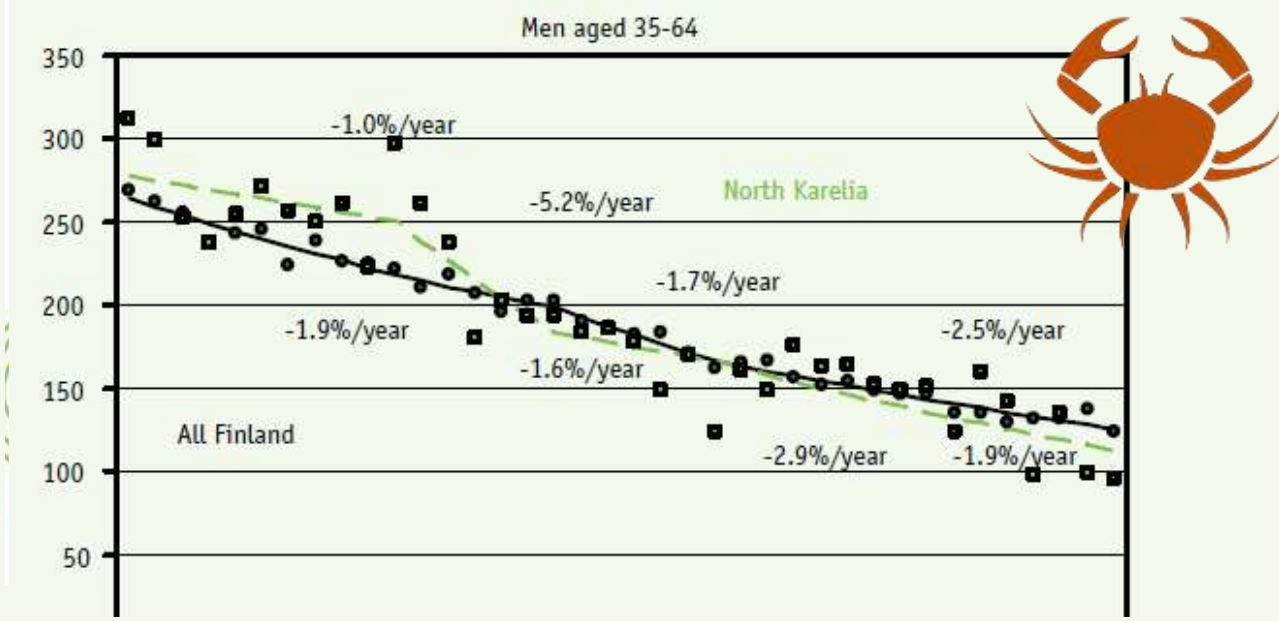


Figure 4. Decline in CHD mortality in Finland and in North Karelia between 1970 and 2006 (men aged 35-64).



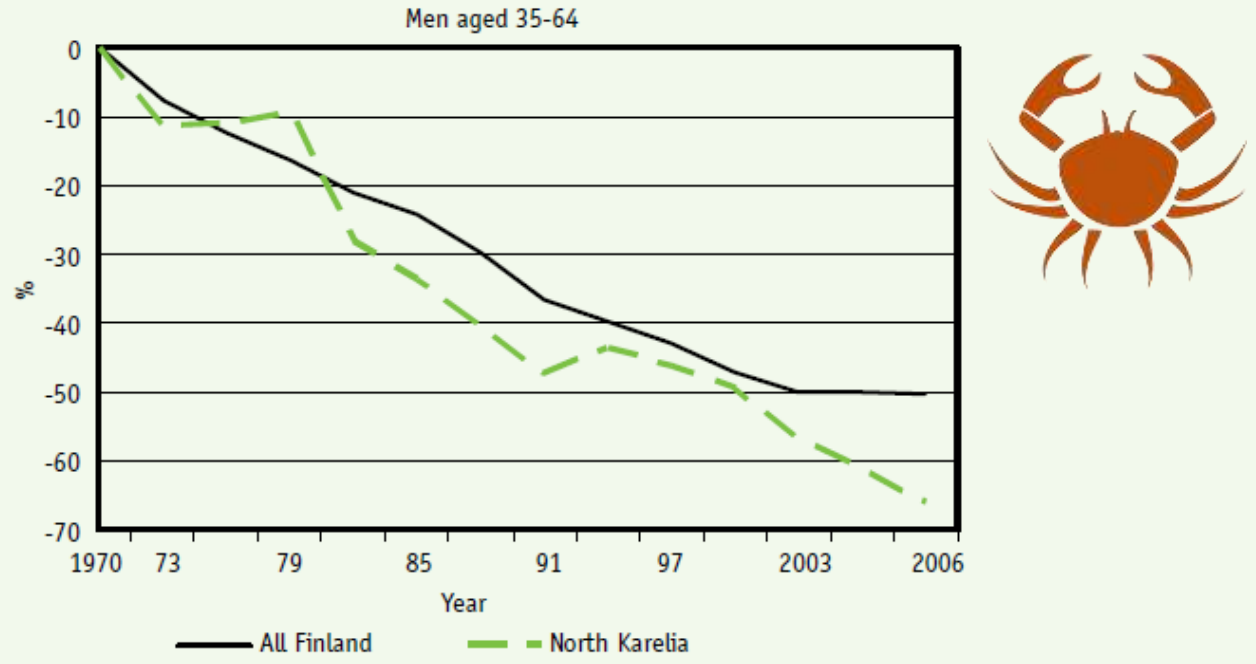
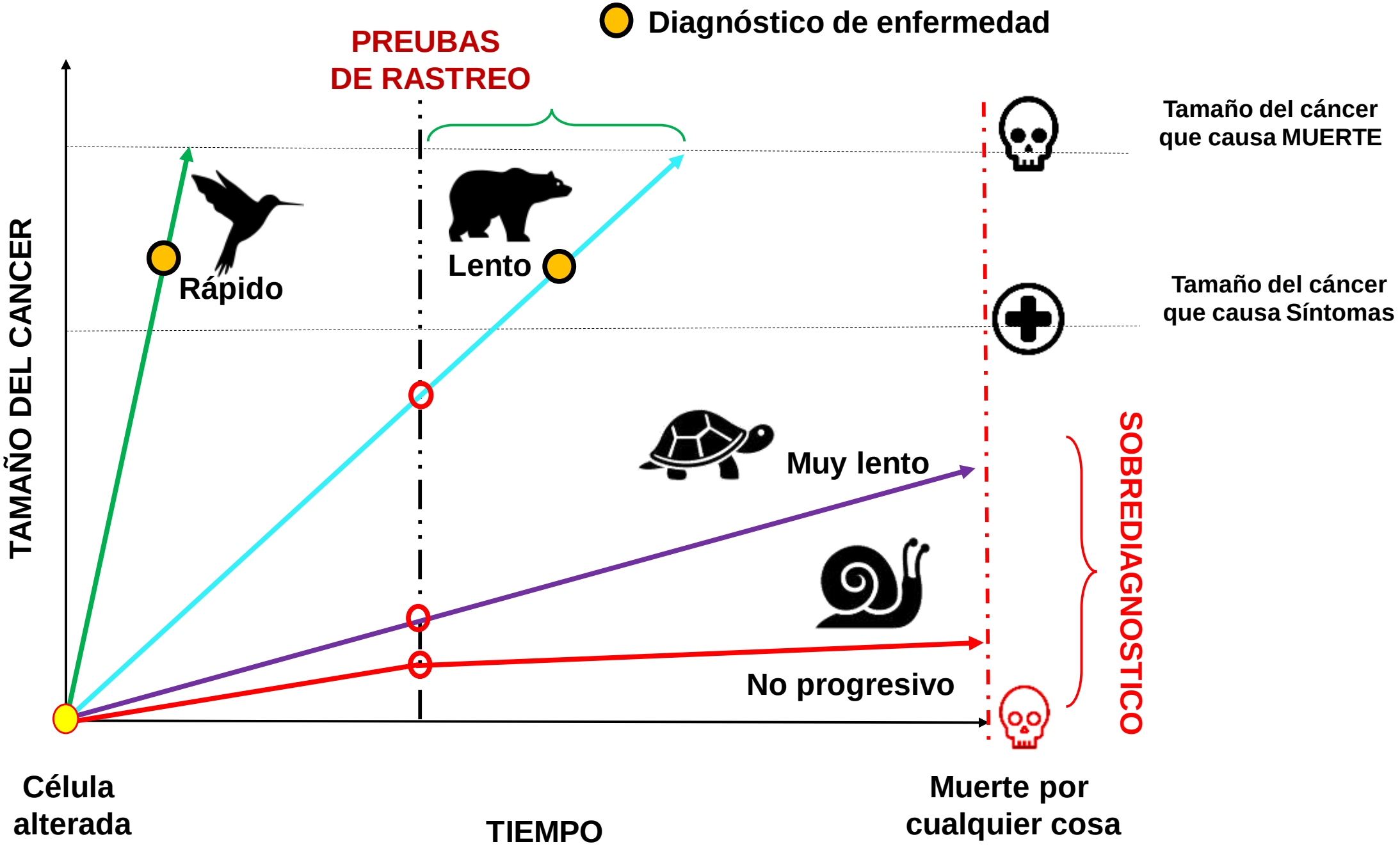
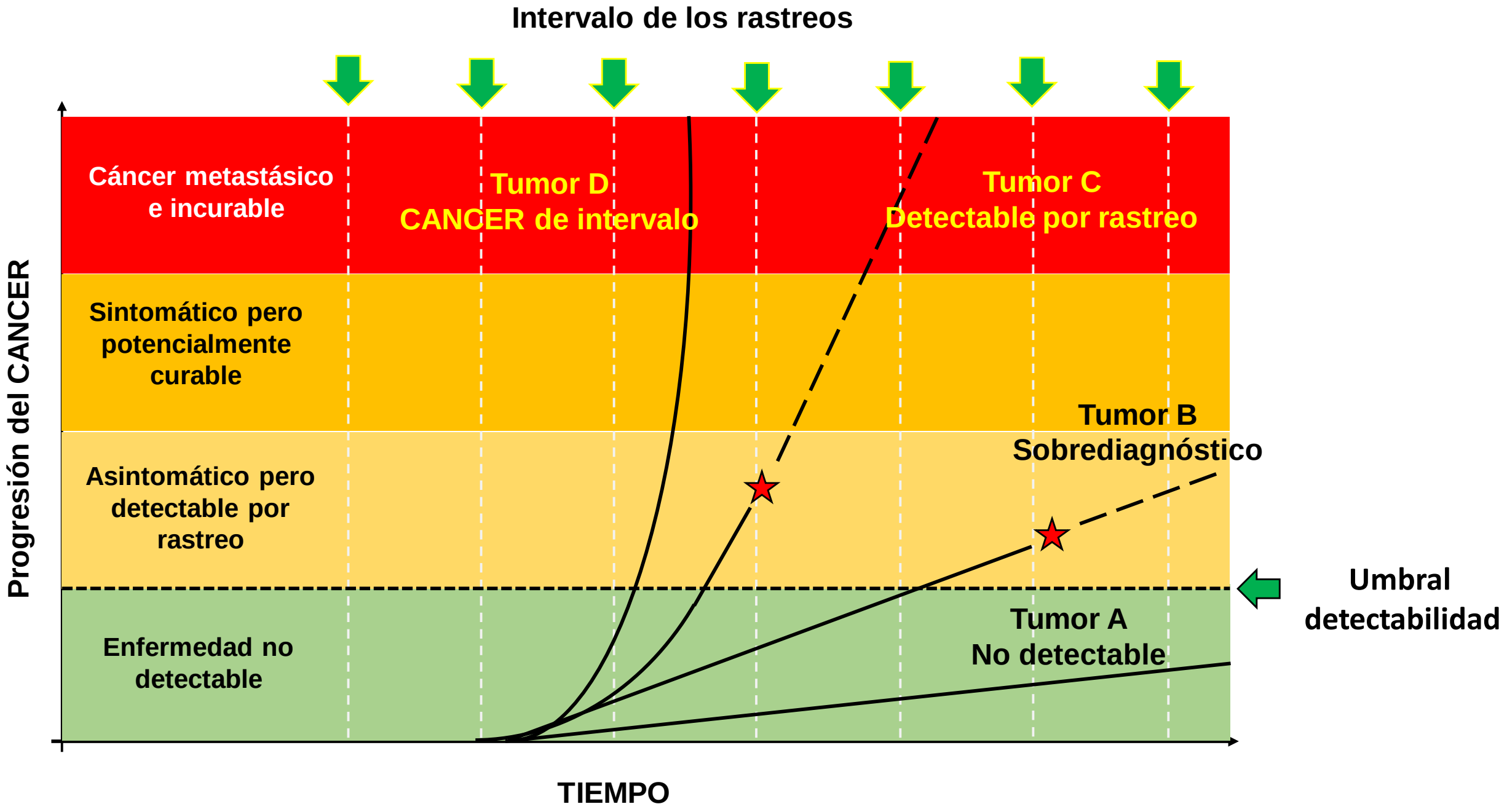


Figure 5. Decline in cancer mortality in Finland and in North Karelia between 1970 and 2006 (men aged 35-64).


Diagnóstico de enfermedad
PREUBAS
DE RASTREO
Tamaño del cáncer
que causa MUERTE
Tamaño del cáncer
que causa Síntomas
Rápido
Lento
Muy lento
No progresivo
SOBREDIAGNOSTICO
TAMAÑO DEL CANCER
Célula
alterada
TIEMPO
Muerte por
cualquier cosa


Intervalo de los rastreos
Cáncer metastásico e incurable
Sintomático pero potencialmente curable
Asintomático pero detectable por rastreo
Enfermedad no detectable
Tumor D
CANCER de intervalo
Tumor C
Detectable por rastreo
Tumor B
Sobrediagnóstico
Tumor A
No detectable
Umbral detectabilidad
Progresión del CANCER
TIEMPO

Criterios de Frame y Carlson:

1) la enfermedad o condición debe poseer un ***impacto significativo sobre la calidad o cantidad de vida***,

2) la ***incidencia*** de la enfermedad debe ser lo suficientemente importante como para justificar los ***costos de la implementación*** de estrategias poblacionales de rastreo,

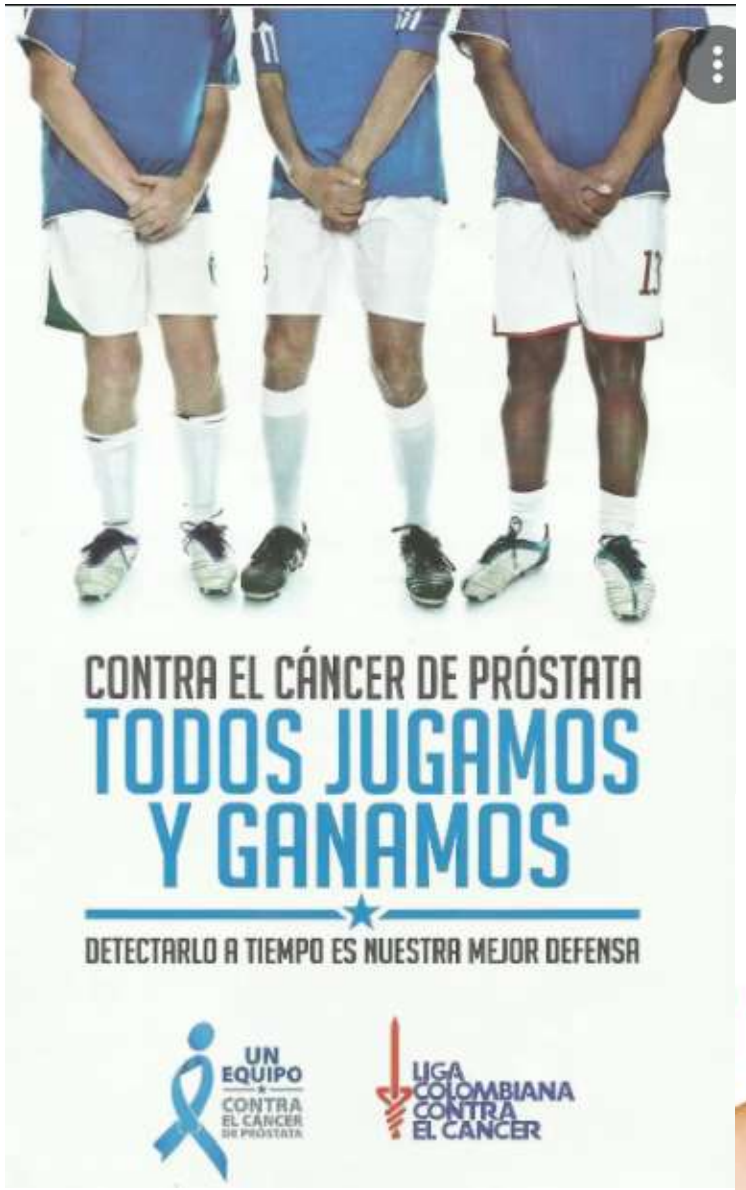
3) La enfermedad debe poseer un ***período asintomático*** durante el cual la detección y el tratamiento reduzcan su morbilidad y/o mortalidad

4) Debe existir un ***tratamiento efectivo (temprano)*** que sea superior al tratamiento de la enfermedad en su etapa sintomática o más avanzada

5) El ***daño potencial derivado del tratamiento*** debe ser menor que el del tratamiento en la etapa sintomática

6) Los estudios para detectar la enfermedad durante el período asintomático deben ser ***efectivos y eficaces, y su costo razonable***.

Frame PS, Carlson SJ. A critical review of periodic health screening using specific screening criteria. Part 1: Selected diseases of respiratory, cardiovascular, and central nervous systems. J FamPract. 1975; 2(1):29–36.


CONTRA EL CÁNCER DE PRÓSTATA
TODOS JUGAMOS
Y GANAMOS
DETECTARLO A TIEMPO ES NUESTRA MEJOR DEFENSA
UN EQUIPO CONTRA EL CÁNCER DE PRÓSTATA
LIGA COLOMBIANA CONTRA EL CANCER

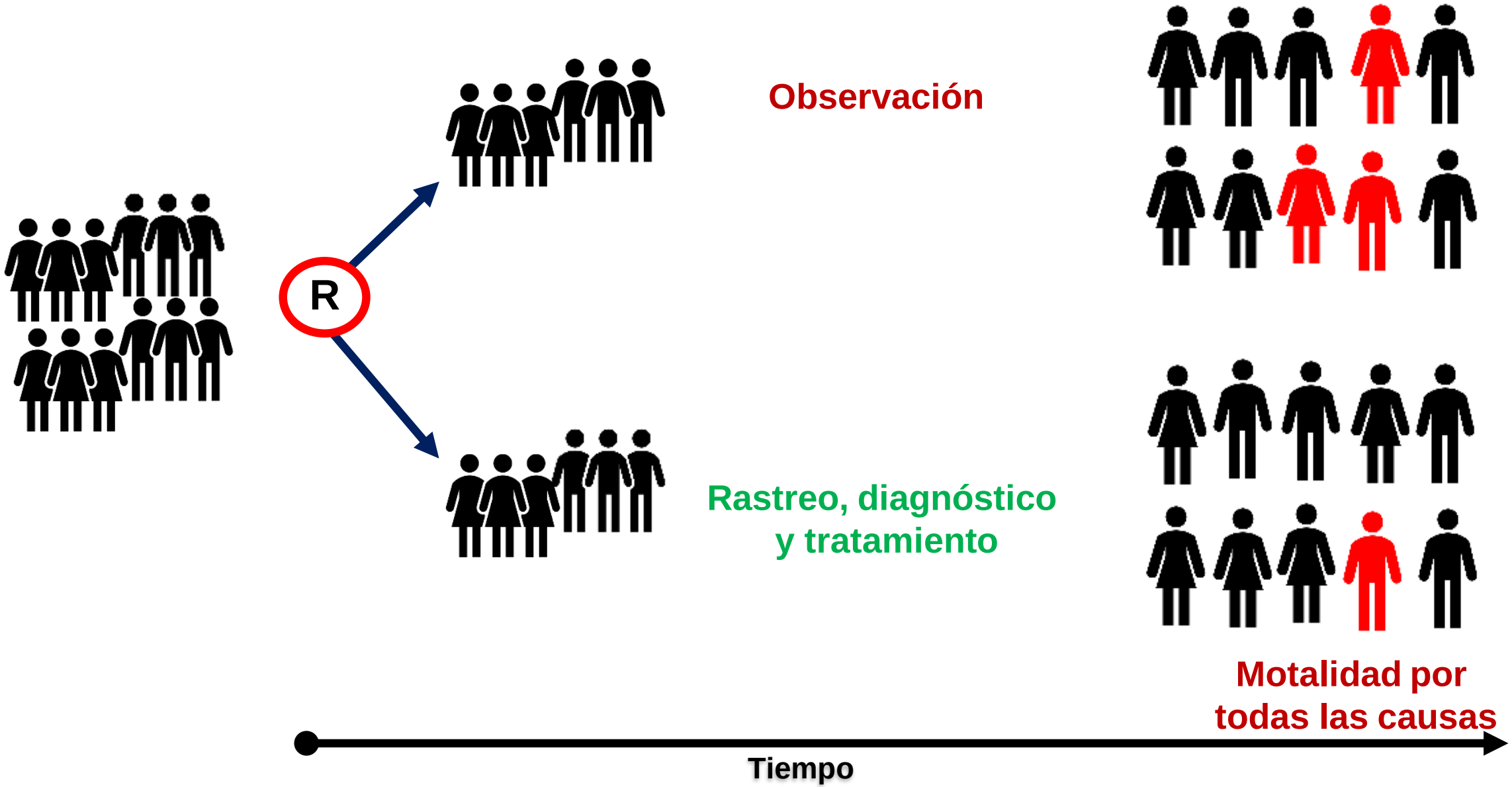

24 de Setiembre
DIA MUNDIAL del CANCER de TIROIDES
CANCER DE TIROIDES ES TRATABLE TE LO PODEMOS CONTAR


TU TIROIDES IMPORTA
CONTROLA TU CUELLO Y DETECTA A TIEMPO CUALQUIER TRASTORNO.
CORNAC
CORPORACION NACIONAL DEL CANCER


Are you obsessed with the right things?


AMERICAN EXPRESS
Cards Welcome
Empuje
AMERICAN EXPRESS
Cards Welcome
Tire
puerta corrediza
VISA

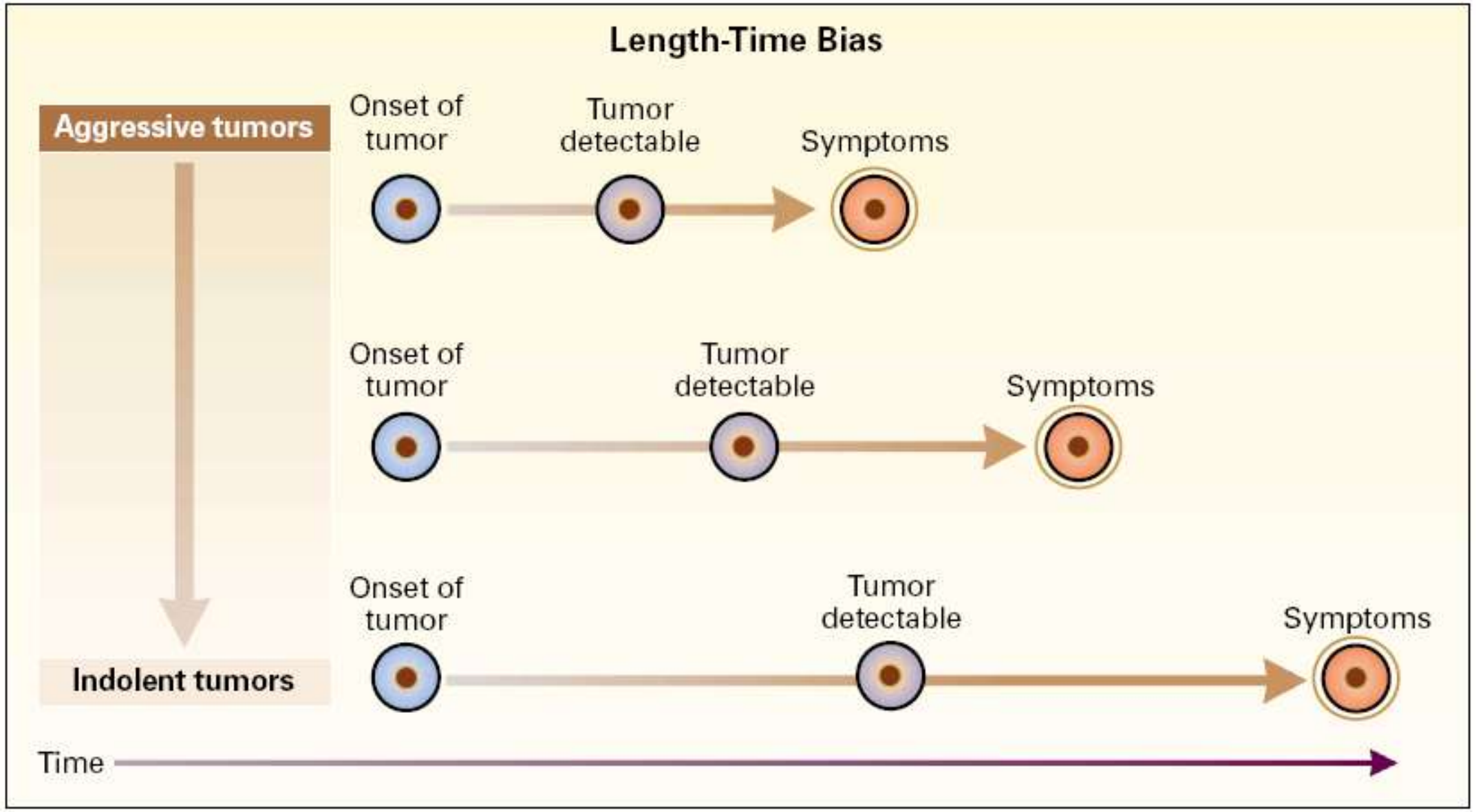
Sesgo de selección (aún siendo randomizado)



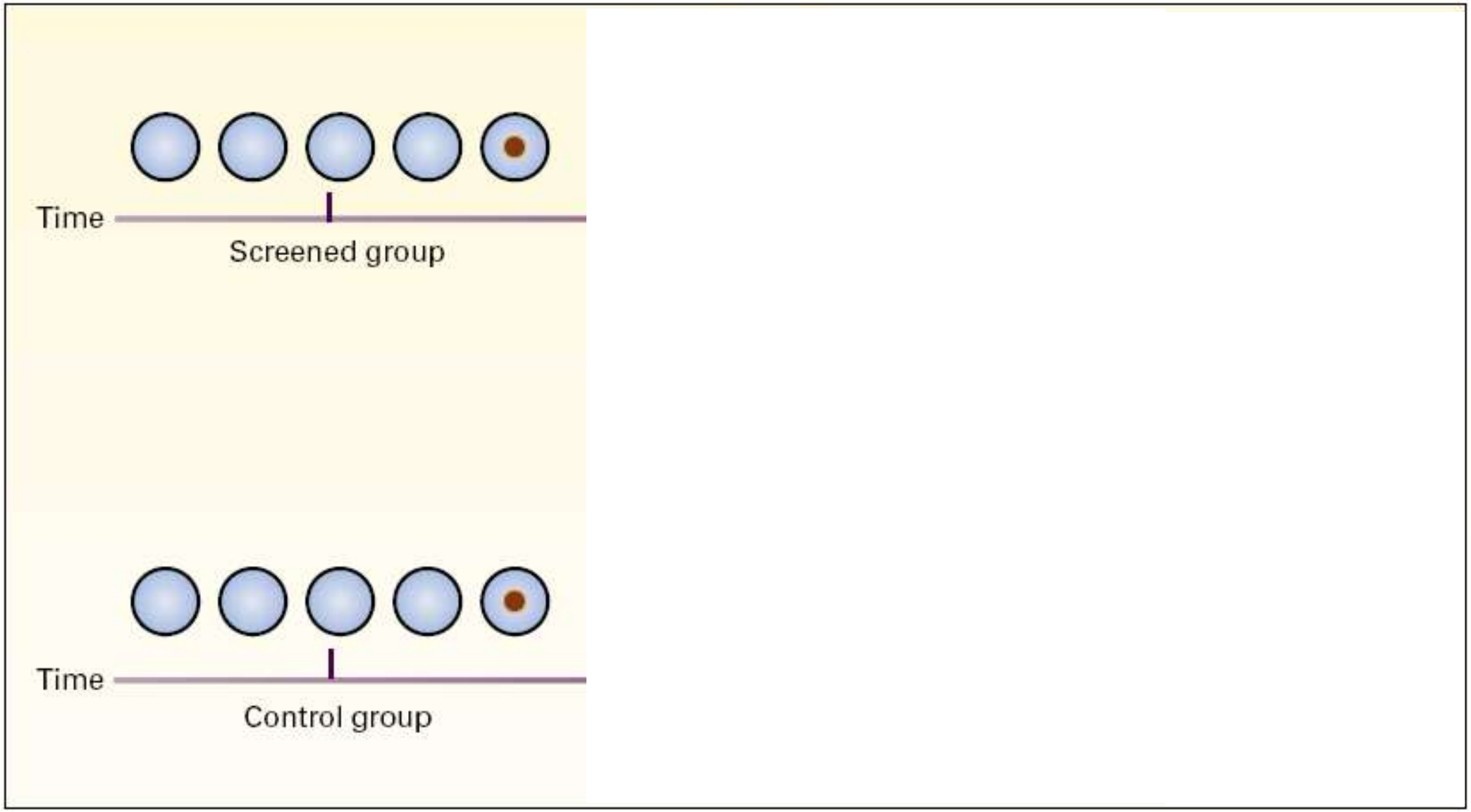
ATENCION:

- **Fijarse que el punto final es MORTALIDAD por todas las CAUSAS (no es mortalidad cáncer específica)**
- **Fijarse que lo importante es resultados de vida…..no sensibilidad o especificidad de métodos de rastreo**
- **Tener en cuenta tiempo de seguimiento**
- **Son pacientes seleccionados, lo ideal son estudios poblacionales**

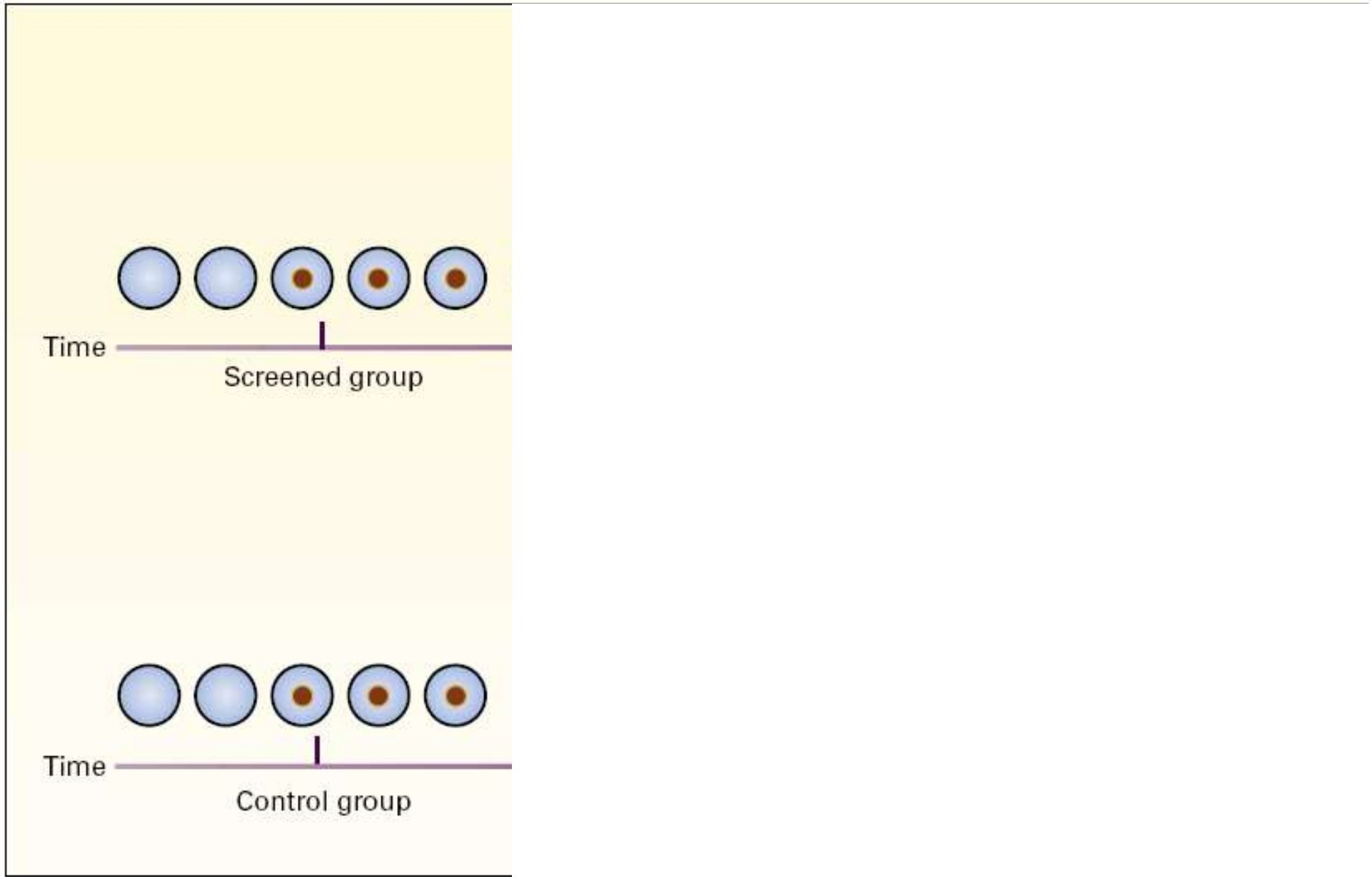
Sesgo de duración (se diagnostican más casos indolentes o de lento crecimiento y no los casos de rápida evolución)



Sesgo de anticipación (ver figura)



Sesgo de sobre-diagnóstico:

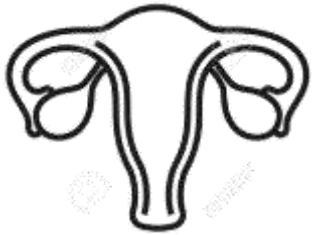


Muerte:

Grupo A: 33%

Grupo B: 100%

Cuello uterino

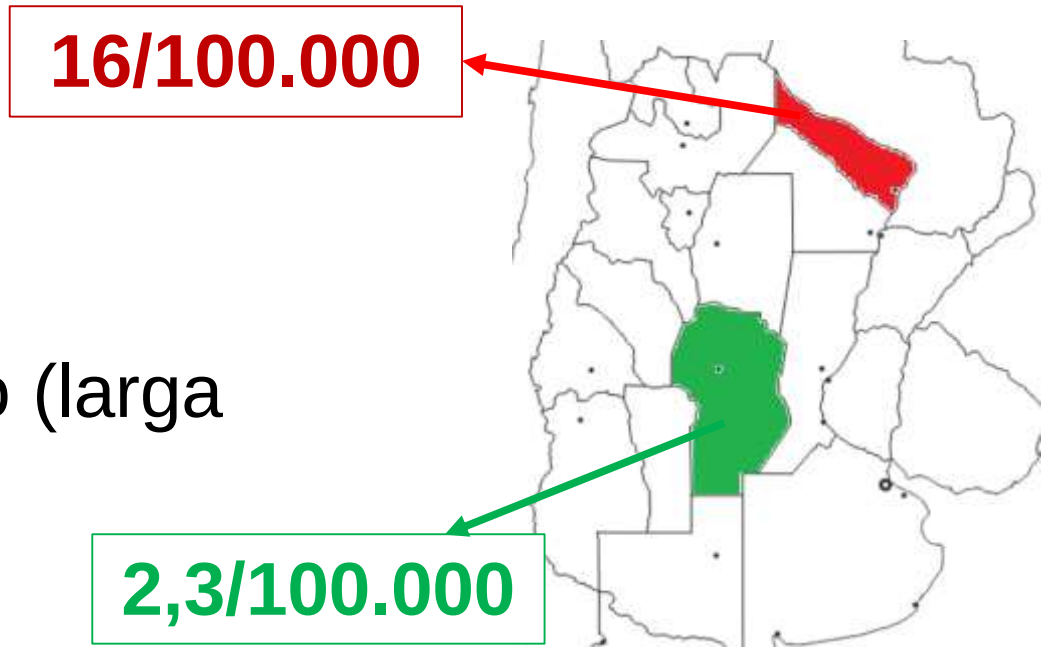


Cáncer de cuello uterino

- En Argentina mueren 4,6 mujeres por cada 100000 por esta enfermedad.

-Responsable de la enfermedad: HPV.

- Tumor ideal para los criterios de rastreo (larga latencia)



Factores de riesgo para persistencia y progresión de la infección

- ✓ **El más importante por sí solo es NUNCA o RARA VEZ haberse sometido a screening de cáncer de cuello**

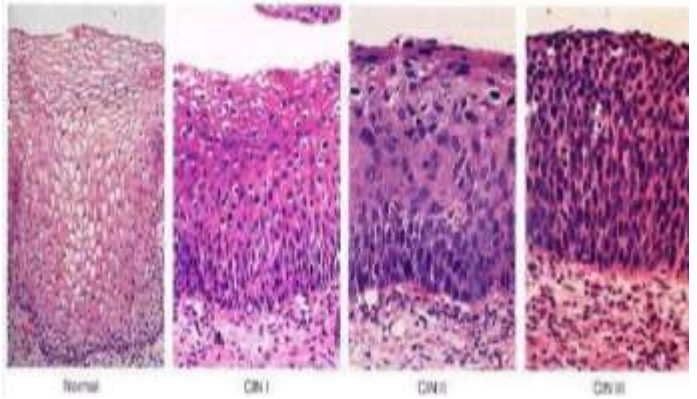
- ✓ 50% de las mujeres con cáncer de cuello jamás se habían sometido a rastreo 10% no lo había hecho durante los cinco años previos

- ✓ Inmunodepresión

- ✓ Tabaquismo

- ✓ uso de ACO a largo plazo, las coinfecciones como Chlamydia, el número de partos y ciertos factores nutricionales

Rastreo de Cáncer Cervical



- Virus HPV genera lesiones en el cuello uterino denominadas neoplasias intraepiteliales cervicales que se clasifican en grados.

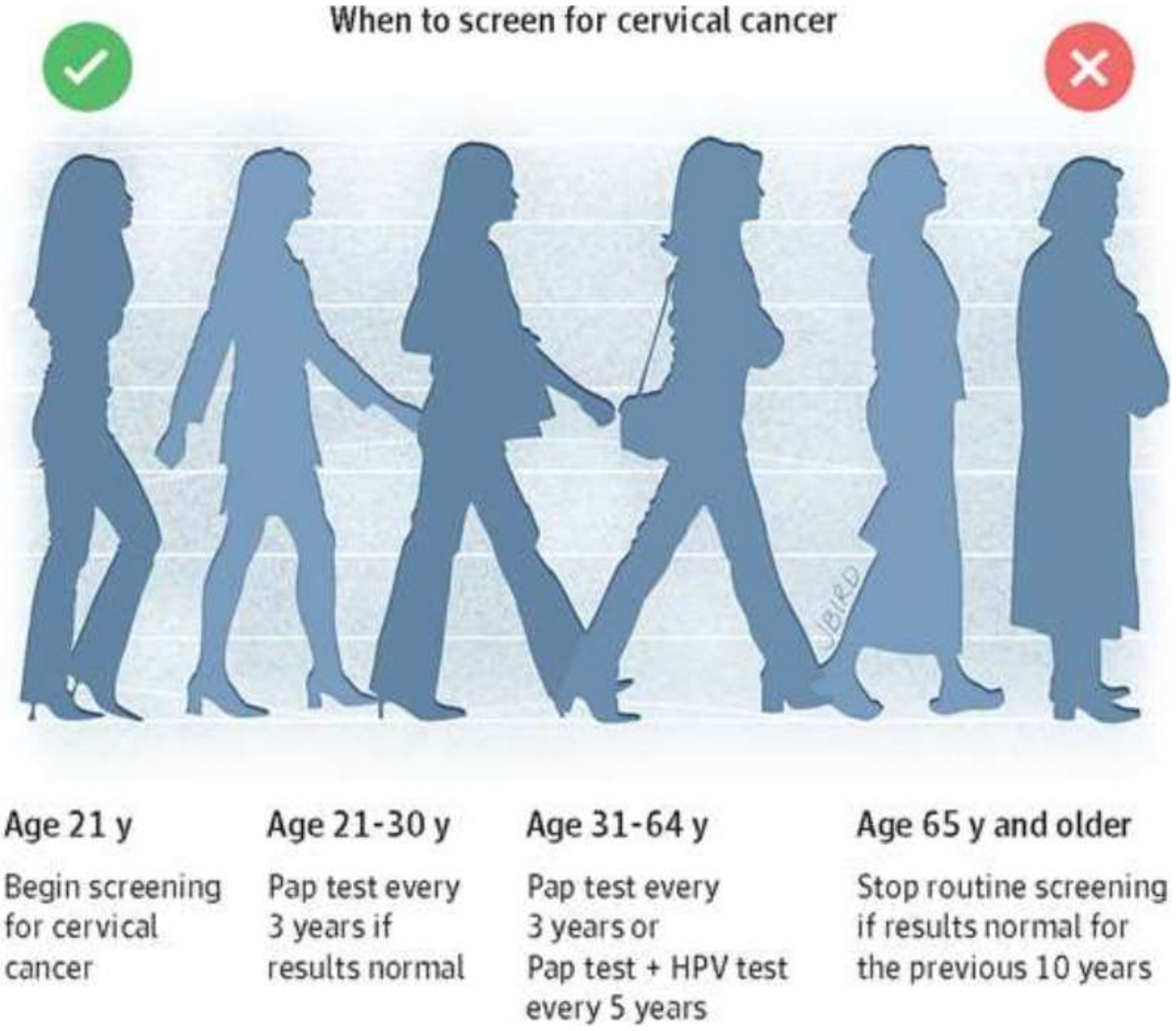
- Pronóstico de las lesiones es variable.

- Con Pap: 80% reducción mortalidad por Cáncer Cervical
- **En mujeres con cérvix de 21 a 65 años o de 25 hasta 70 años**
- Cada 3 años, o cada 5 con ADN VPH (a partir de los 30 años)
- Sin colposcopia de rutina ni eco TV!!!!

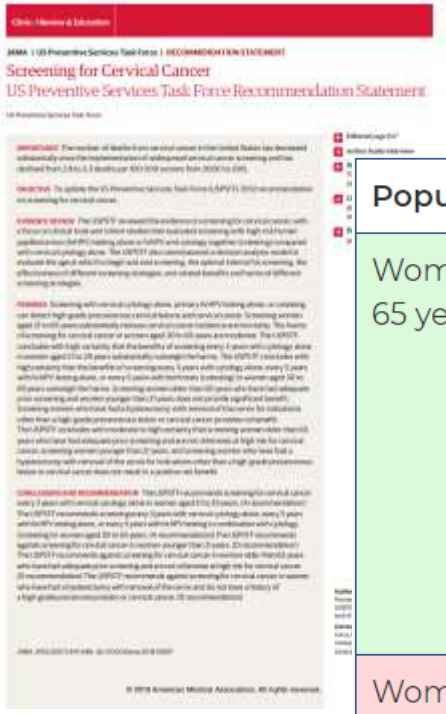
Cáncer de cuello uterino

Papanicolau mediante el sistema Bethesda:

1) Se categoriza la muestra si es adecuada o no para el diagnóstico.
2) Luego se divide:
    Negativo para células intraepiteliale o malignas.
    Anomalías de células epiteliales.
    Otras.
3) Si existen anomalías intraepiteliales, estas se clasifican:
    a) Carcinoma de células escamosas
    b) HSIL (lesión intraepitelial de alto grado): displasia moderada o severa CIN II o CIN III.
    c) LSIL (lesión nintraepitelial de bajo grado): displasia leve o HPV CIN I
    d) Atípicas escamosas: de significado incierto o sin poder descartar presencia de HSIL.



- **Discusión sobre la realización de colposcopia.**
- **Test ADN HPV**
- **CoTEST**
- **Se puede discontinuar a partir de los 65 años y en histerectomizadas.**



Population	Recommendation	Grade
Women aged 21 to 65 years	The USPSTF recommends screening for cervical cancer every 3 years with cervical cytology alone in women aged 21 to 29 years. For women aged 30 to 65 years, the USPSTF recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (cotesting). See the Clinical Considerations section for the relative benefits and harms of alternative screening strategies for women 21 years or older.	A
Women younger than 21 years	The USPSTF recommends against screening for cervical cancer in women younger than 21 years.	D
Women who have had a hysterectomy	The USPSTF recommends against screening for cervical cancer in women who have had a hysterectomy with removal of the cervix and do not have a history of a high-grade precancerous lesion (ie, cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer.	D
Women older than 65 years	The USPSTF recommends against screening for cervical cancer in women older than 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer. See the Clinical Considerations section for discussion of adequate prior screening and risk factors that support screening after age 65 years.	D

JAMA. 2018;320(7):674-686. doi:10.1001/jama.2018.10897

INC
INSTITUTO NACIONAL del CÁNCER

Ministerio de Salud
Presidencia de la Nación

II. MUJERES MENORES DE 30 AÑOS (EXCLUYE ADOLESCENTES – hasta 21 años -)

A. Estrategia de tamizaje

Recomendación

- No tamizar con citología antes de cumplidos los tres años del inicio de las relaciones sexuales.
- Tamizar con citología convencional (Papanicolaou), cada tres años, luego de dos citologías consecutivas negativas (1-1-3).

El Programa Nacional de Prevención de Cáncer Cervicouterino recomienda el inicio del tamizaje con citología a partir de los 25 años.

Cáncer Ovario

Rastreo cáncer de ovario

- Ecografía transvaginal
- CA 125
- Examen Pélvico Bimanual

Cáncer de ovario: Ninguna organización médica recomienda su rastreo

Ministerio de Salud de la Nación: “En la actualidad no existe evidencia que fundamente la realización de ningún estudio complementario para tamizaje con el fin de detectar la enfermedad en fases tempranas.”

http://www.msal.gov.ar/inc/index.php/acerca-del-cancer/canceres-masfrecuentes/otros-canceres
USPSTF http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrgen.htm
NCI: http://www.cancer.gov/cancertopics/pdq/screening/ovarian/HealthProfessional

Rastreo de Cáncer de Ovario:

- PLCO: ECCR n: 78.216 mujeres de 55 - 74 años
- Grupo intervención: CA-125 anual por 6 años y EcoTV por 4 años
- Seguimiento máx.13 años

Resultados	Intervención n 34.253	Control n 34.304
Dx Ca ovario	212	176
Muertes por Ca ovario	118	100
Muertes por todas las causas	2924	2914
Falsos Positivos	3285	-

Cirugías por Falsos Positivos: 1.080

JAMA. 2011;305(22):2295-230

Screening for Ovarian Cancer
US Preventive Services Task Force
Recommendation Statement

Recommendation Summary

Population	Recommendation	Grade
Asymptomatic women	The USPSTF recommends against screening for ovarian cancer in asymptomatic women. This recommendation applies to asymptomatic women who are not known to have a high-risk hereditary cancer syndrome.	D

JAMA. 2018;319(6):588-594. doi:10.1001/jama.2017.21926

ACP American College of Physicians℠
Leading Internal Medicine, Improving Lives

SUMMARY OF THE AMERICAN COLLEGE OF PHYSICIANS GUIDELINE ON SCREENING PELVIC EXAMINATION IN ADULT WOMEN

Disease/Condition	Cancer, pelvic inflammatory disease, other benign gynecologic conditions
Target Audience	Internists, family physicians, other clinicians
Target Patient Population	Asymptomatic, nonpregnant, adult women
Interventions	Pelvic examination
Outcomes	Mortality; morbidity; harms, including overdiagnosis, overtreatment, and diagnostic procedure-related harms
Benefits of Screening	None identified
Harms of Screening	Unnecessary laparoscopies or laparotomies, fear, embarrassment, anxiety, pain or discomfort, avoidance of necessary care
Recommendations	*Recommendation: ACP recommends against performing screening pelvic examination in asymptomatic, nonpregnant, adult women (strong recommendation, moderate-quality evidence).*
High-Value Care	ACP found no evidence that routine pelvic examination in asymptomatic, nonpregnant, adult women provides any benefit. With the current evidence, we conclude that performing pelvic examination exposes women to unnecessary and avoidable harms with no benefit. In addition, these examinations add unnecessary costs to the health care system. These costs may be compounded by expenses incurred by additional follow-up tests, including follow-up tests as a result of false-positive screening results, increased medical visits, and costs of keeping or obtaining health insurance.
Clinical Considerations	Clinicians do not need to perform pelvic examination before prescribing oral contraceptives. Screening for sexually transmitted disease can be performed with urine testing or vaginal swabs and does not require a pelvic examination. Evaluation is often indicated in women with such symptoms as vaginal discharge, abnormal bleeding, pain, urinary problems, and sexual dysfunction. When screening for cervical cancer, examination should be limited to visual inspection of the cervix and cervical swabs for cancer and HPV.

Cáncer de endometrio……tampoco hay utilidad de ningún método de rastreo específico

Cáncer Colorectal

Cáncer Colorectal

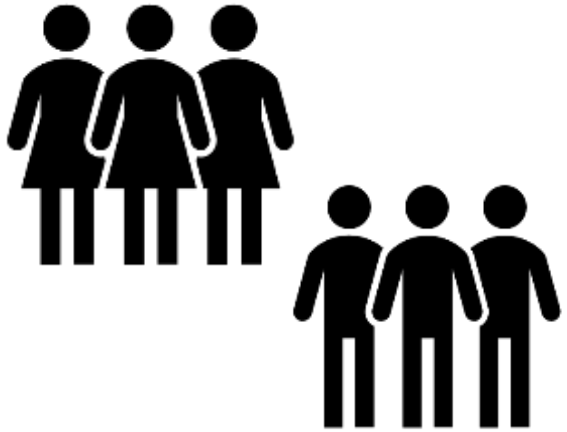
- Tercer cáncer más común en hombre y mujeres.
- Segunda causa muerte por cáncer global.

- Raro antes de los 40 años (90% de los casos ocurren luego de los 50 años).

- 25 % de los casos poseen antecedentes familiares (epidemiología en ese aspecto similar al cáncer de mama)

- Poliposis adenomatosa familiar y enfermedad inflamatoria intestinal

Hombres y mujeres entre 45 y 75 años



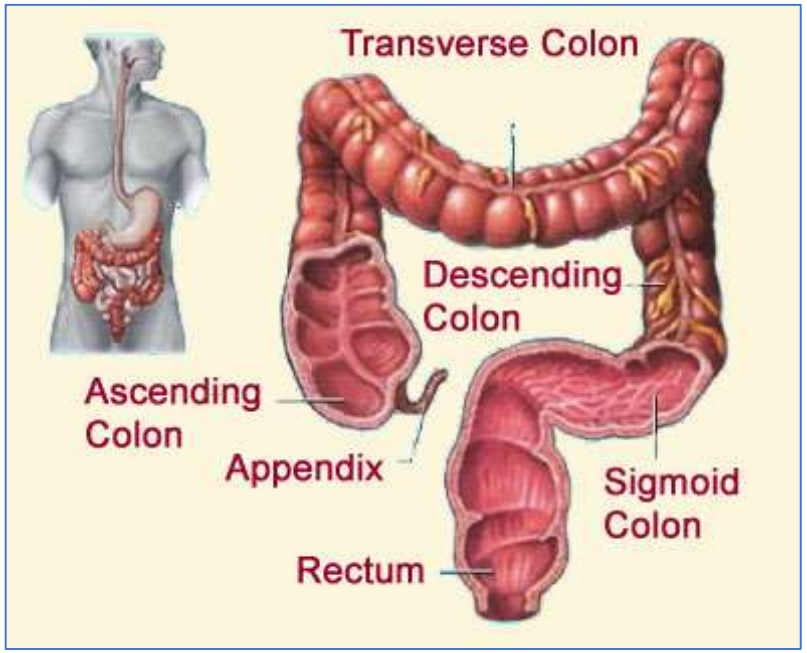
Hombres y mujeres 76 a 85 años

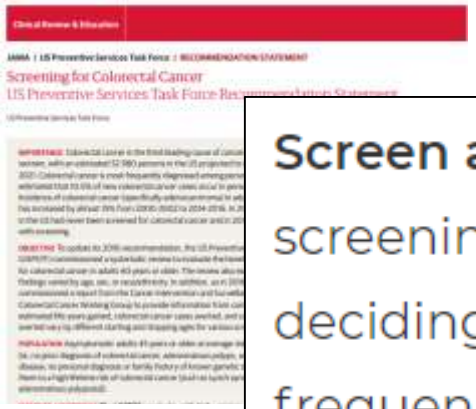
Hombres y mujeres mayores 75 años

NCI: Reducción de la mortalidad por Ca Colorrectal

Intervención	Diseño del estudio	Validez interna	Magnitud de los efectos	Validez externa
SOMF	ECA	Buena	15–33%	Razonable
Sigmoidoscopia	Estudios de casos y controles, ECA en curso	Razonable	Cerca de 60–70% para el colon izquierdo	Razonable
Examen digital del recto	Estudios de casos y controles	Razonable	Sin efecto	Deficiente
Colonoscopia	Estudios de casos y controles, ECA en curso	Deficiente	Cerca de 60–70% para colon izquierdo; desconoc. Para C derecho	Razonable

Modalidad de cribado	Frecuencia	Otras Consideraciones
iSOMF o SOMF de alta sensibilidad	Anual	Menos colonoscopias durante la vida No requiere limpieza del intestino, la anestesia, o el transporte (el test se realiza en el hogar).
Sigmoidoscopia flexible con FIT	Sigmoidoscopia flexible c/10 años más iSOMF anual	Quieren detección endoscópica, pero no tanto
Colonoscopia	Cada 10 años	Menos frecuente. Detección y terapéutica.




Screening for Colorectal Cancer
US Preventive Services Task Force Recommendation Statement

JAMA. 2021;325(19):1965-1977. doi:10.1001/jama.2021.6238

Recomm

Populatior
Adults age 50 to 75 ye
Adults age 45 to 49 ye
Adults age 76 to 85 ye

Screen all adults aged 45 to 75 years for colorectal cancer. Several recommended screening tests are available. Clinicians and patients may consider a variety of factors in deciding which test may be best for each person. For example, the tests require different frequencies of screening, location of screening (home or office), methods of screening (stool-based or direct visualization), preprocedure bowel preparation, anesthesia or sedation during the test, and follow-up procedures for abnormal findings.

Recommended screening strategies include:

- High-sensitivity guaiac fecal occult blood test (HSgFOBT) or fecal immunochemical test (FIT) every year
- Stool DNA-FIT every 1 to 3 years
- Computed tomography colonography every 5 years
- Flexible sigmoidoscopy every 5 years
- Flexible sigmoidoscopy every 10 years + annual FIT
- Colonoscopy screening every 10 years

- Resumen de recomendaciones
- **Intervalo etario para realizar el tamizaje organizado**

Se recomienda realizar tamizaje programático de CCR en individuos de riesgo promedio entre los 50 y 75 años.
Moderada calidad de la evidencia, nivel de recomendación fuerte a favor.
Se sugiere NO realizar tamizaje programático de CCR en individuos de riesgo promedio entre 45 a 49 años.
Baja calidad de la evidencia, nivel de recomendación condicional en contra de la opción.
Se sugiere NO realizar tamizaje programático de CCR en individuos de riesgo promedio mayor de 75 años.
Baja calidad de la evidencia, nivel de recomendación condicional en contra de la opción.

- **Método de tamizaje**

Se sugiere utilizar el TSOMFi como método para el tamizaje programático de CCR.
Baja calidad de la evidencia, nivel de recomendación condicional a favor

- **Intervalo de tamizaje**

Se sugiere realizar tamizaje programático de CCR con TSOMFi con una periodicidad bienal.
Baja calidad de la evidencia, nivel de recomendación condicional a favor

TSOMFi: test de sangre oculta en materia fecal inmunoquímico

Cáncer mama

Cáncer de mama

- Cáncer más común en EEUU.
- 2da causa de muerte más frecuente en mujeres.
- El riesgo depende del número de familiares de primer grado con cáncer de mama y la edad al diagnóstico: a mayor cantidad de familiares y edad más temprana al diagnóstico, mayor riesgo.

Rastreo de cáncer de mama en mujeres de riesgo promedio

- Con Mamografía
- Ecografía no tiene evidencia
- RMN no tiene evidencia (mamas densas? Alto riesgo?)
- Tomosíntesis no hay evidencia aunque…

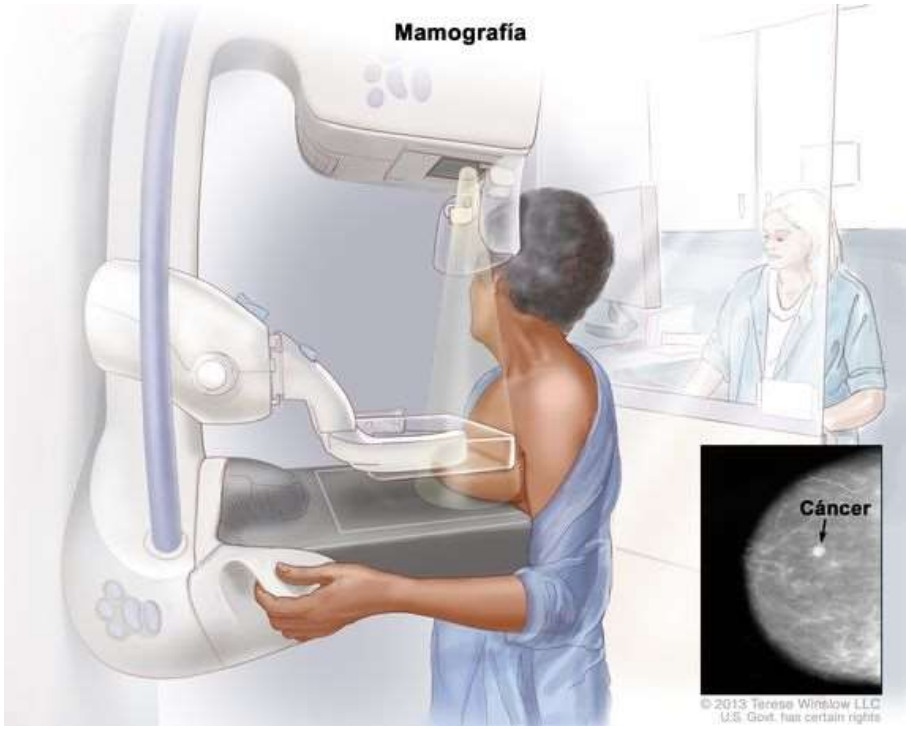
Mamografía

Reducción del 15 al 20% de la mortalidad por cáncer de mama en rastreo.

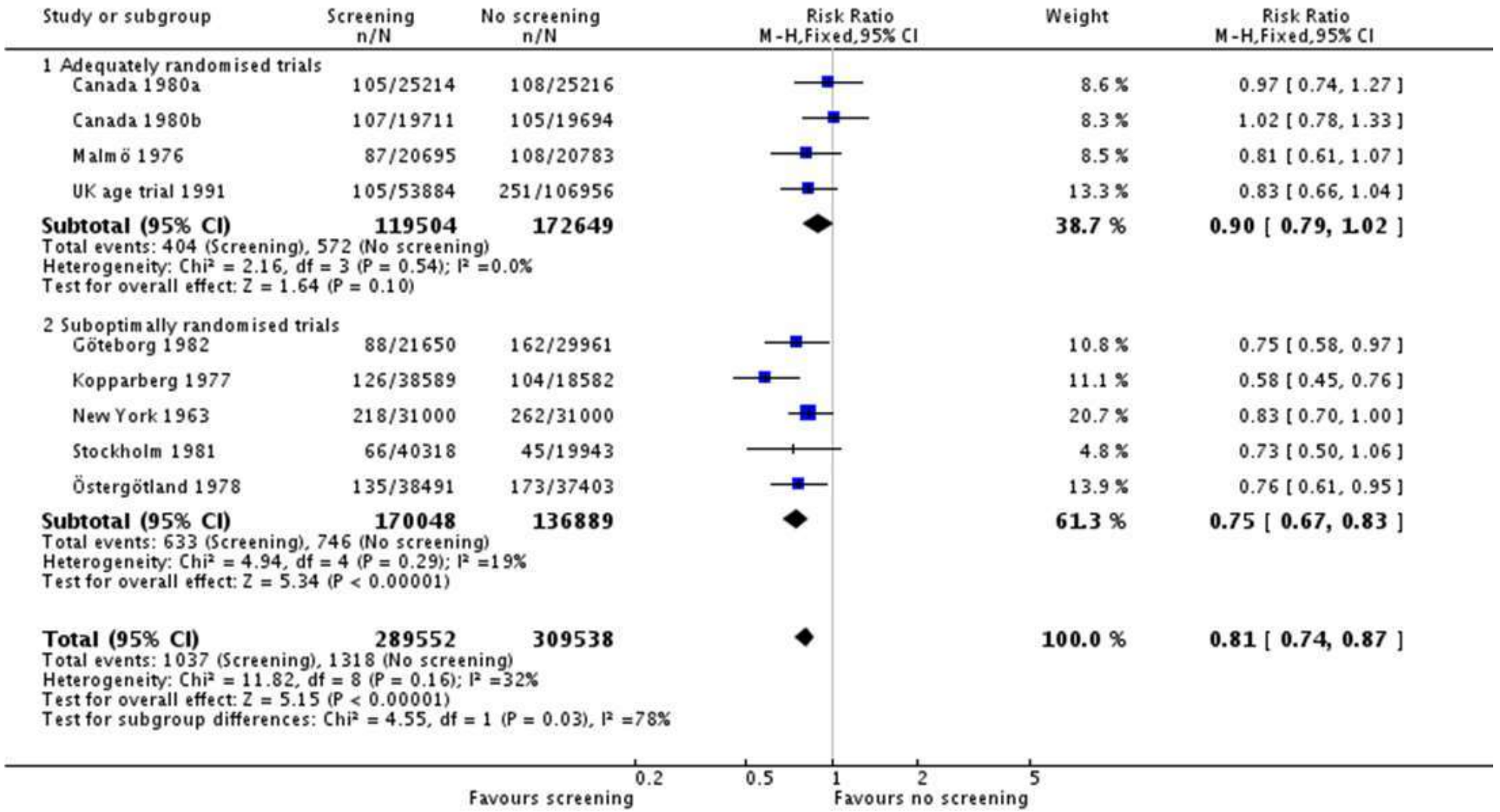
Sensibilidad: 77 % a 95 %, Especificidad: 94 % a 97 %

Factores que influyen:

- ✓ Edad
- ✓ tiempo desde el último examen,
- ✓ densidad del tejido mamario,
- ✓ el equipo y la habilidad del radiólogo



Efectividad de la mamografía:
Reducción Mortalidad a 13 años (Cochrane)



Gøtzsche Peter C, Jørgensen Karsten Juhl. Screening for breast cancer with mammography. Cochrane Database of Systematic Reviews. In: The Cochrane Library, Issue 3, Art. No. CD001877. DOI: 10.1002/14651858.CD001877.pub4

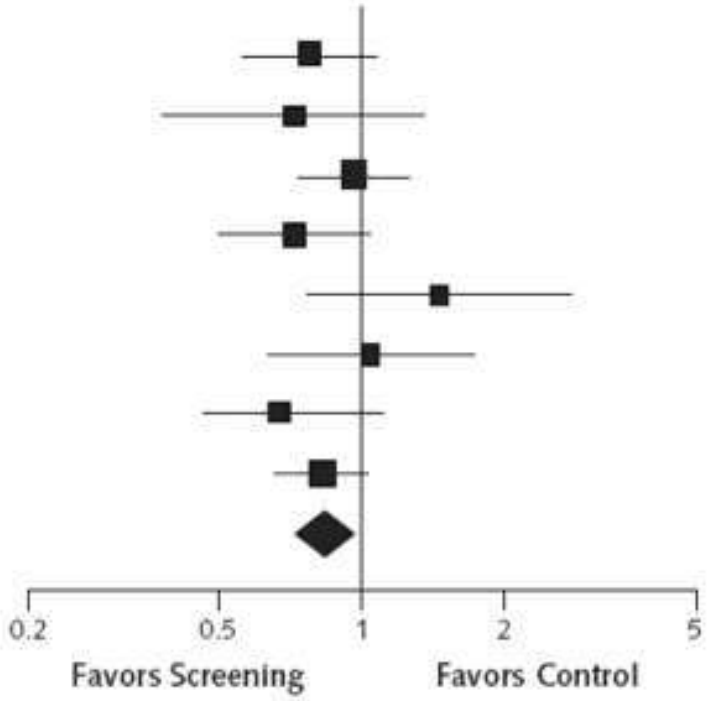
Efectividad de la mamografía: RR agrupado de mortalidad por Ca mama en ensayos de rastreo según las edades

Edad	Ensayos incluidos,*n*	RR mortalidad por Ca mama (95% IC)	NNS para prev. una Muerte por Ca mama (95% IC)
30-49	8	0,85 (0,75-0,96)	1904 (929-6378)
50-59	6	0,86 (0,75-0,99)	1339 (322-7455)
60-69	2	0,68 (0,54-0,87)	377 (230-1050)
70-74	1	1,12 (0,73-1,72)	-

Nelson H D et al. Ann Intern Med 2009;151:727-737

Mujeres de 40 a 49 años

RR agrupado de mortalidad por cáncer de mama en ensayos de rastreo con mamografía comparados con controles en mujeres de 39 a 49 años



Study/Author, Year (Reference)	Relative Risk for Breast Cancer Mortality (95% CrI)	Events/Total, *n/n*	
		Screening	Control
HIP/Habbema et al, 1986 (27)	0.78 (0.56–1.08)	64/13 740	82/13 740
Kopparberg*/Tabar et al, 1995 (31)	0.72 (0.38–1.37)	22/9582	16/5031
CNBSS-1/Miller et al, 2002 (28)	0.97 (0.74–1.27)	105/25 214	108/25 216
Malmö/Nyström et al, 2002 (26)	0.73 (0.51–1.04)	53/13 568	66/12 279
Stockholm/Nyström et al, 2002 (26)	1.47 (0.77–2.78)	34/14 303	13/8021
Östergötland*/Nyström et al, 2002 (26)	1.05 (0.64–1.73)	31/10 285	30/10 459
Gothenberg/Bjurstam et al, 2003 (30)	0.70 (0.46–1.06)	34/11 724	59/14 217
Age/Moss et al, 2006 (29)	0.83 (0.66–1.04)	105/53 884	251/106 956
Total	0.85 (0.75–0.96)	448/152 300	625/195 919

Nelson H D et al. Ann Intern Med 2009;151:727-737

The Breast Cancer Risk Assessment Tool

The Breast Cancer Risk Assessment Tool allows health professionals to estimate a woman's risk of developing invasive breast cancer over the next 5 years and up to age 90 (lifetime risk).

The tool uses a woman's personal medical and reproductive history and the history of breast cancer among her first-degree relatives (mother, sisters, daughters) to estimate absolute breast cancer risk—her chance or probability of developing invasive breast cancer in a defined age interval.

Assess Patient Risk

The tool has been validated for white women, black/African American women, Hispanic women and for Asian and Pacific Islander women in the United States. The tool may underestimate risk in black women with previous biopsies and Hispanic women born outside the United States. Because data on American Indian/Alaska Native women are limited, their risk estimates are partly based on data for white women and may be inaccurate. Further studies are needed to refine and validate these models.

This tool cannot accurately estimate breast cancer risk for:

- Women carrying a breast-cancer-producing mutation in *BRCA1* or *BRCA2*
- Women with a previous history of invasive or in situ breast cancer
- Women in certain other subgroups

Mamografía como rastreo en mujeres de 40 a 50 años

Mamografía es efectiva para reducir mortalidad……pero:

- **Para cada mujer entre 40 a 50 años, la reducción de su riesgo de morir por ca mama mejora de 99.8% a 99,85%**
- **NNS más de 1900 mujeres para evitar una sola muerte por cáncer de mama durante 11 años de seguimiento,**
- **11% sobrediagnóstico y sobretratamiento**

Nelson HD et al. Ann Intern Med 2009;151:727-737
Welch HG, Passow HJ. JAMA Intern Med. 2014; 174(3): 448

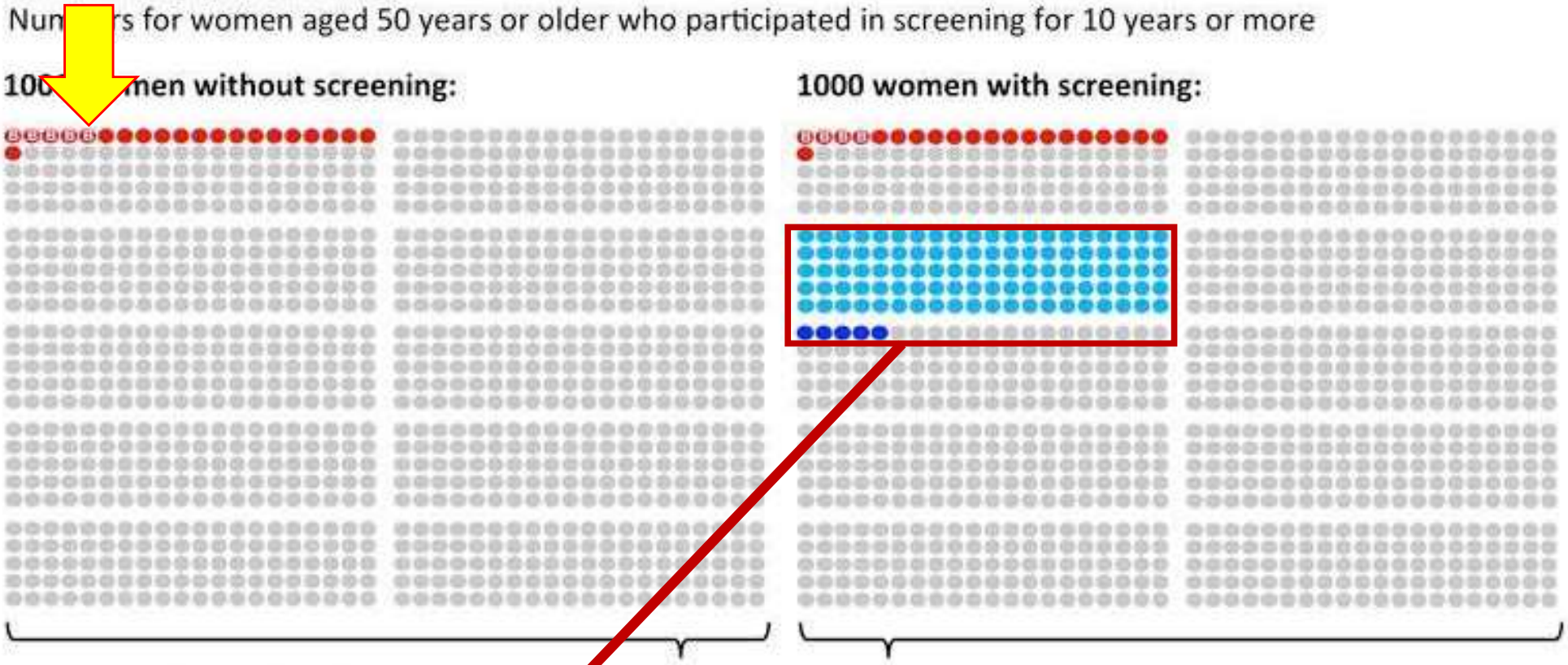
>50 años

Breast Cancer Early Detection

HARDING CENTER FOR RISK LITERACY

by mammography screening

Numbers for women aged 50 years or older who participated in screening for 10 years or more



	1000 women without screening:	1000 women with screening:
Women who died from breast cancer:	5	4
Women who died from all types of cancer:	21	21
Women who learned after a biopsy that their diagnosis was a false-positive:	–	100
Women who were diagnosed and treated for breast cancer unnecessarily:	–	5
Remaining women:	979	874

Source:
Gøtzsche, PC, Jørgensen, KJ (2013). *Cochrane Database of Systematic Reviews* (6): CD001877
Numbers in the facts box are rounded. Where no data for women above 50 years of age are available, numbers refer to women above 40 years of age.
www.harding-center.mpg.de

2000 mujeres sometidas a rastreo por 10 años

- ✓ 1 o 2 vidas salvadas
- ✓ 10 mujeres sanas, que no se hubieran diagnosticado si no hubiera habido screening, serán tratadas innecesariamente.
- ✓ Más de 200 mujeres con FP

Gøtzsche Peter C, Nielsen Margrethe. In: *The Cochrane Library,* Issue 5, Art. No. CD001877. DOI: 10.1002/14651858.CD001877.pub4. *2013*

Mamografía en mujeres asintomáticas menores a 40 años:

NO HACER

 Poco precisa (sensibilidad, especificidad y VPP) con muchas pruebas adicionales.
 No existe evidencia para apoyar el inicio del screening en mujeres asintomáticas antes de los 40 años con riesgo aumentado
 No existe evidencia para iniciar el screening 10 años antes del caso en la familia si debe ser hecho antes de los 40 años
 BCRA 1 y 2???
 de 10.000 mujeres de 35 a 39 sometidas a una mamografía exploratoria:
  ○ 1266 serían sometidas a nuevos exámenes,
  ○ se detectarían 16 casos de cáncer,
  ○ 1250 falsos positivos.

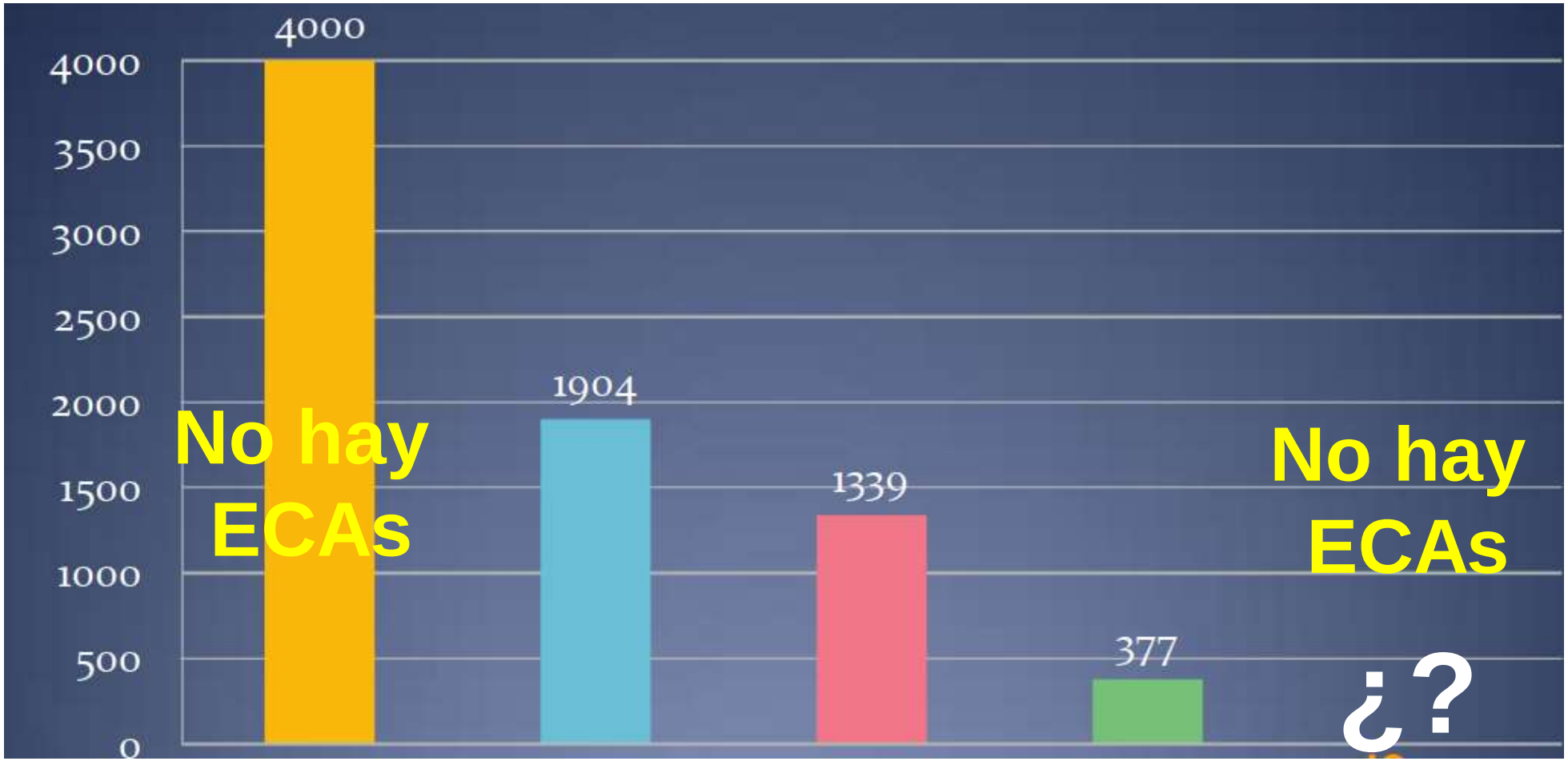
Mamografía en Mujeres mayores de 70 años

- **70 a 74 años, datos de 1 ECA, pocas pacientes (Östergötland) RR 1,12 (IC, 0,73 a 1,72)**

- **Mayores de 74 años: No hay ECA.**
Estudios observacionales y modelos sugieren 2 muertes menos por cáncer de mama /1000 mujeres (FP 200/1000 y SobreDx 15/1000) (Walter 2014)

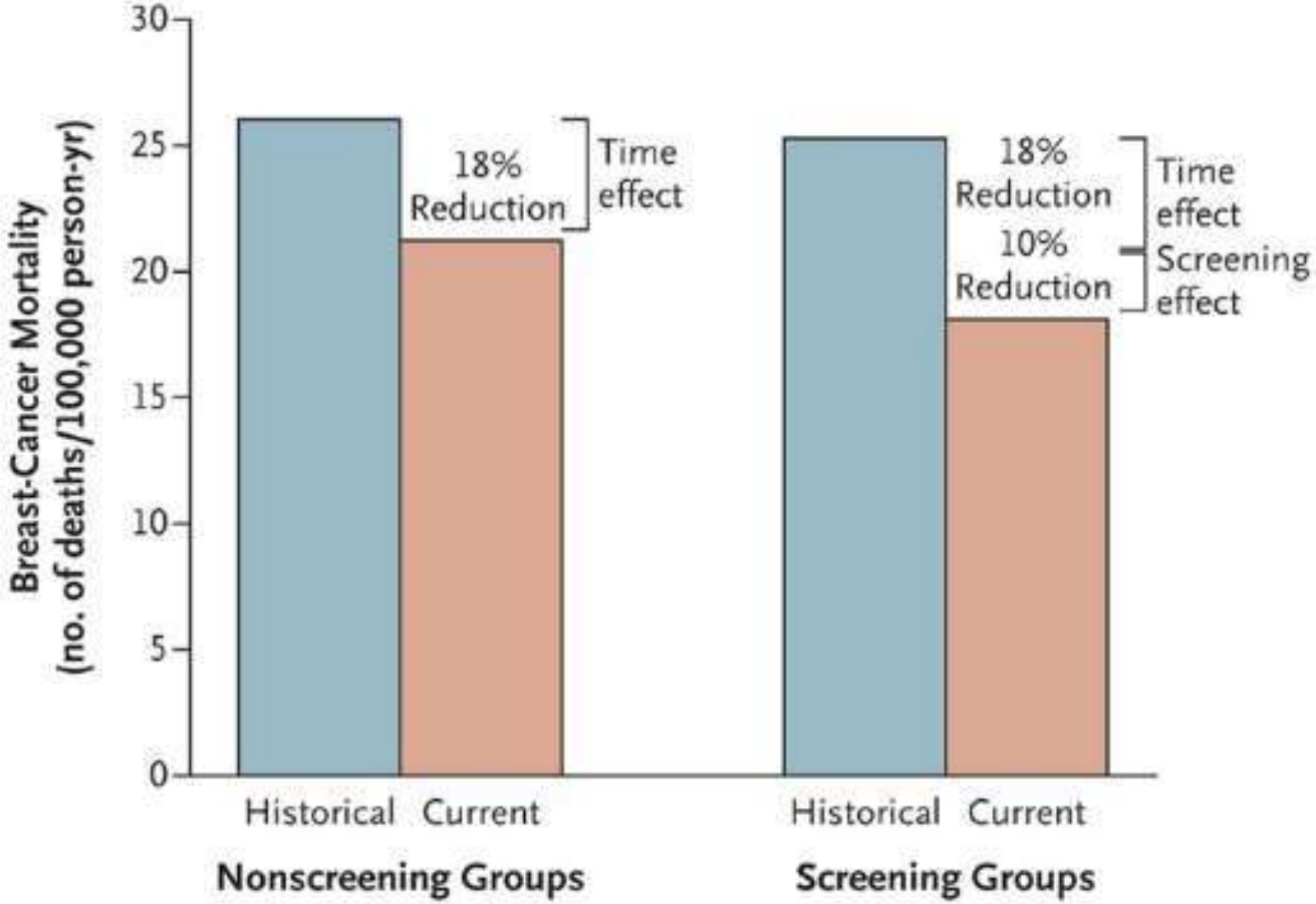
- **80 años o mayores un estudio de cohorte de 2.011 no encontró ninguna diferencia (Schonberg 2009)**

Mamografía como rastreo
NNR para prevenir una muerte



Pero hay otras campanas…

Efecto de la Mamografía de Screening sobre la Mortalidad por Cáncer de Mama en Noruega

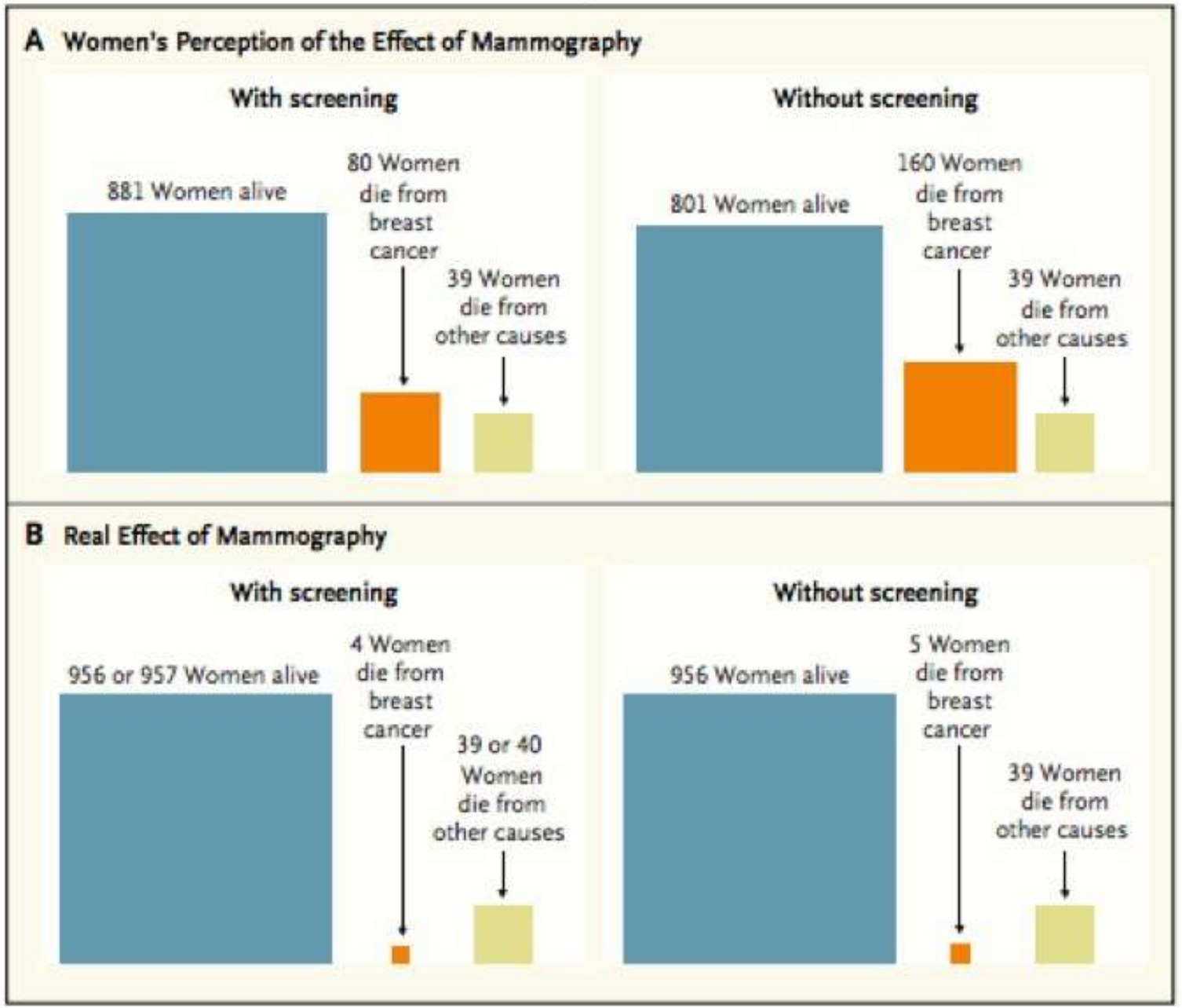


Observacional

Kalager M et al. N Engl J Med. 2010;363(13):1203

Riesgos del rastreo

- **Radiación: ????**
- **Dolor es común pero no disuasivo**
- **Stress psicológico es frecuente**
- **Falsos Positivos**
- **Biopsias innecesarias (en ♀ jóvenes más estudios adicionales pero menos biopsias)**
- **Sobrediagnóstico: depende de quién lo calcule…**



U.S. Women's Perceptions of the Effects of Mammography Screening on Breast-Cancer Mortality as Compared with the Actual Effects.

N Engl J Med 2014; 370:1965-1967May 22, 2014.

¡MAMÁ! arrancamos juntos

Campaña Permanente de Detección de Cáncer de Mama

Lic. José Guadalupe Osuna Millán
Gobernador del Estado de Baja California

ra. Rosa Carmina Capuchino de Osuna
Presidenta del Patronato del DIF Estatal

r. José Guadalupe Bustamante Moreno
Secretario de Salud de Baja California

Ing. Sebastián Serra Martínez
Rector Universidad Iberoamericana Tijuana

El Gobierno del Estado junto con la Universidad Iberoamericana Tijuana dan inicio a una campaña permanente para la protección del Cáncer de Mama, te invitamos a ser parte de ella.

Habrá entrega de reconocimientos a los alumnos participantes

Miércoles 22 de septiembre del 2010
Universidad Iberoamericana Tijuana
12:00 p.m. Auditorio Loyola

GobBC

Salud Seguro Popular
Régimen Estatal de Protección Social en Salud

DIF

SALUD
SECRETARÍA DE SALUD

IBERO

Entonces…

 La mamografía produce reducción de mortalidad por cáncer de mama (según la mayoría) pero el riesgo absoluto es diferente en cada mujer, y el beneficio absoluto es pequeño.

 En mujeres menores de 40 años no hay evidencia (tampoco en las muy añosas)

 Tiene riesgo de daños

 Podemos iniciar una toma de decisiones compartidas asesorando y respetando los valores de cada una de las mujeres

American Cancer Society Recommendations for the Early Detection of Cancer in Average-Risk Asymptomatic Adults*

Cancer site	Population	Test or procedure	Recommendations
Breast	Women 40 to 54 years of age	Mammography	Should be routinely performed starting at 45 years of age and should be performed annually in women 45 to 54 years of age Should have the opportunity to begin annual screening between 40 and 44 years of age
	Women 55 years or older		Should transition to biennial screening or have the opportunity to continue screening annually Mammography should be continued as long as the woman's overall health is good and she has a life expectancy of at least 10 years

JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Screening for Breast Cancer

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE Among all US women, breast cancer is the second most common cancer and the second most common cause of cancer death. In 2023, an estimated 43 170 women died of breast cancer. Non-Hispanic White women have the highest incidence of breast cancer and non-Hispanic Black women have the highest mortality rate.

OBJECTIVE The USPSTF commissioned a systematic review to evaluate the comparative effectiveness of different mammography-based breast cancer screening strategies by age to start and stop screening, screening interval, modality, use of supplemental imaging, or personalization of screening for breast cancer on the incidence of and progression to advanced breast cancer, breast cancer morbidity, and breast cancer-specific or all-cause mortality, and collaborative modeling studies to complement the evidence from the review.

POPULATION Cisgender women and all other persons assigned female at birth aged 40 years or older at average risk of breast cancer

Editorial
Multimedia
Related articles and JAMA Patient Page
Supplemental content
CME at jamacmelookup.com
Related articles at jamanetworkopen.com jamaoncology.com

Population	Recommendation	Grade
Women aged 40 to 74 years	The USPSTF recommends biennial screening mammography for women aged 40 to 74 years.	B
Women 75 years or older	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening mammography in women 75 years or older.	I
Women with dense breasts	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of supplemental screening for breast cancer using breast ultrasonography or magnetic resonance imaging (MRI) in women identified to have dense breasts on an otherwise negative screening mammogram.	I

JAMA. doi:10.1001/jama.2024.5534

To whom does this recommendation apply?	These recommendations apply to cisgender women and all other persons assigned female at birth (including transgender men and nonbinary persons) 40 years or older at average risk of breast cancer. They also apply to women who have factors associated with an increased risk of breast cancer, such as a family history of breast cancer (ie, a first-degree relative with breast cancer) or having dense breasts. These recommendations do not apply to persons who have a genetic marker or syndrome associated with a high risk of breast cancer (eg, *BRCA1* or *BRCA2* genetic variation), a history of high-dose radiation therapy to the chest at a young age, or previous breast cancer or a high-risk breast lesion on previous biopsies.
How to implement this recommendation?	• Screen women aged 40 to 74 years with a mammogram every 2 years. • Both digital mammography and digital breast tomosynthesis (or "3D mammography") are effective mammographic screening modalities. • To achieve the benefit of screening and mitigate disparities in breast cancer mortality by race and ethnicity, it is important that all persons with abnormal screening mammography findings receive equitable and appropriate follow-up evaluation and additional testing, inclusive of indicated biopsies, and that all persons diagnosed with breast cancer receive effective treatment. • There is insufficient evidence to recommend for or against screening for breast cancer in women 75 years or older. • There is insufficient evidence to recommend for or against supplemental screening using breast ultrasonography or MRI in women who have dense breasts. • Clinicians should use their clinical judgment regarding whether to screen for breast cancer in women 75 years or older and regarding whether to use supplemental screening in women who have dense breasts and an otherwise normal mammogram.

Clinical Review & Education

JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Risk Assessment, Genetic Counseling, and Genetic Testing for *BRCA*-Related Cancer
US Preventive Services Task Force
Recommendation Statement

US Preventive Services Task Force

IMPORTANCE Potentially harmful mutations of the breast cancer susceptibility 1 and 2 genes (*BRCA1/2*) are associated with increased risk for breast, ovarian, fallopian tube, and peritoneal cancer. For women in the United States, breast cancer is the most common cancer after nonmelanoma skin cancer and the second leading cause of cancer death. In the general population, *BRCA1/2* mutations occur in an estimated 1 in 300 to 500 women and account for 5% to 10% of breast cancer cases and 15% of ovarian cancer cases.

OBJECTIVE To update the 2013 US Preventive Services Task Force (USPSTF) recommendation

Editorial page 619
Author Audio Interview
Related article page 666 and JAMA Patient Page page 702
CME Quiz at jamanetwork.com/learning
Related articles at

JAMA. 2019;322(7):652-665. doi:10.1001/jama.2019.10987
Last corrected on November 12, 2019.

Recommendation Summary

Population	Recommendation	Grade
Women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or an ancestry associated with BRCA1/2 gene mutation	The USPSTF recommends that primary care clinicians assess women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or who have an ancestry associated with breast cancer susceptibility 1 and 2 (BRCA1/2) gene mutations with an appropriate brief familial risk assessment tool. Women with a positive result on the risk assessment tool should receive genetic counseling and, if indicated after counseling, genetic testing.	B
Women whose personal or family history or ancestry is not associated with potential harmful BRCA1/2 gene mutations	The USPSTF recommends against routine risk assessment, genetic counseling, or genetic testing for women whose personal or family history or ancestry is not associated with potentially harmful BRCA1/2 gene mutations.	D

Population	Women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or who have an ancestry associated with *BRCA1/2* gene mutations	Women whose personal or family history or ancestry is not associated with potentially harmful *BRCA1/2* gene mutations
Recommendation	**Assess with an appropriate brief familial risk assessment tool.** **Grade: B**	**Do not perform routine risk assessment, genetic counseling, or genetic testing.** **Grade: D**
Risk Assessment	Patients with family or personal histories of breast, ovarian, tubal, or peritoneal cancer or ancestry associated with harmful *BRCA1/2* mutations should be assessed using a familial risk assessment tool. The USPSTF found adequate evidence that these tools are accurate in identifying women with increased likelihood of *BRCA1/2* mutations. Tools evaluated by the USPSTF include the Ontario Family History Assessment Tool, Manchester Scoring System, Referral Screening Tool, Pedigree Assessment Tool, 7-Question Family History Screening Tool, International Breast Cancer Intervention Study instrument (Tyrer-Cuzick), and brief versions of BRCAPRO. These tools should be used to guide referrals to genetic counseling.	
Genetic Counseling	Genetic counseling about *BRCA1/2* mutation testing should be done by trained health professionals, including suitably trained primary care providers. The process of genetic counseling includes detailed kindred analysis and risk assessment for potentially harmful *BRCA1/2* mutations. It also includes identification of candidates for testing, patient education, discussion of the benefits and harms of genetic testing, interpretation of results after testing, and discussion of management options.	

Solo alrededor de **5% de los cánceres de mama** y de **10% al 15% de los cánceres ováricos** están asociados con mutaciones en BRCA1 y BRCA2.

¿Quién debe pensar en hacerse examinar?

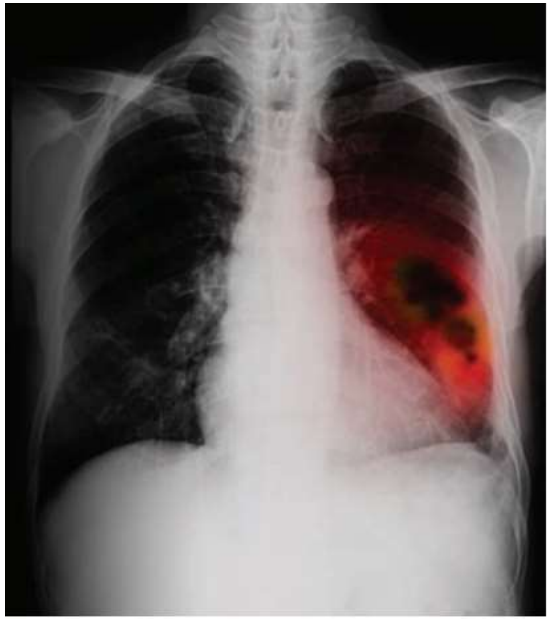
Paciente con familiar con cáncer de mama o cáncer ovárico, averiguar si a esa persona la han examinado en busca de la mutación en genes BRCA1 y BRCA2. Si esa persona tiene la mutación, se podría contemplar la posibilidad de examinar al paciente.

¿Cuándo considerar solicitarBRCA1 o BRCA2? Antecedentes familiares de:

•Dos o más parientes cercanos (padres, hermanos, hijos) tienen cáncer de mama antes de los 50 años
•Un pariente masculino tiene cáncer de mama
•Un pariente femenino tiene cáncer de mama y de ovario
•Dos parientes tienen cáncer de ovario
•Usted es de ascendencia judía (asquenazí) de Europa Oriental y un pariente cercano tiene cáncer de mama o de ovario

Cáncer Pulmón

Cáncer de pulmón



Porqué sí

- Alta morbilidad y mortalidad
- Alta prevalencia (0,5 a 2,2 %)
- Clara población de alto riesgo
- Fase preclínica larga
- La terapia precoz es más efectiva

Trial	Study design	Number of participants	Target group (age and smoking status)	Summary of findings	Additional points
NLST (National Lung Screening Trial)	Participants randomly assigned to one of two screening groups: one group underwent LDCT annually for 3 years, and the other group underwent chest X-ray annually for the same period.	>53,000	55–74 years old, with a history of smoking for at least 30 years or had quit smoking within the past 15 years.	The results of the study showed that LDCT reduced lung cancer mortality by 20% compared with chest X-ray.	X
NELSON ((NEderlands Leuvens Screening ONderzoek)	Participants were randomly assigned to either LDCT group or the control group. The LDCT group received screening with low-dose computed tomography scans at baseline and after 1, 2, and 4 years.	>15,000	40–74 years old, who were current or former smokers with a smoking history of at least 10 cigarettes per day for at least 30 years or 15 cigarettes per day for at least 25 years.	The primary endpoint of the study was lung cancer mortality. The LDCT group had a significantly lower cancer mortality (up to 20%) rate compared with the control group.	X
UKLS (UK Lung Screen Trial)	Participants were randomly assigned to LDCT screening (periodicity defined according to the Wald Single Screen Design) or no screening (usual care).	4,055	50–75 years old with the risk score Liverpool Lung Project (LLPv2)≥4.5%	While the UKLS showed benefits in early detection, the study was not sufficiently large or long term to determine a direct impact on lung cancer mortality reduction.	Screening with LDCT resulted in a high proportion of lung cancers being detected at early stages. In the screened group, 87.8% of diagnosed cancers were at stage I or II. The trial shows, however, a proportion of false-positive results of 18.5% (nodules that were initially suspicious but later confirmed as benign).
LUSI (Lung Screening Intervention Trial)	Participants were recruited from the general population and randomly assigned to LDCT screening or no screening during 5 years.	4,052	50–69 years old, with eligibility criteria being defined by at least 25 years smoking of at least 15 cigarettes per day or at least 30 years smoking of at least 10 cigarettes per day, including ex-smokers who had stopped smoking not more than 10 years before invitation to screening.	Modeling by sex showed a statistically significant reduction in lung cancer mortality among women (HR=0.31 [95%CI 0.10–0.96], p=0.04), but not among men (HR=0.94 [95%CI 0.54–1.61], p=0.81) screened by LDCT.	X
MILD (Multicentric Italian Lung Detection)	Participants were randomized to annual or biennial LDCT, with a median screening period of 6.2 years or no screening (usual care).	4,099	49–75 years old, current or formers smokers (<10 years of quitting) of ≥20 packs/year without history of cancer in ≤5 years.	LDCT screening was associated with a significant 39% reduction in lung cancer mortality at 10 years (HR 0.61; 95%CI 0.39–0.95; p=0.017), as well as a nonsignificant 20% decrease in all-cause mortality.	The biennial LDCT arm showed a similar overall mortality (HR 0.80, 95%CI 0.57–1.12) and LC specific mortality at 10 years (HR 1.10, 95%CI 0.59–2.05), as compared with annual LDCT arm.

NLST: TC helicoidad de tórax redujo 20% la mortalidad en una población de alto riesgo vs Rx o no screening

RR de la mortalidad esp.	20 %
Número necesario de person as a someter a rastreo (NNS)	320
RR mortalidad total	6,7%

Las Dudas

- FP 95% en NLST
- ¿Sobrediagnóstico ?? Tal vez 18%
- ¿Costo?
- ¿Riesgo por las intervenciones? Por cada 10 muertes por cáncer de pulmón evitadas hubo 3 muertes por pruebas invasivas o por el tratamiento quirúrgico del cáncer de pulmón.
- ¿Extrapolación? Las personas que participaron en el NLST tenían, en promedio, riesgo quirúrgico bajo (1,2% de mortalidad quirúrgica), un riesgo modesto de morir de cáncer de pulmón (1,7% de incidencia acumulada a 6 años), y menos comorbilidades que los fumadores pesados

Research

Original Investigation

Overdiagnosis in Low-Dose Computed Tomography Screening for Lung Cancer

Edward F. Patz Jr, MD; Paul Pinsky, PhD; Constantine Gatsonis, PhD; JoRean D. Sicks, MS; Barnett S. Kramer, MD, MPH; Martin C. Tammemägi, PhD; Caroline Chiles, MD; William C. Black, MD; Denise R. Aberle, MD; for the NLST Overdiagnosis Manuscript Writing Team

Related article page 281

Supplemental content at jamainternalmedicine.com

IMPORTANCE Screening for lung cancer has the potential to reduce mortality, but in addition to detecting aggressive tumors, screening will also detect indolent tumors that otherwise may not cause clinical symptoms. These overdiagnosis cases represent an important potential harm of screening because they incur additional cost, anxiety, and morbidity associated with cancer treatment.

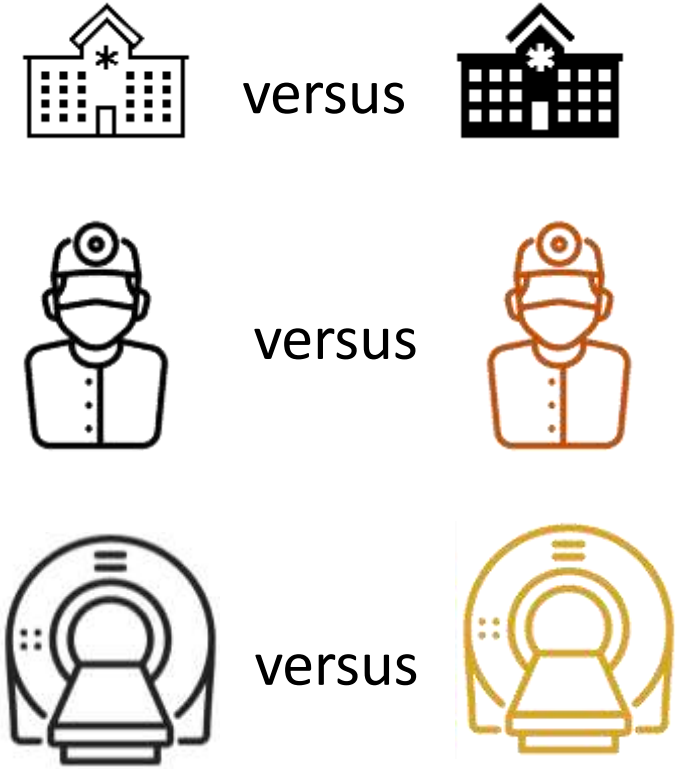
OBJECTIVE To estimate overdiagnosis in the National Lung Screening Trial (NLST).

DESIGN, SETTING, AND PARTICIPANTS We used data from the NLST, a randomized trial comparing screening using low-dose computed tomography (LDCT) vs chest radiography (CXR) among 53 452 persons at high risk for lung cancer observed for 6.4 years, to estimate the excess number of lung cancers in the LDCT arm of the NLST compared with the CXR arm.

MAIN OUTCOMES AND MEASURES We calculated 2 measures of overdiagnosis: the probability that a lung cancer detected by screening with LDCT is an overdiagnosis (P_S), defined as the excess lung cancers detected by LDCT divided by all lung cancers detected by screening in the LDCT arm; and the number of cases that were considered overdiagnosis relative to the number of persons needed to screen to prevent 1 death from lung cancer.

RESULTS During follow-up, 1089 lung cancers were reported in the LDCT arm and 969 in the CXR arm of the NLST. The probability is 18.5% (95% CI, 5.4%-30.6%) that any lung cancer detected by screening with LDCT was an overdiagnosis, 22.5% (9
non-small cell lung cancer detected by LDCT was an overdiagnosi
62.2%-93.5%) that a bronchioalveolar lung cancer detected by LD
The number of cases of overdiagnosis found among the 320 parti
be screened in the NLST to prevent 1 death from lung cancer was

CONCLUSIONS AND RELEVANCE More than 18% of all lung cancers
NLST seem to be indolent, and overdiagnosis should be considere
of LDCT screening for lung cancer.



CONCLUSIONS AND RELEVANCE More than 18% of all lung cancers detected by LDCT in the NLST seem to be indolent, and overdiagnosis should be considered when describing the risks of LDCT screening for lung cancer.

JAMA Intern Med. 2014;174(2):269-274


Clinical Review & Education

JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Screening for Lung Cancer

US Preventive Services Task Force Recommendation Statement

Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

50-80 años

20 pack/year & continúan o stop últimos 15 años

JAMA. 2021;325(10):962-970. doi:10.1001/jama.2021.1117

TABLE 1. Lung cancer screening recommendations[5,7-11]

	USPSTF	NCCN	ACS	AATS	CHEST
Age (years)	50-80	55-77	50-80	55-79	55-77
Smoking history (pack-years)	At least 20	At least 30	At least 20	At least 30	At least 30
Smoking status	Current or quit in past 15 years	Current or quit in past 14 years	Current or quit in past 15 years	Not specified	Current or quit in past 15 years
Shared decision-making visit	Required	Required	Required	Not required	Suggested
Other notes		May start at 50 years**	Must receive tobacco cessation counseling	May start at 50 years***	Must be asymptomatic
Method	Low-dose CT	Low-dose CT	Low-dose CT	Low-dose CT	Low-dose CT
Interval	Annual*	Annual	Annual	Annual	Annual****
Last updated	2021	2020	2021	2012	2018

*Stop screening if patient develops a comorbidity that substantially limits life expectancy.
**Start screening at age 50 years and 20 pack-years if the patient also has at least one other risk factor other than secondhand smoke (contact with radon, asbestos, or other cancer-causing agents; history of cancer; family history of lung cancer; history of COPD or pulmonary fibrosis).
***Start screening at age 50 years and 20 pack-years if the patient also has an additional cumulative risk of developing lung cancer of at least 5% over the next 5 years.
****Do not screen if the patient has comorbidities that adversely influence the ability to tolerate screening or treatment of detected lung cancer, or that substantially limit life expectancy.

Peterson, Ashley DMSc, MPAS, PA-C. Lung cancer screening in primary care. JAAPA 36(1):p 14-18, January 2023. | DOI: 10.1097/01.JAA.0000902872.28303.ba

Table 2. Guidelines for screening for lung cancer.

Guideline	Recommendations
USPSTF (United States Prevention Taskforce), 2021	**USPSTF** LDCT in individuals between the ages of 50 and 80 years with a ast 20 packs/year. The screening must be done in specialized centers ocols, to minimize the rate of false positives and overdiagnosis.
European Society of Radiology+European Respiratory Society, 2020	Screening with LDCT in individuals aged 50–75 years with a smoking history of at least 20 packs/year and a quit time of less than 10 years. Should be done yearly for at least 3 years. The results must be interpreted by radiologists with expertise in thoracic imaging.
Brazilian Society of Pneumology and Phthisiology+Brazilian Society of Thoracic Surgery+Brazilian College of Radiology and Imaging Diagnosis, 2023	**USPSTF** iduals between 50 and 80 years old, who are current smokers or 15 years, with a smoking history of at least 20 packs/year.
Canadian Task Force on Preventive Health Care, 2016	Screening with LDCT in individuals aged 55–74 years with at least a 30 packs/year smoking history, who currently smoke or quit less than 15 years ago. Annual screening with LDCT up to three consecutive years. Screening should only be carried out in health care settings with expertise in early diagnosis and treatment of lung cancer.
Royal Australian and New Zealand College of Radiologists (RANZCR), 2021	Age between 50 and 74 years; 20 or more packs/year history of smoking tobacco; and, if former smoker, have quit within 20 years should undergo helical LDCT. To be involved in the program, participants should also be willing to receive counseling and participate in shared decision-making before screening.

Aguiar. *Rev Assoc Med Bras (1992)*. 2024;70(suppl 1):e2024S111

TABLE 2. Lung-RADS scoring version 1.1[14]

Lung-RADS score	Category descriptor	Management	Risk of malignancy
0	Incomplete	Additional CT images and/or comparison to prior chest CT is needed	n/a
1	Negative	Annual screening with low-dose CT in 12 months	<1%
2	Benign appearance or behavior	Annual screening with low-dose CT in 12 months	<1%
3	Probably benign	Low-dose CT in 6 months	1% to 2%
4A	Suspicious	Low-dose CT in 3 months; consider PET/CT if ≥8mm solid component to the nodule	5% to 15%
4B	Very suspicious	Chest CT, PET/CT, and/or biopsy. Consider low-dose CT in 1 month for new, large nodules on annual screening low-dose CT for potentially infectious/inflammatory conditions	>15%
4X			
S	Other	As appropriate for the specific finding	n/a

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Cáncer Próstata


Clinical Review & Education

JAMA | US Preventive Services Task Force | RECOMMENDATION STATEMENT

Screening for Prostate Cancer

US Preventive Services Task Force Recommendation Statement

US Preventive Services Task Force

IMPORTANCE In the United States, the lifetime risk of being diagnosed with prostate cancer is approximately 11%, and the lifetime risk of dying of prostate cancer is 2.5%. The median age of death from prostate cancer is 80 years. Many men with prostate cancer never experience symptoms and, without screening, would never know they have the disease. African American men and men with a family history of prostate cancer have an increased risk of prostate cancer compared with other men.

OBJECTIVE To update the 2012 US Preventive Services Task Force (USPSTF) recommendation on prostate-specific antigen (PSA)–based screening for prostate cancer.

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CME Quiz at jamanetwork.com/learning

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Recommendation Summary

Population	Recommendation	Grade
Men aged 55 to 69 years	For men aged 55 to 69 years, the decision to undergo periodic prostate-specific antigen (PSA)-based screening for prostate cancer should be an individual one. Before deciding whether to be screened, men should have an opportunity to discuss the potential benefits and harms of screening with their clinician and to incorporate their values and preferences in the decision. Screening offers a small potential benefit of reducing the chance of death from prostate cancer in some men. 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 erectile dysfunction. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the balance of benefits and harms on the basis of family history, race/ethnicity, comorbid medical conditions, patient values about the benefits and harms of screening and treatment-specific outcomes, and other health needs. Clinicians should not screen men who do not express a preference for screening.	C
Men 70 years and older	The USPSTF recommends against PSA-based screening for prostate cancer in men 70 years and older.	D

JAMA. 2018;319(18):1901-1913. doi:10.1001/jama.2018.3710

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