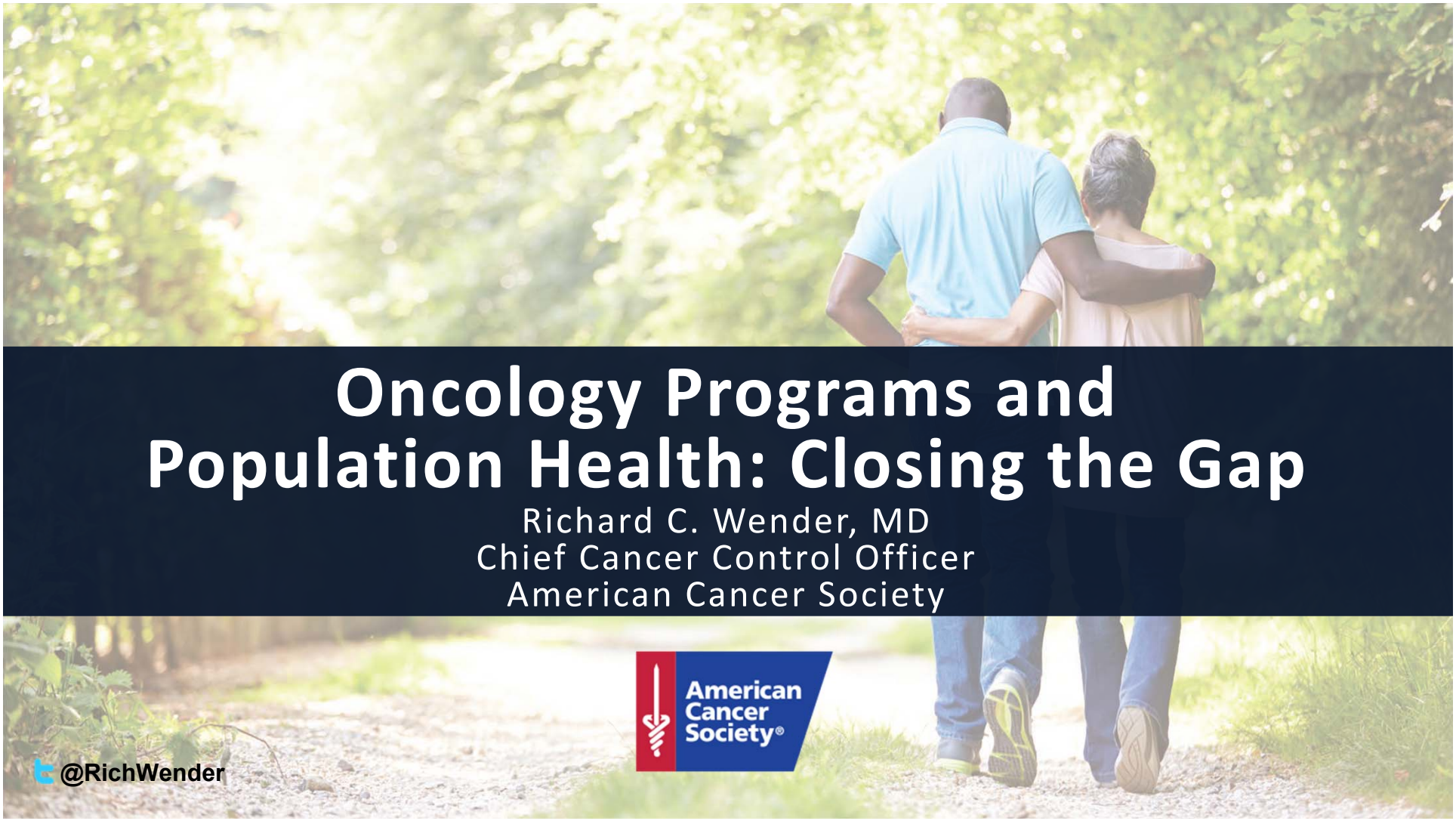

Oncology Programs and Population Health: Closing the Gap

Richard C. Wender, MD
Chief Cancer Control Officer
American Cancer Society

American Cancer Society®

@RichWender

This is an extraordinary time in the history of our efforts to reduce the burden of cancer.

In 2016, Barack Obama announced the Cancer Moonshot, a new initiative to eliminate cancer as we know it.

He charged Joe Biden to lead the effort.

https://obamawhitehouse.archives.gov/the-press-office/2016/02/01/fact-sheet-investing-national-cancer-moonshot

The Cancer Moonshot aims to bring about a decade's worth of advances in only 5 years.

https://obamawhitehouse.archives.gov/the-press-office/2016/02/01/fact-sheet-investing-national-cancer-moonshot

It’s focused on making more therapies available to more patients, while improving prevention and early detection.

https://obamawhitehouse.archives.gov/the-press-office/2016/02/01/fact-sheet-investing-national-cancer-moonshot

The Cancer Moonshot

- Precision medicine
- Targeted therapies
- New staging based on pathology and molecular characteristics
- Pharmaceutical options emerging at an unprecedented rate
- Harnessing big data
- New tools to guide clinical decisions and choice of therapies

https://www.cancer.gov/research/key-initiatives/moonshot-cancer-initiative

As the number of therapeutic options increases, we have a mounting need to capture and understand value in cancer care.

With great power (to treat cancer)
comes great responsibility.

With great power (to treat cancer)
comes great responsibility.

- Spiderman

With great power (to treat cancer)
comes great responsibility.

~~- Spiderman~~

With great power (to treat cancer)
comes great responsibility.

- Voltaire

Oncology Practice
News. Views. Research.

Cost, value of new cancer treatments rarely correlate

Publish date: June 4, 2017

By: Gregory Twachtman, Oncology Practice

CNN Health » Diet + Fitness | Living Well | Parenting + Family

Amid flurry of new cancer drugs, how many offer real benefits?

American Cancer Society

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New NCCN treatment guidelines will consider cost and value.

As the cost of therapies rises,
disparities in access to care rise, too.

Defining the Work of Cancer Centers

- The agenda for cancer centers is broad and demands:
  - Strong leadership
  - Culture that embraces excellence.
- Health care is constantly responding to financial incentives.

Defining the Work of Cancer Centers

- Cancer care is changing rapidly and technology needs are rising exponentially.
- The mandate:
  - Improve quality of care
  - Eliminate unexplained variations in care
  - Provide outstanding patient experience

The Agenda for Cancer Centers is Broad and Getting Wider

- Navigation to help patients and caregivers manage diagnosis, treatment, and survivorship.
- Timely and safe diagnostic evaluation.
- Timely determination, initiation, and completion of initial course of therapy.
- Supportive care, including integrating a palliative perspective from the point of diagnosis forward.

The Agenda for Cancer Centers is Broad and Getting Wider

- Early identification and mitigation of the adverse effects of the diagnosis and its treatment.
- Evidence-based short- and long-term survivorship care.
- Compassionate, honest management of end of life care.

Keeping Up With the Pace of Change

- Emergence of personalized therapies and immunotherapies.
- Accelerating the identification of actionable genetic variants.
- Continuous development of new drugs.
- Inadequacy of traditional clinical trials model.

The New Learning Paradigm in Cancer Care: Clinical Trials of One

- We have the new opportunity to – but also the challenge of – creating very large data sets blending clinical, pathological, and molecular data.
- Artificial intelligence will soon be necessary to process these data to provide treatment options, including evidence around cost and value, and options for clinical trials.

Why Have We Chosen To Do What We Do?

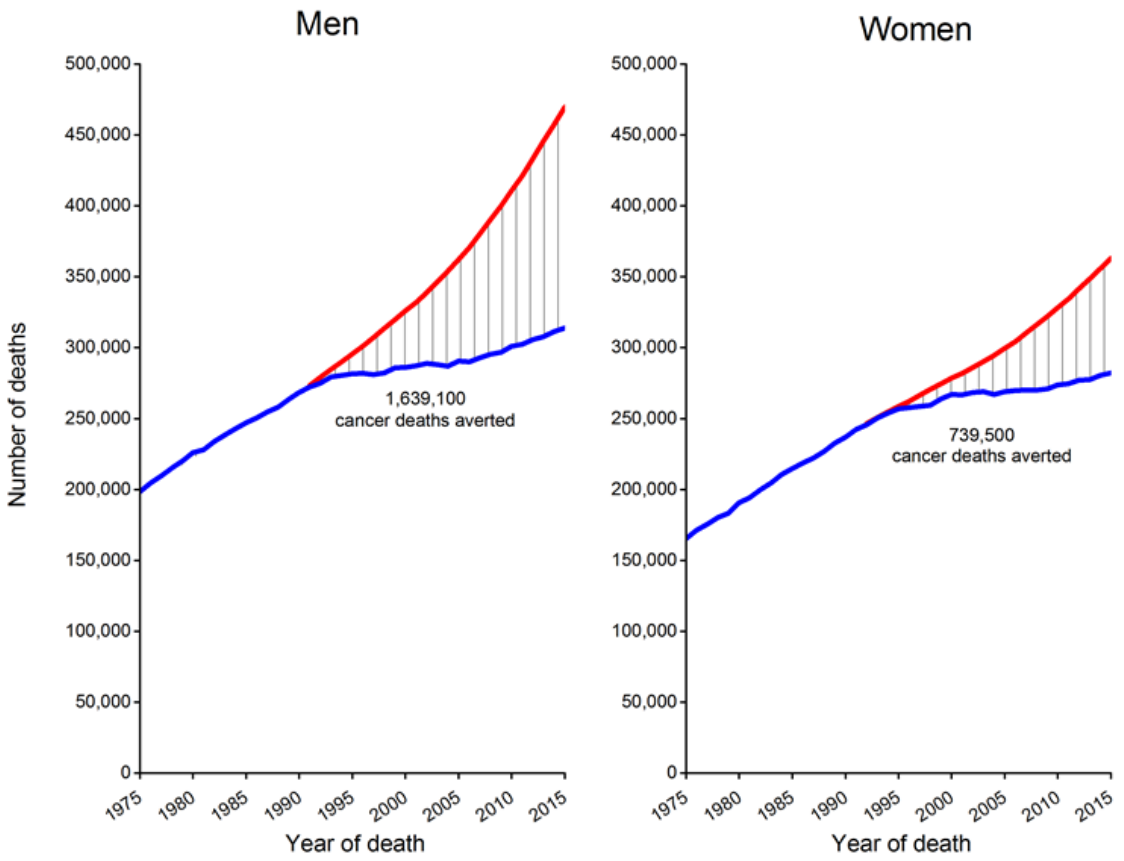
Our ultimate responsibility: To reduce the burden of cancer for the populations we serve.

The model of allowing cancers to develop and cause symptoms, leading to our attempt to rescue the patient is not the road to follow if we're fully committed to reducing the burden of cancer.

In 1996, the American Cancer Society issued a challenge to the nation to reduce age-adjusted cancer mortality by 50% by 2015.

We made it more than half-way there – achieving a 26% reduction in age-adjusted mortality.

Total Number Of Cancer Deaths Averted From 1991-2015



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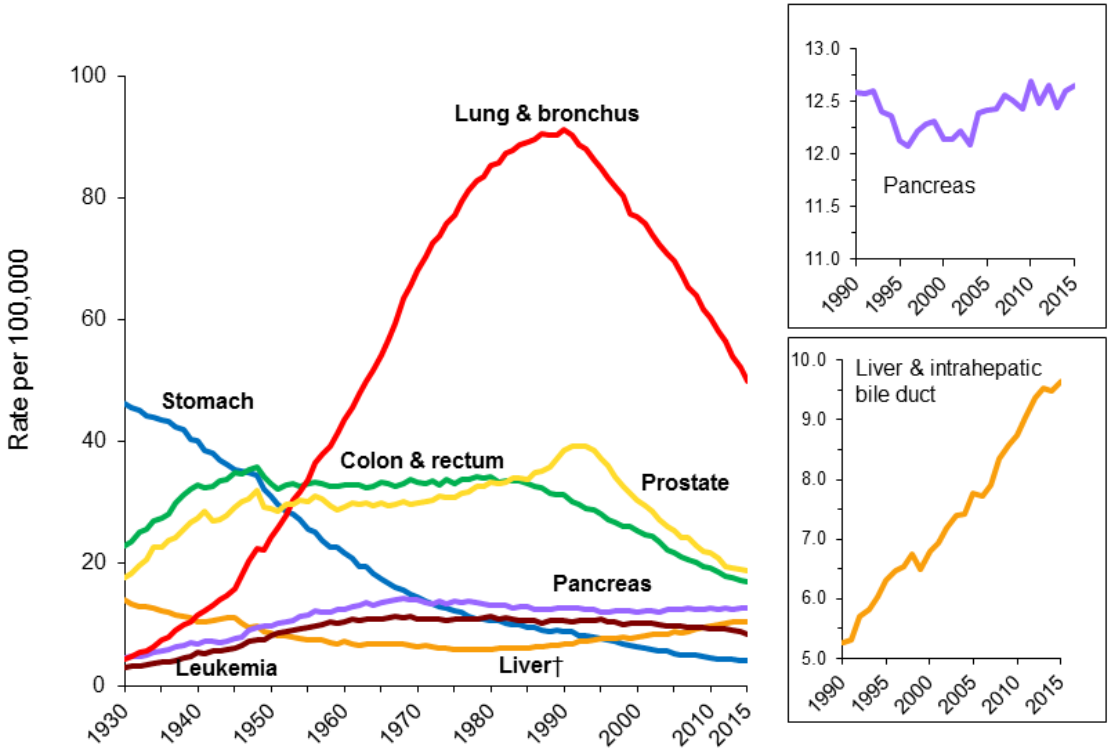
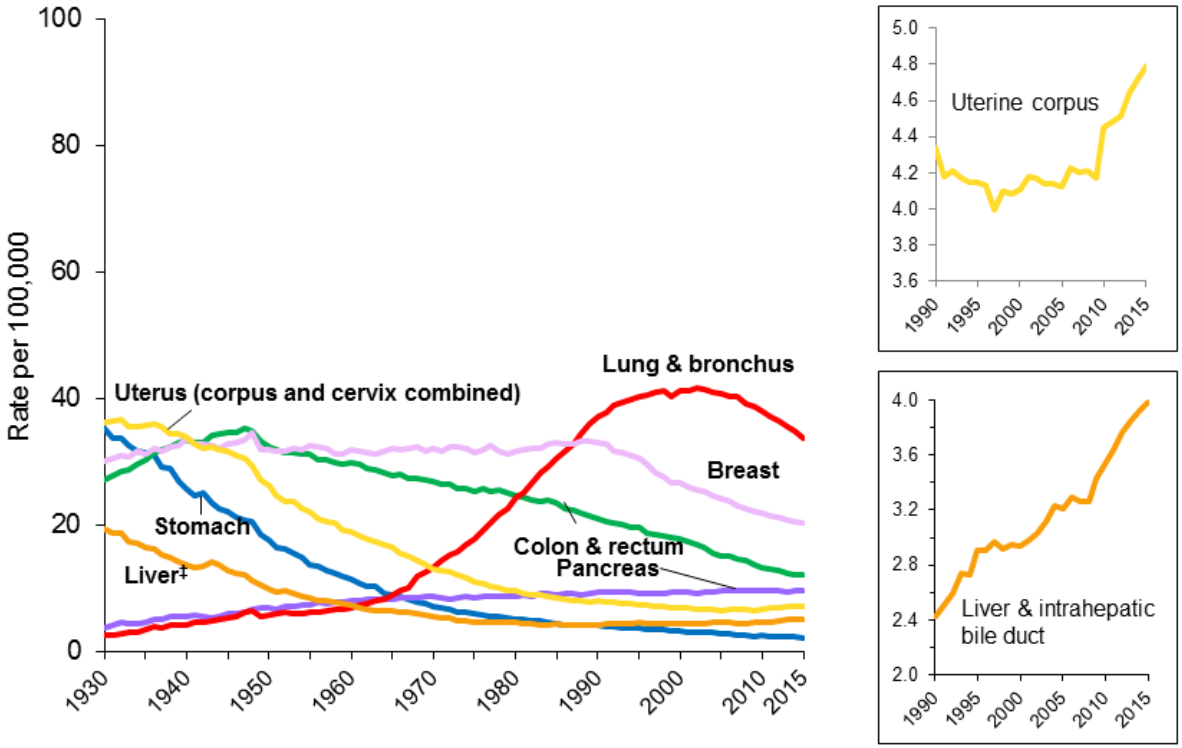
Trends in Cancer Death Rates Among Men, US, 1930-2015



Source: National Center for Health Statistics, Centers for Disease Control and Prevention, 2017.

Trends in Cancer Death Rates Among Women, US, 1930-2015



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Source: National Center for Health Statistics, Centers for Disease Control and Prevention, 2017.

45%

Proportion of cancer deaths caused by major identified modifiable risk factors, including smoking, excess weight, red and processed meat consumption, lack of fruits and vegetables, physical inactivity, UV radiation, and infections

Islami et al. 2017

We have a Cancer Moonshot …


It’s time for a
Cancer Earth Shot.
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Proven Interventions in Cancer Control

- Tobacco control
- Colorectal cancer screening
- Mammography
- HPV vaccination and cervical cancer screening
- Lung cancer screening
- Prostate cancer screening

Tobacco Control

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Proven Interventions

- Tobacco excise taxes
- Comprehensive smoke-free policies
- Full and sustained funding for evidence-based tobacco control programs
- Retail policies, including 21 age minimum, prohibition against couponing and discounts, restricting the sale of flavored products
- Graphic warning labels

15.1%

Percent of US adult smokers

3.7%

Percent who use ENDS

2.5%

Percent who use smokeless tobacco

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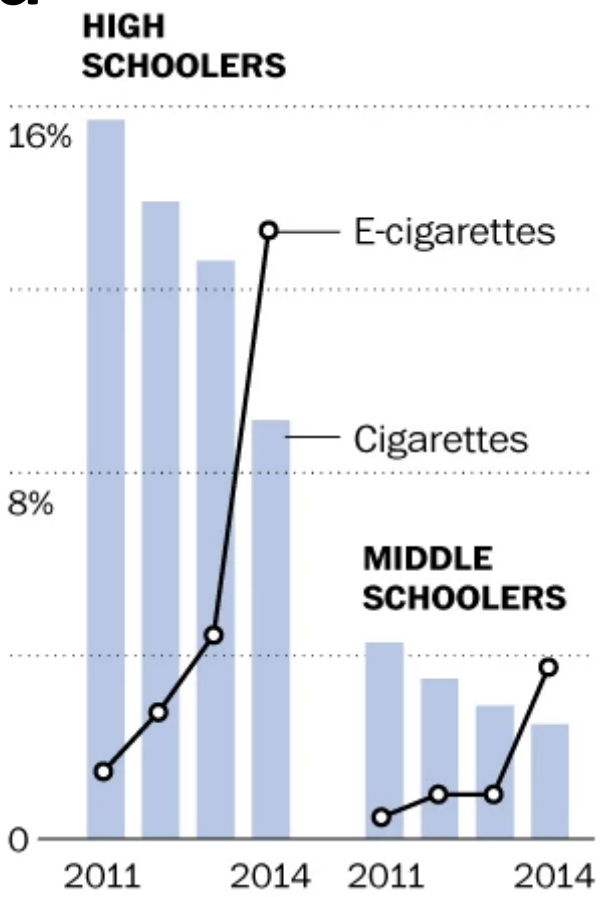
Teen Tobacco Use Declining

- From 2015 to 2016, the percentage of high school students using any tobacco product declined from 25.3% to 20.2%.
  - 20% decline
- Cigarette smoking is at a record low among high school students – 8%
  - 72% decline from 1999 levels

Jamal A, Gentzke A, Hu SS, et al. Tobacco Use Among Middle and High School Students — United States, 2011–2016. MMWR Morb Mortal Wkly Rep 2017;66:597–603. DOI: http://dx.doi.org/10.15585/mmwr.mm6623a1.

Teen E-Cigarette Use Tripled from 2013-2014

Estimated percentage of high school students who used tobacco in the preceding 30 days



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Source: National Youth Tobacco Survey 2011-2014, and Centers for Disease Control and Prevention
THE WASHINGTON POST

E-Cigarette Use Fell Sharply from 2015 to 2016

- Youth use of e-cigs dropped for the first time from 2015 to 2016.
  - 11.3% in 2016 v. 16% in 2015
- E-cigarettes are the most commonly used tobacco products among both middle and high school students.

Jamal A, Gentzke A, Hu SS, et al. Tobacco Use Among Middle and High School Students — United States, 2011–2016. MMWR Morb Mortal Wkly Rep 2017;66:597–603. DOI: http://dx.doi.org/10.15585/mmwr.mm6623a1.

Most smokers quit on their own … but all smokers should receive support for quitting if they want it.

Smokers unwilling to quit should be encouraged to use the safest form of nicotine containing tobacco product, such as e-cigarettes.

Colorectal Cancer Screening

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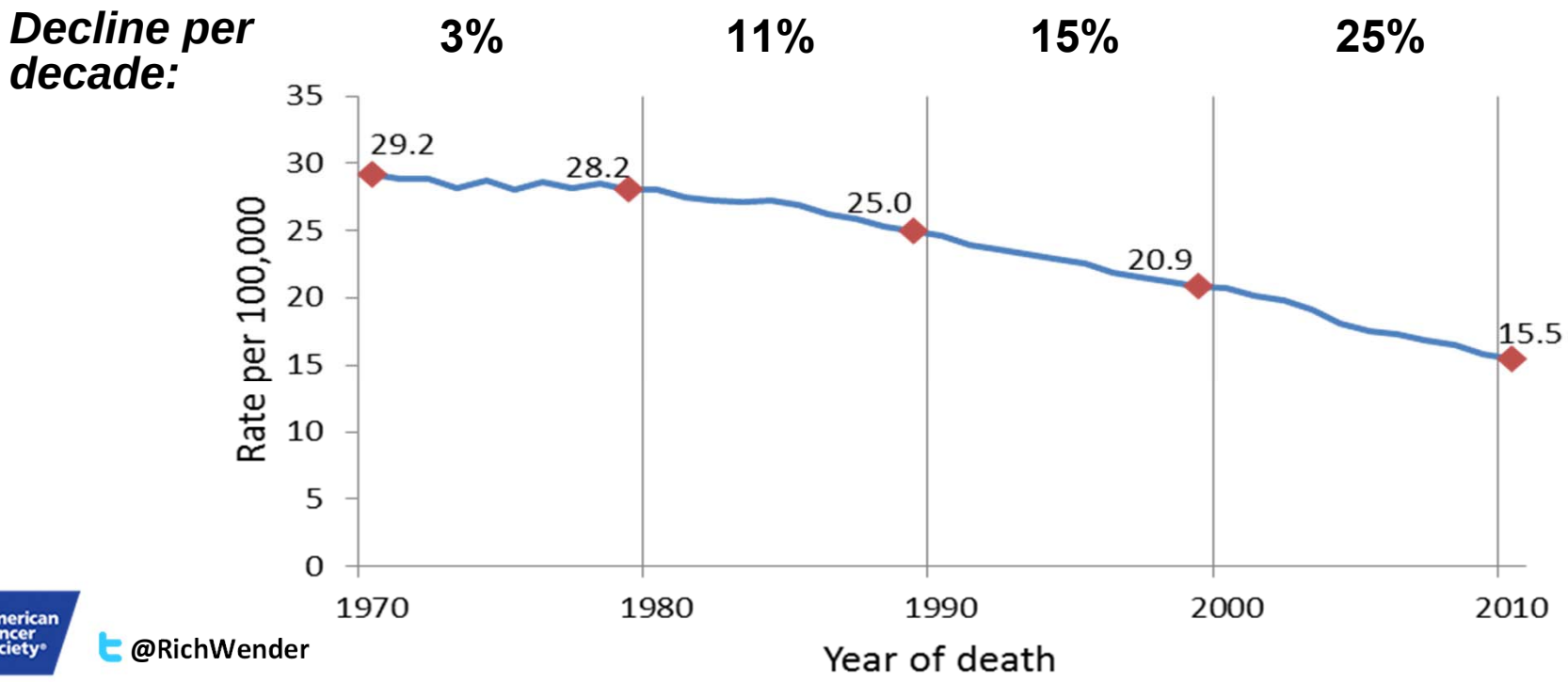
Stool testing and colonoscopy are powerful tools in the effort against colorectal cancer.

Increasing Decline in Colorectal Cancer Death Rates, 1970-2010



Organizations Have Taken The Pledge

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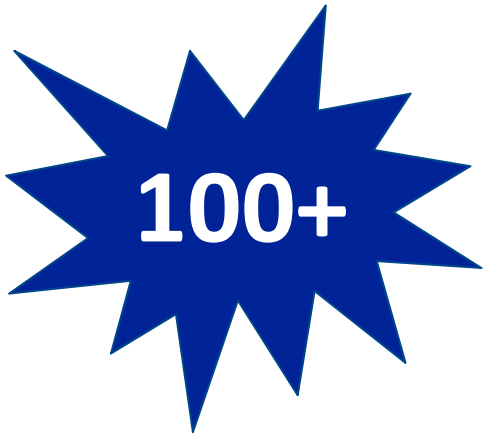
Organizations at 80%

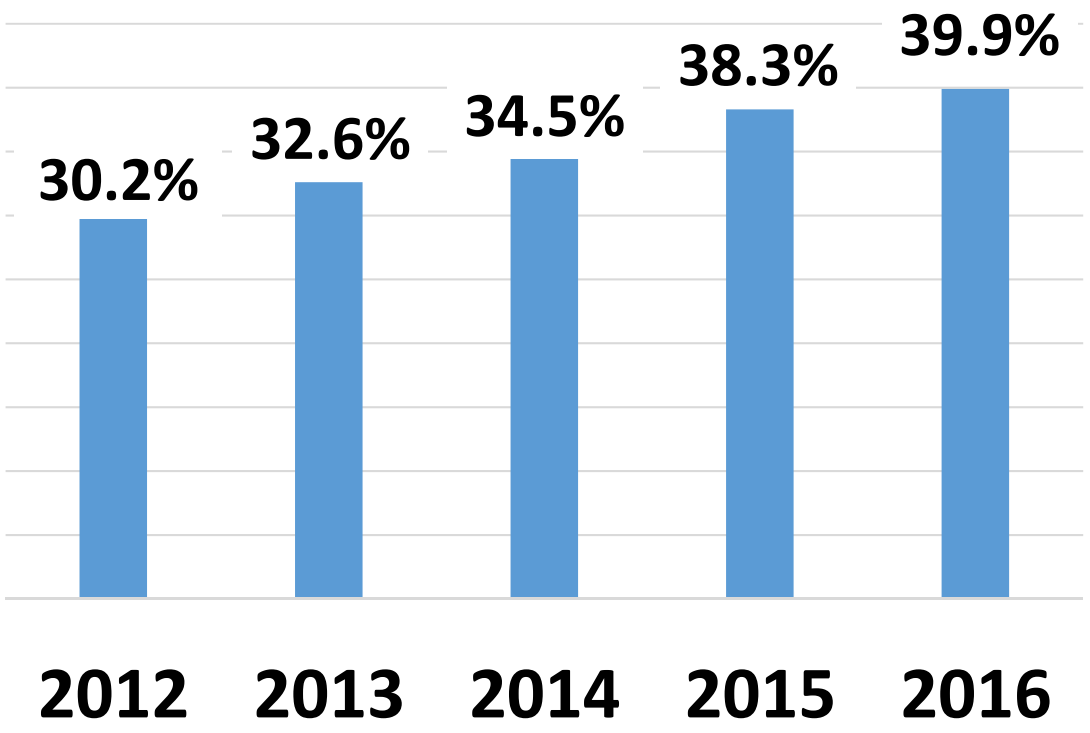
47	Medicare plans
28	Community health centers
25+	Medical practices and health systems
7	Commercial health plans



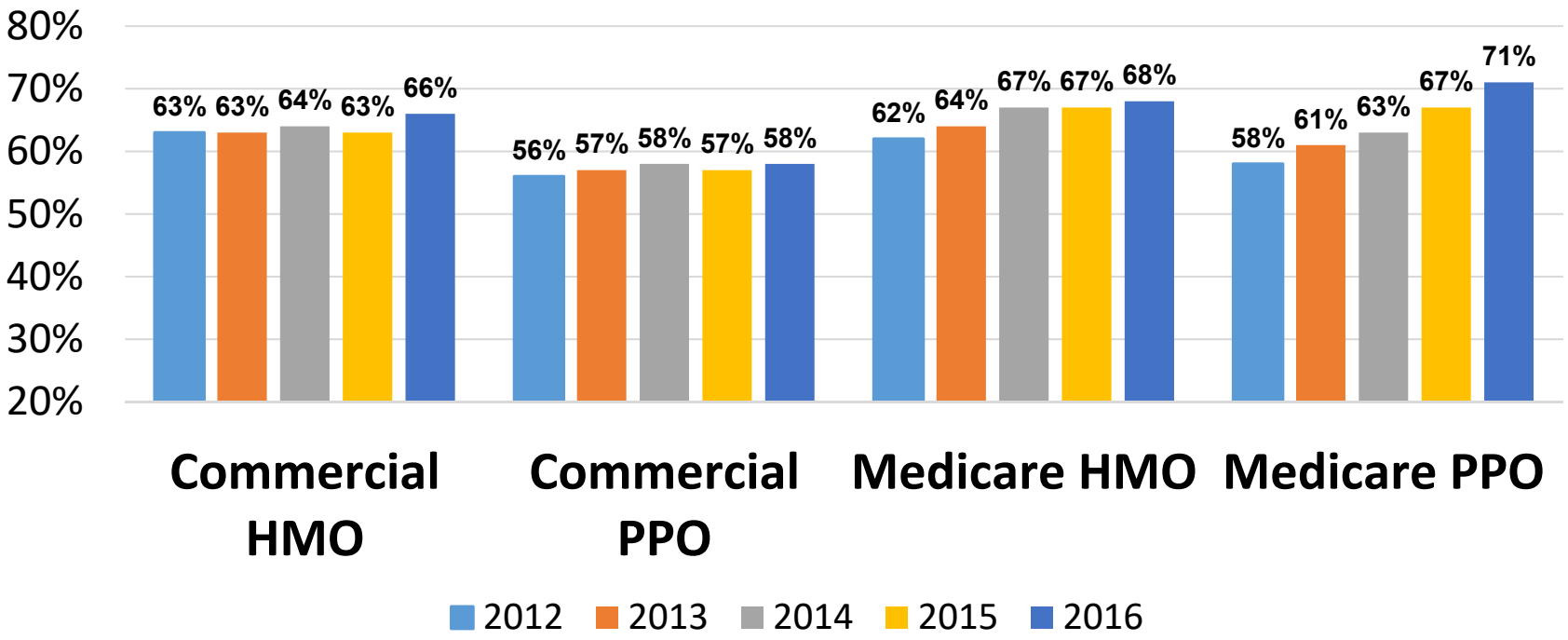
Screening Rates Are Going Up

Colorectal Cancer Screening Rate

ALL FQHCs-UDS

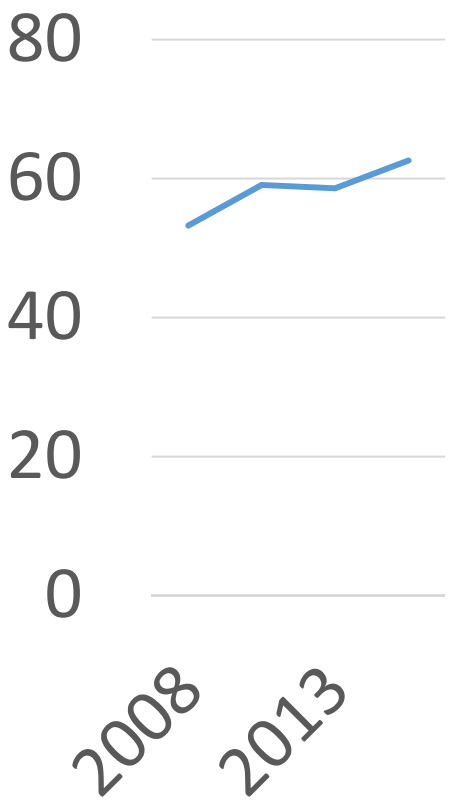


HEDIS Measures



NHIS Data

After plateauing for several years, screening increased from 59% to 63% from 2013 to 2015.



The increase in screening rate between 2013 and 2015 as measured by NHIS translates to an additional

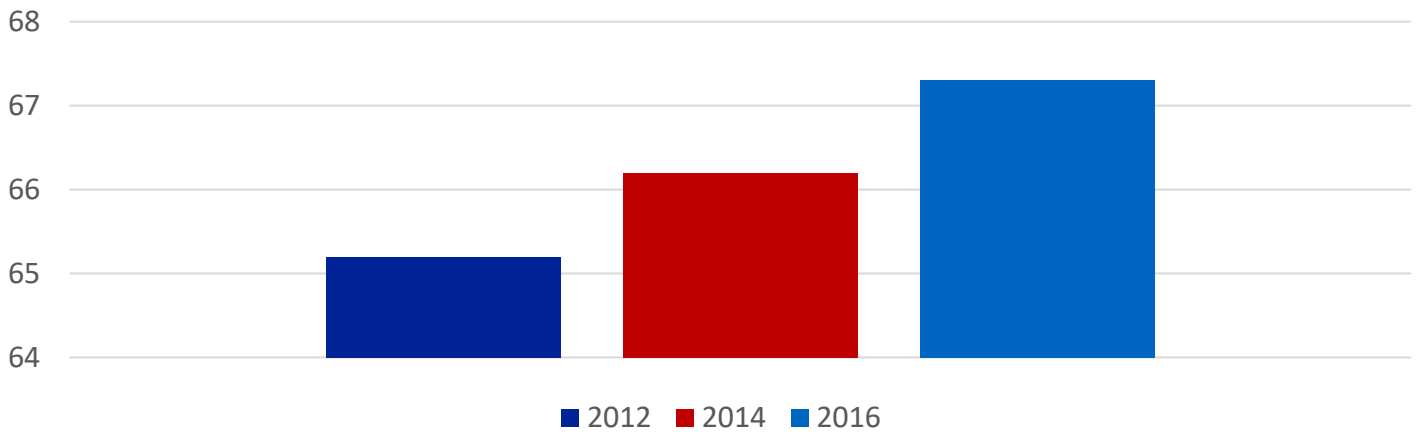
3.7 million adults screened by 2015.

If screening remains at the 2015 level, an estimated

39,700 additional cases and

37,200 deaths will be prevented through 2030.

Percentage of U.S. Adults Age 50-75 years Up-to-Date with CRC Screening, BRFSS



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Mammography Access

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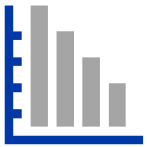
Ambivalence about the effectiveness of mammography is contributing to needless deaths from breast cancer.

Key Data Summary

Mammography is roughly equally effective, on a relative basis, in all age groups.



20% reduction in age-adjusted mortality rates based on randomized trials

27% to 45% reduction based on modern day observational trials

The balance of **benefits and drawbacks** is largely a function of the risk of breast cancer in each age group.

Evaluation of Service Screening in Canada

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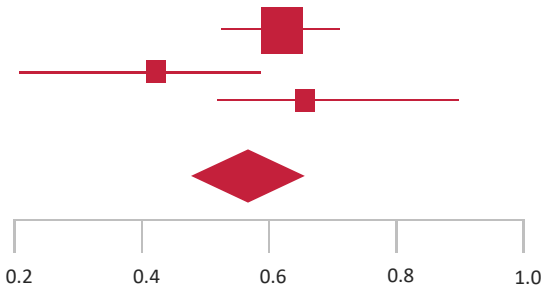
Standardized Mortality Ratios (SMRs) by Canadian Province for Ages at Entry: Summary Estimates are Based Upon Random Effects Models. All Statistical Tests Were Two-Sided.

40-49

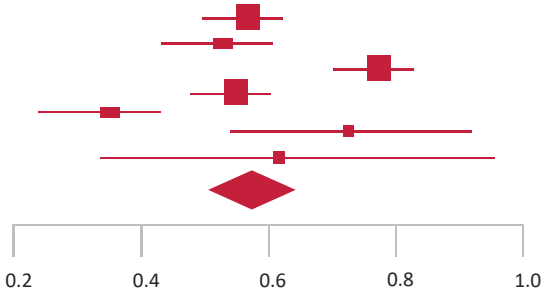
44% fewer deaths



Region	SMR	95% CI
British Columbia	0.58	0.51 to 0.65
New Brunswick	0.42	0.26 to 0.59
Nova Scotia	0.66	0.47 to 0.85
Summary (random)	**0.56**	**0.45 to 0.67**

50-59

40% fewer deaths



Region	SMR	95% CI
British Columbia	0.57	0.51 to 0.64
Manitoba	0.54	0.44 to 0.63
Ontario	0.78	0.71 to 0.85
Quebec	0.57	0.51 to 0.63
New Brunswick	0.37	0.25 to 0.48
Nova Scotia	0.75	0.57 to 0.92
Newfoundland & Labrador	0.65	0.34 to 0.97
Summary (random)	**0.60**	**0.49 to 0.70**

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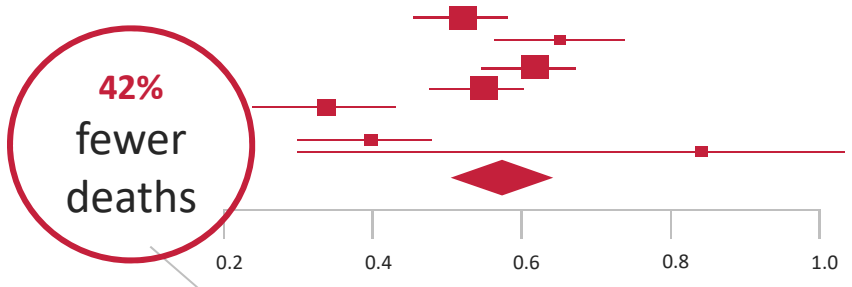
JNCI 2014;106(11)

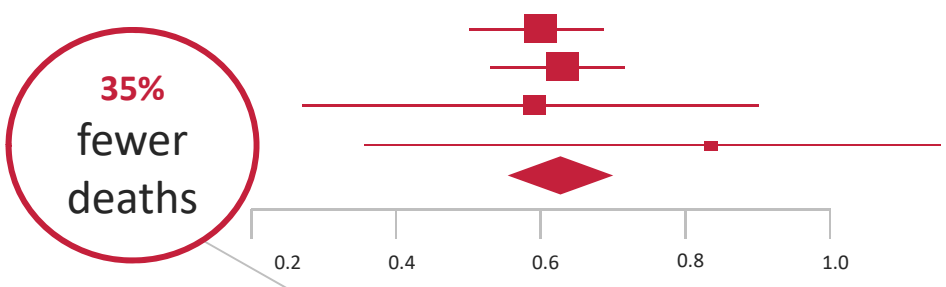
Standardized Mortality Ratios (SMRs) by Canadian Province for Ages at Entry: Summary Estimates are Based Upon Random Effects Models. All Statistical Tests Were Two-Sided.

60-69



Region	SMR	95% CI
British Columbia	0.57	0.49 to 0.64
Manitoba	0.70	0.55 to 0.85
Ontario	0.69	0.62 to 0.77
Quebec	0.63	0.56 to 0.71
New Brunswick	0.39	0.27 to 0.52
Nova Scotia	0.45	0.30 to 0.60
Newfoundland & Labrador	0.69	0.30 to 1.09
Summary (random)	**0.58**	**0.50 to 0.67**

70-79



Region	SMR	95% CI
British Columbia	0.63	0.49 to 0.76
Ontario	0.66	0.52 to 0.79
New Brunswick	0.63	0.30 to 0.96
Nova Scotia	0.84	0.36 to 1.31
Summary (random)	**0.65**	**0.56 to 0.74**

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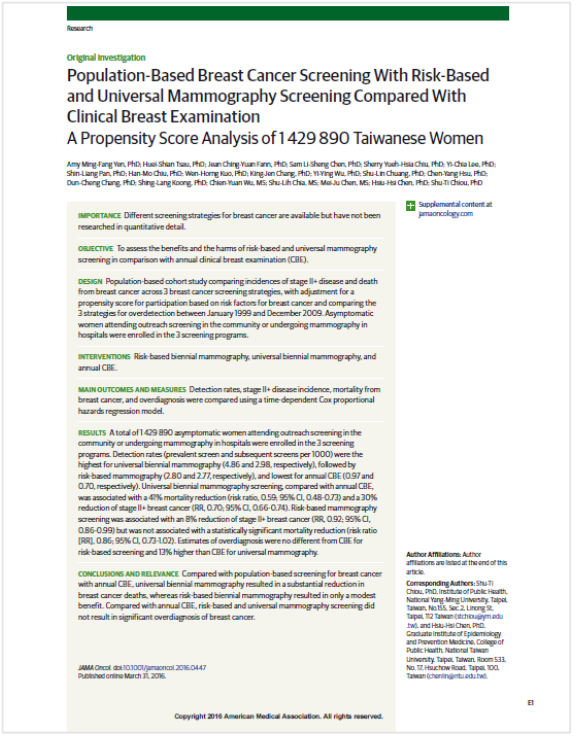
JNCI 2014;106(11)

Taiwan Study

- Population-based cohort study assessed benefits and harms of risk-based and universal mammography screening compared with annual CBE.
- Compared incidences of stage II+ disease and death from breast cancer across 3 breast cancer screening strategies.



Research

Original Investigation

Population-Based Breast Cancer Screening With Risk-Based and Universal Mammography Screening Compared With Clinical Breast Examination
A Propensity Score Analysis of 1 429 890 Taiwanese Women

Amy Ming-Fang Yen, PhD; Huei-Shian Tsau, PhD; Joan Ching-Yuan Fann, PhD; Sam Li-Sheng Chen, PhD; Sherry Yueh-Hsia Chiu, PhD; Yi-Chia Lee, PhD; Shin-Liang Pan, PhD; Han-Mo Chiu, PhD; Wan-Hong Kuo, PhD; King-Jen Chang, PhD; Yi-Ying Wu, PhD; Shu-Lin Chuang, PhD; Chen-Yang Hsu, PhD; Dun-Chang Chang, PhD; Shing-Lang Koong, PhD; Chien-Yuan Wu, MS; Shu-Lih Chia, MS; Mei-Ju Chen, MS; Hsiu-Hsi Chen, PhD; Shu-Ti Chiou, PhD

Supplemental content at jamaoncology.com

IMPORTANCE Different screening strategies for breast cancer are available but have not been researched in quantitative detail.

OBJECTIVE To assess the benefits and the harms of risk-based and universal mammography screening in comparison with annual clinical breast examination (CBE).

DESIGN Population-based cohort study comparing incidences of stage II+ disease and death from breast cancer across 3 breast cancer screening strategies, with adjustment for a propensity score for participation based on risk factors for breast cancer and comparing the 3 strategies for overdetection between January 1999 and December 2009. Asymptomatic women attending outreach screening in the community or undergoing mammography in hospitals were enrolled in the 3 screening programs.

INTERVENTIONS Risk-based biennial mammography, universal biennial mammography, and annual CBE.

MAIN OUTCOMES AND MEASURES Detection rates, stage II+ disease incidence, mortality from breast cancer, and overdiagnosis were compared using a time-dependent Cox proportional hazards regression model.

RESULTS A total of 1 429 890 asymptomatic women attending outreach screening in the community or undergoing mammography in hospitals were enrolled in the 3 screening programs. Detection rates (prevalent screen and subsequent screens per 1000) were the highest for universal biennial mammography (4.86 and 2.98, respectively), followed by risk-based mammography (2.80 and 2.77, respectively), and lowest for annual CBE (0.97 and 0.70, respectively). Universal biennial mammography screening, compared with annual CBE, was associated with a 41% mortality reduction (risk ratio, 0.59; 95% CI, 0.48-0.73) and a 30% reduction of stage II+ breast cancer (RR, 0.70; 95% CI, 0.66-0.74). Risk-based mammography screening was associated with an 8% reduction of stage II+ breast cancer (RR, 0.92; 95% CI, 0.86-0.99) but was not associated with a statistically significant mortality reduction (risk ratio [RR], 0.86; 95% CI, 0.73-1.02). Estimates of overdiagnosis were no different from CBE for risk-based screening and 13% higher than CBE for universal mammography.

CONCLUSIONS AND RELEVANCE Compared with population-based screening for breast cancer with annual CBE, universal biennial mammography resulted in a substantial reduction in breast cancer deaths, whereas risk-based biennial mammography resulted in only a modest benefit. Compared with annual CBE, risk-based and universal mammography screening did not result in significant overdiagnosis of breast cancer.

JAMA Oncol. doi:10.1001/jamaoncol.2016.0447
Published online March 31, 2016.

Author Affiliations: Author affiliations are listed at the end of this article.

Corresponding Authors: Shu-Ti Chiou, PhD, Institute of Public Health, National Yang-Ming University, Taipei, Taiwan, No.155, Sec.2, Linong St, Taipei, 112 Taiwan (stchiou@ym.edu.tw), and Hsiu-Hsi Chen, PhD, Graduate Institute of Epidemiology and Prevention Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan, Room 533, No. 17, Hsuchow Road, Taipei, 100, Taiwan (chenhh@ntu.edu.tw).

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JAMA Oncol. 2016;2(7):915-921. doi:10.1001/jamaoncol.2016.0447

Taiwan Study Results

- A total of 1,429,890 asymptomatic women attending outreach screening in the community or undergoing mammography in hospitals were enrolled in the 3 screening programs.
- Universal mammography: 41% mortality reduction compared to CBE.
- Risk-based mammography: 14% mortality reduction (not statistically significant).

JAMA Oncol. 2016;2(7):915-921. doi:10.1001/jamaoncol.2016.0447

The conversation about mammography should begin around age 40 and all women should have the opportunity to begin annual screening any time between ages 40 and 44. Every woman should have her first mammogram no later than age 45.

HPV Vaccination

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Eliminating HPV-Related Cancers

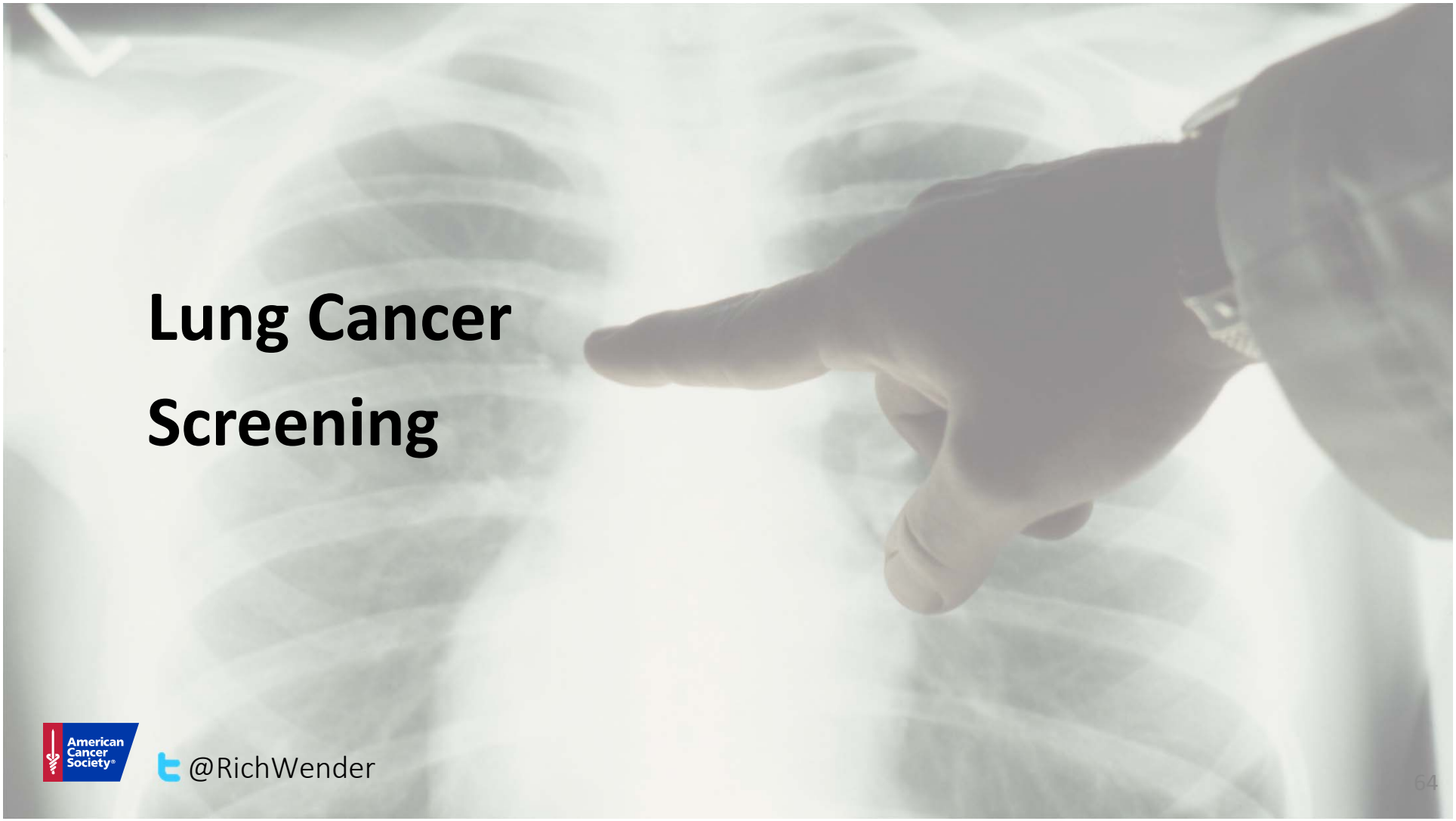
- We can eliminate HPV-related cancers, starting with cervix cancers.
- We can prevent >90% of all HPV-related cancers through vaccination.

Why HPV?

- A vaccine prevents HPV infections that cause six cancers.
  - Cervix, head and neck, anal, vaginal, vulvar, penile.
- The vaccine is effective and safe.
- Vaccine rates are too low.
- Kids get other vaccines at age 11-12, so we know success is achievable.

An Extraordinary Opportunity

- We have an opportunity to dramatically reduce the number of HPV-related cancers worldwide.
- ACS is launching a global campaign.
- Cancer centers can work in concert together.
  - NCI-designated cancer centers issued a shared commitment to increase vaccination rates.



Lung Cancer Screening

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Today, there are four strategies converging to create the opportunity to accelerate our progress against lung cancer.

Unique Moment in Lung Cancer

1. More knowledge about how to **prevent** lung cancer – and which populations are lagging
2. A screening test to **detect** lung cancer early and cure it
3. **Therapies** that work but that must be made available to all who may benefit
4. Extraordinary **research** promise available to deliver more answers

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USPSTF Recommendations

Population	Recommendation	Grade (What's This?)
Adults Aged 55-80, with a History of Smoking	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55 to 80 years who have a 30 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.	

Lung Cancer Screening Receives a "B" Rating

- All individuals age 55 to 70 (and older in healthy individuals) with a heavy smoking history must receive a recommendation to be screened for lung cancer with low dose C-T scan.
- An informed decision making process must be documented in order to be covered by Medicare.

Lung Cancer Screening Gets a B Recommendation but Shared Decision Making is Required … Why?

- Lung cancer screening:
  - Benefit is proven and substantial.
  - Harms vary from common, not so serious events (recall and anxiety), to rare but serious (death due to diagnostic workup)

Despite USPSTF Recommendation, Screening Rates Remain Low

- From 2010 to 2015, the percentage of eligible smokers who reported LDCT in the past 12 months remained strikingly low and constant.
- From 3.3% in 2010 to 3.9% in 2015.

Lung Cancer Screening with Low Dose Computed Tomography in the United States, 2010-2015 JAMA Oncol, Published Online: February 2, 2017.

6.8 million

of smokers eligible for LDCT screening in 2015

262,700

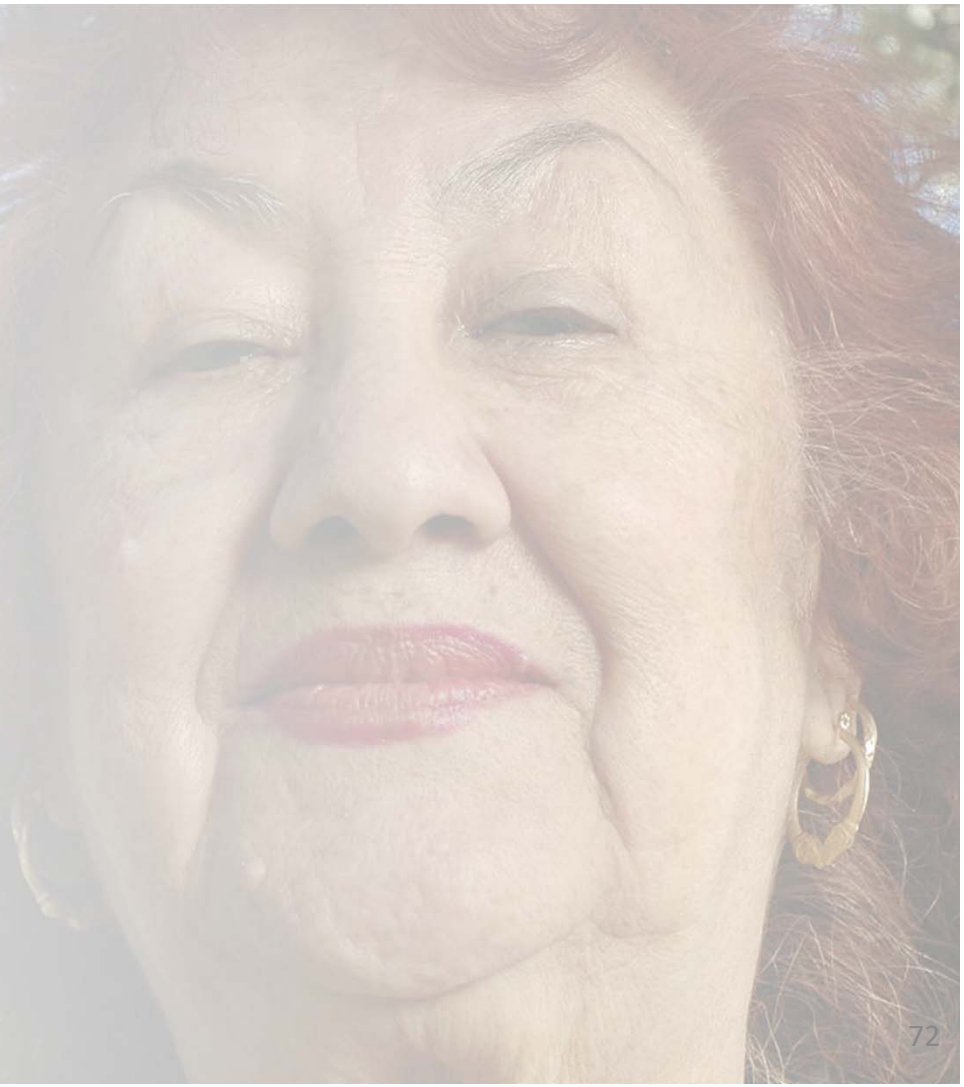
of smokers who received screening in 2015

@RichWender

Lung Cancer Screening with Low Dose Computed Tomography in the United States, 2010-2015 JAMA Oncol, Published Online: February 2, 2017.

We have a tremendous opportunity to prevent deaths from lung cancer.

We simply must make sure eligible individuals are screened.



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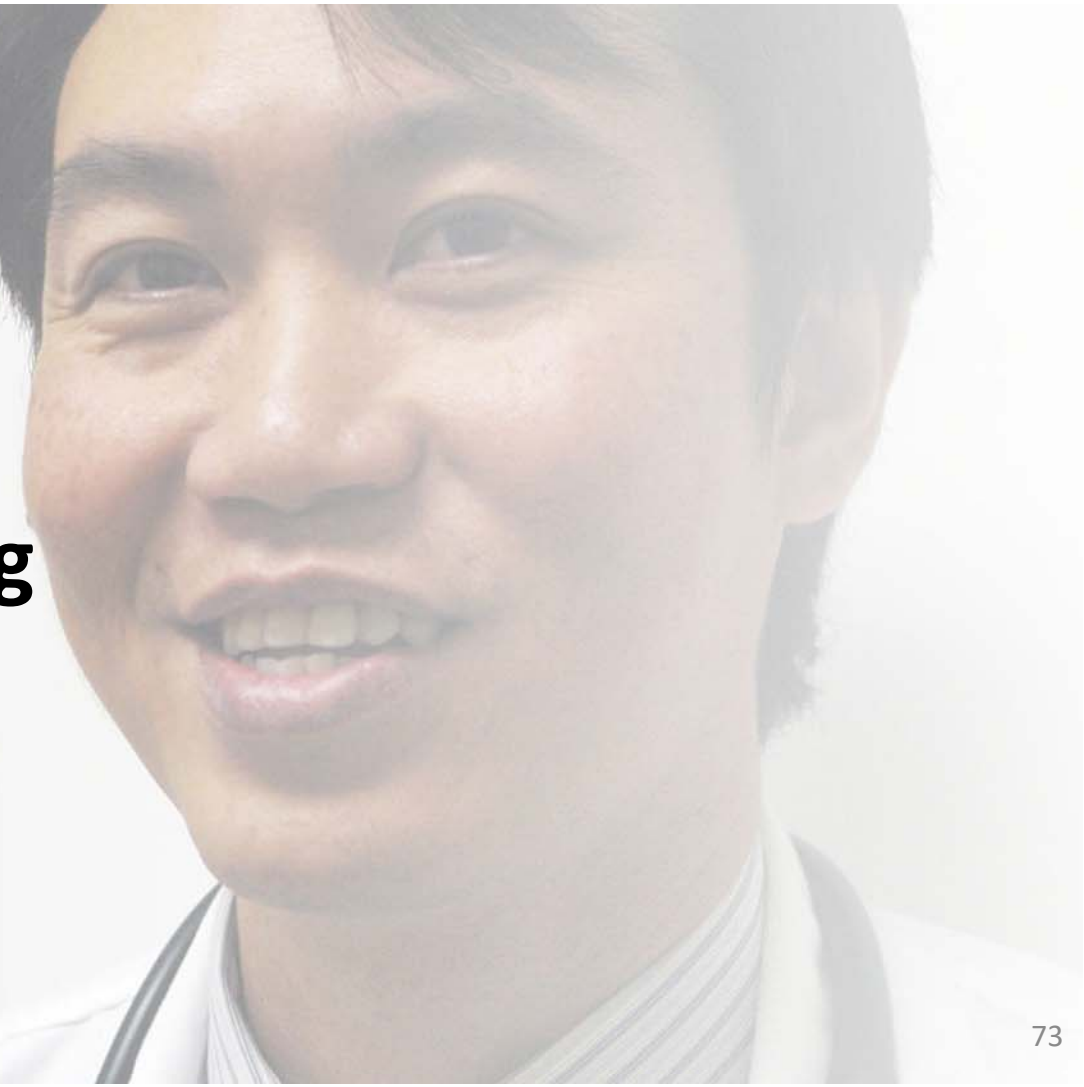
Prostate Cancer Screening



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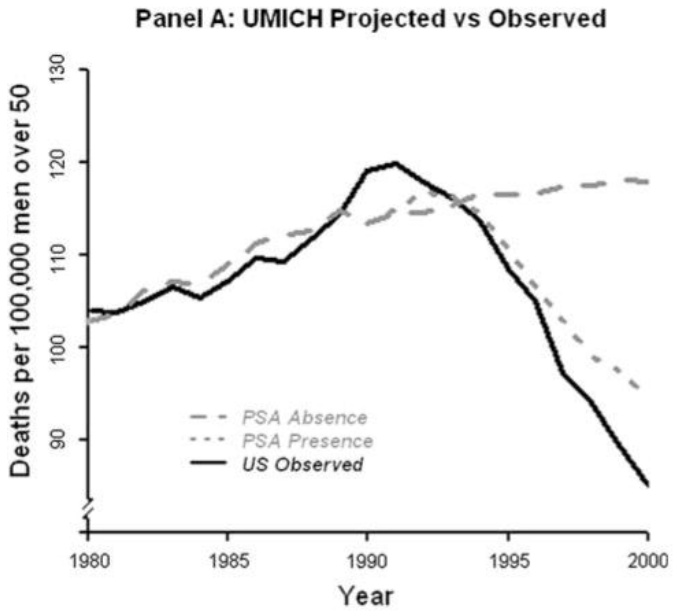
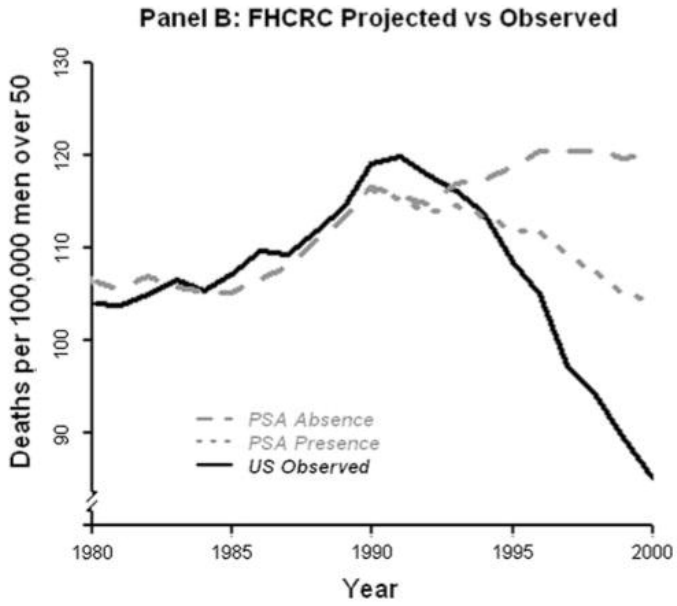
The Evolution of Prostate Cancer Screening

- Conflicting data and recognition of a high rate of over-diagnosis have dampened enthusiasm for prostate cancer screening.
- The emergence of active surveillance as a treatment option has improved the benefit-to-risk ratio.
- Prostate cancer screening should be offered more widely.

Mortality Decrease Connected To Screening

Conclusions: 45% (Univ. Michigan) to 70% (Fred Hutchinson) of the decrease in prostate cancer mortality could be explained by the stage shift induced by screening.





Slide courtesy of Patrick C. Walsh, MD, Johns Hopkins Medicine

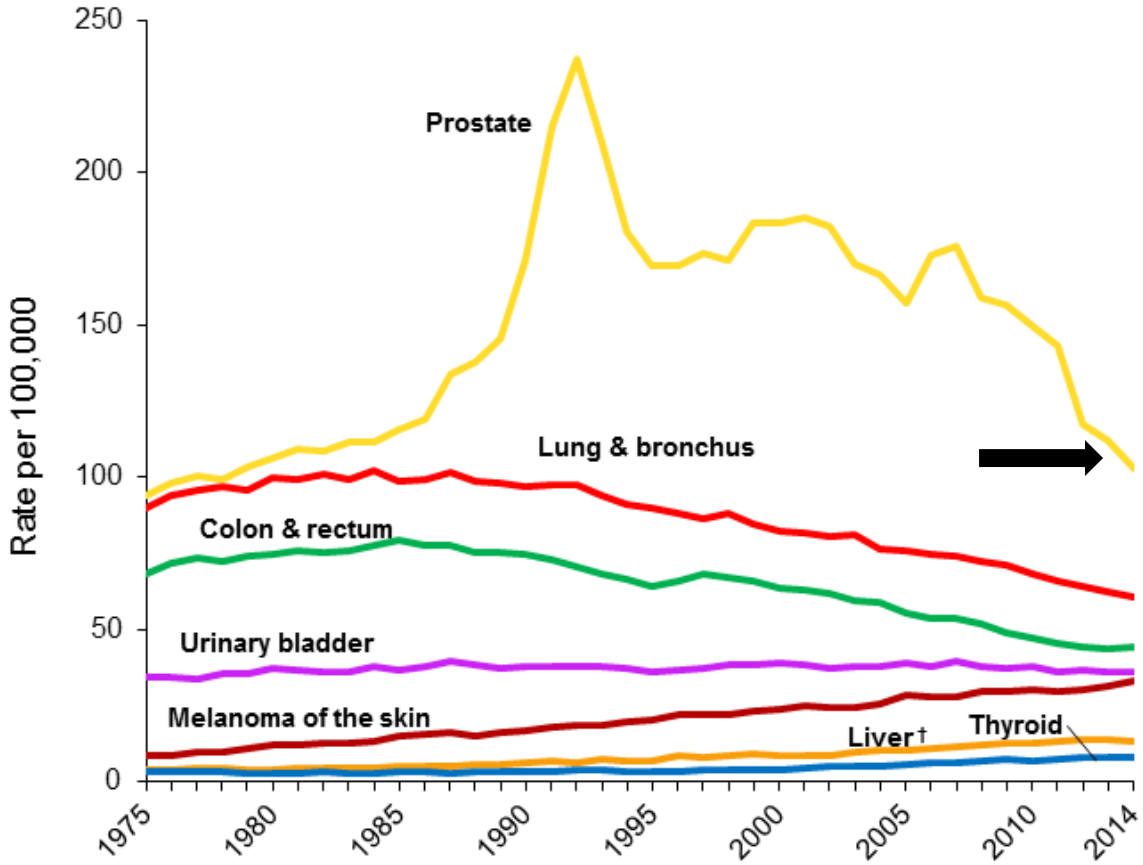
Cancer Causes Control. 2008 Mar; 19(2): 175–181.

Percentage Of Men Reporting PSA Screening In Past 12 Months By Year

Year	Percent
2005	36.9%
2008	40.6%
2010	37.8%
2013	30.8%

In relative terms, screening rates increased by 10% (SRR, 1.10; 99% CI, 1.01-1.21) between 2005 and 2008 and then decreased by 18% (SRR, 0.82; 99% CI, 0.75-0.89) between 2010 and 2013.

Trends in Cancer Incidence Rates Among Males, US, 1975-2014



American Cancer Society

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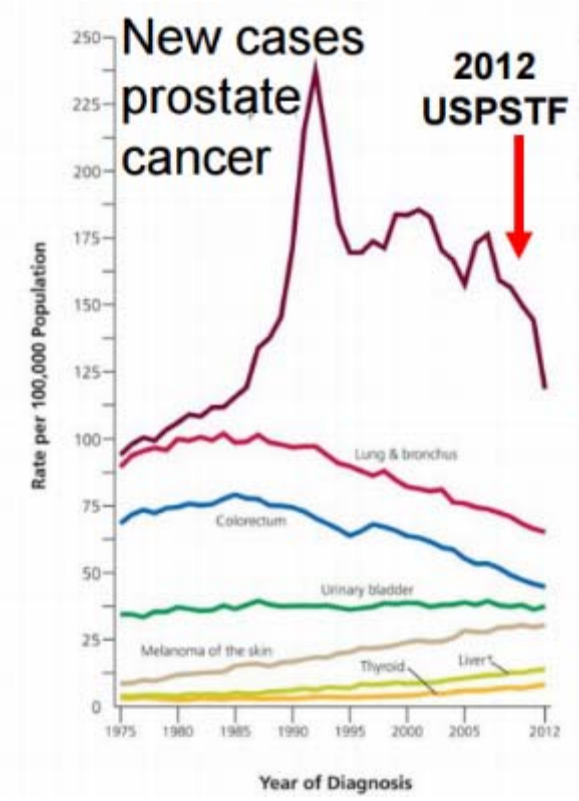
Impact Of USPSTF On Decline In PSA Screening

- New cases prostate cancer
  - 2011 - 240,890
  - 2017 - 161,360
- For every decline in new cases by 33,500, it is estimated that there will be an increase in prostate cancer deaths by 1,240/year.



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Slide courtesy of Patrick C. Walsh, MD, Johns Hopkins Medicine

Penson JAMA 2015; 314: 2031-2033

So how do we seize the opportunities
to reduce cancer mortality through better prevention
and early detection?

5 Steps For Implementing What's Proven to Work

1. Embrace the reality that delivering proven care at the population level is extraordinarily challenging.

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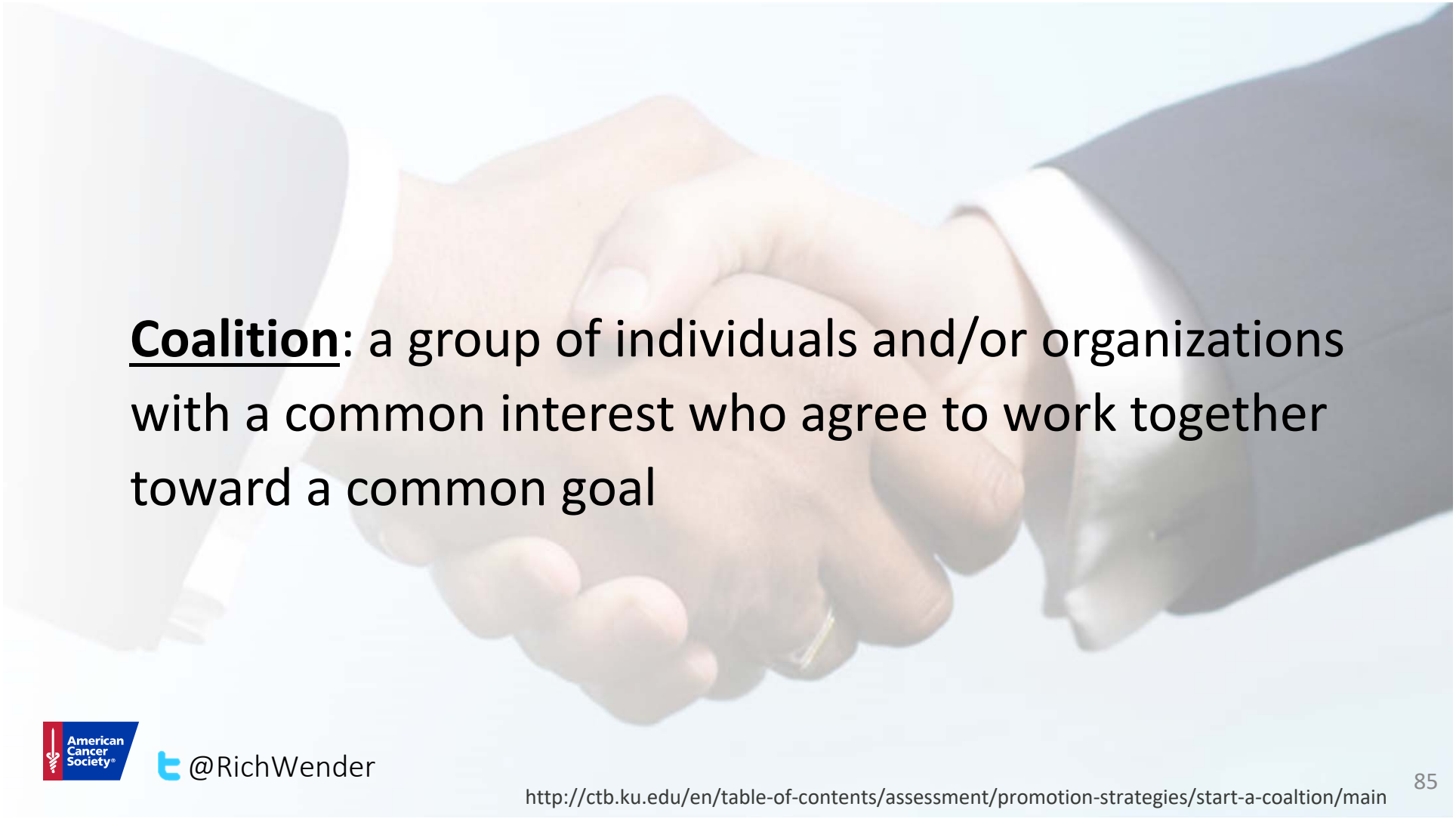
4. Build population level work into the culture of the organization.
5. Recognize that achieving these goals requires broad and diverse engagement – the creation of coalitions.



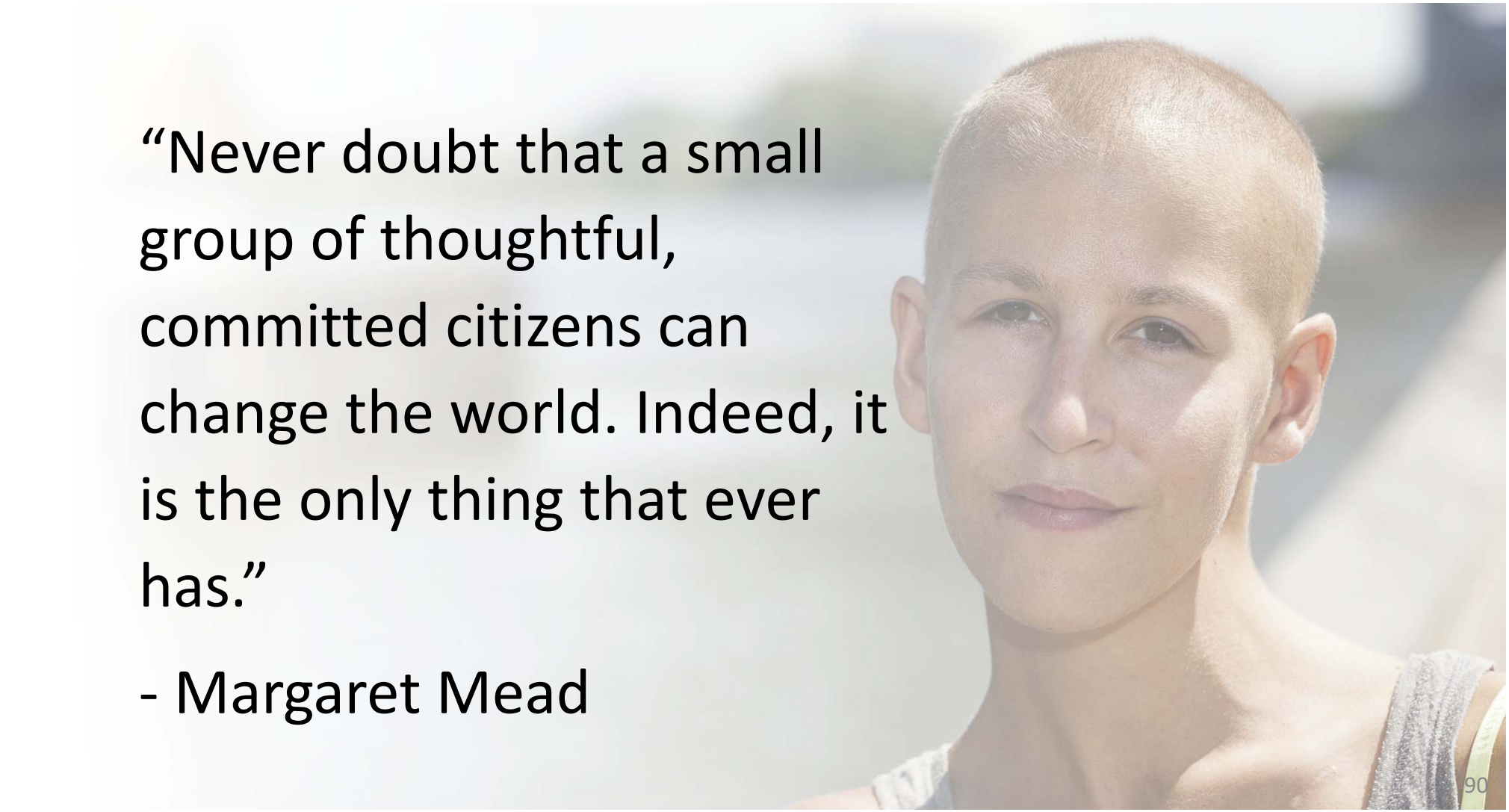
Coalition: a group of individuals and/or organizations with a common interest who agree to work together toward a common goal

Messaging directly to the public is important,
but we have to be sure systems are in place to strive
for consistent recommendation by the clinical team.


Imagine if cancer
centers joined together
to transform the face
of cancer.
American Cancer Society
@RichWender

Would we only pursue treatment of patients with advanced disease …

… or would we eliminate tobacco, prevent colorectal cancers, reduce breast and prostate cancers, and dramatically reduce the number of HPV-related cancers?


“Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.”
- Margaret Mead

THANK YOU

American Cancer Society

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