Cancer Prevention and Control:

Cost-Effectiveness Data for
State Health Agencies
2009

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A Good Investment

- There is general agreement among health economists that an intervention should be considered “cost-effective” if it can save one year of life for less than $50,000.

Source: http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/cancer.pdf

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Relative Costs to Employers

- The global actuarial firm, Milliman, found in a study that the costs associated with cancer prevention and early detection are lower than or similar to some other ancillary benefits routinely covered by health plans, such as chiropractic services.

Source: Bruce Pyenson, FSA, MAAA; Patricia A. Zenner, RN; Milliman, Inc. Cancer Screening: Payer Cost/Benefit thru Employee Benefits Programs. November 2005. http://www.c-changetogether.org/pubs/pubs/MillimanReport.pdf

Cancer Screenings Pay for Themselves

- Milliman also found that the costs of screening for breast, cervical, and colorectal cancer essentially equal the savings in medical and non-medical benefits from early detection.

Source: Bruce Pyenson, FSA, MAAA; Patricia A. Zenner, RN; Milliman, Inc. Cancer Screening: Payer Cost/Benefit thru Employee Benefits Programs. November 2005. http://www.c-changetogether.org/pubs/pubs/MillimanReport.pdf

Medicare Coverage of Cancer Screenings

Cancer Screening	Coverage Details
Breast Cancer	Annual mammography for women aged 40 and older, with coverage for one baseline mammogram between ages 35–39.
Colorectal Cancer	*For beneficiaries aged 50 and older at average risk:* • Annual fecal occult blood test (FOBT) • Flexible sigmoidoscopy every 4 years • Colonoscopy every 10 years (but not within 4 years of a sigmoidoscopy, no minimum age for screening colonoscopy) • Barium enema every 4 years (instead of a colonoscopy or sigmoidoscopy) *For those at high risk:* • Colonoscopy every 2 years (with no minimum age) • Barium enema every 2 years (instead of a colonoscopy or sigmoidoscopy)
Prostate Cancer	*For men aged 50 and older:* • Annual digital rectal exam • Annual prostate specific antigen (PSA) test

Sources: http://www.medicare.gov/health/mammography.asp
http://www.medicare.gov/health/coloncancer.asp
http://www.medicare.gov/health/prostate.asp

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Mammograms Save Lives

- According to the CDC, a mammogram performed every 1-2 years for women aged 40 years and over can reduce mortality by approximately 20-25% during a 10-year period.

Source: http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/cancer.pdf

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Mammography Is a Good Investment

- A mammogram performed every 2 years for women aged 65 or older extends life for approximately $36,924 per year of life gained.

Source: http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/cancer.pdf

Breast Cancer Screening Is Cost-Effective

- Convened by the Partnership for Prevention, the National Commission on Prevention Priorities (NCPP) identifies clinical preventive services that have the greatest impact on health and are most cost-effective.
- The NCPP ranked breast cancer screening as one of the top 15 most effective clinical preventive services.

Source: Maciosek, M. V.; Coffield, A. B.; Solberg, L. I., et al. Priorities Among Effective Clinical Preventive Services: Results of a Systematic Review and Analysis. Am J Prev Med 2006.

Colorectal Cancer Screening Among Most Cost-Effective Services

- Convened by the Partnership for Prevention, the National Commission on Prevention Priorities (NCPP) identifies clinical preventive services that have the greatest impact on health and are most cost effective.
- The NCPP ranked colorectal cancer screening (for adults aged 50 and over) as one of the top 10 most effective clinical preventive services.

Source: Maciosek, M. V.; Coffield, A. B.; Solberg, L. I., et al. Priorities Among Effective Clinical Preventive Services: Results of a Systematic Review and Analysis. Am J Prev Med 2006.

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NCPP's Ranking of the 15 Most Effective Clinical Preventive Services

- **Discuss daily aspirin use—men 40+, women 50+**
- **Childhood immunizations**
- **Smoking cessation advice and help to quit—adults**
- **Alcohol screening and brief counseling—adults**
- **Colorectal cancer screening—adults 50+**
- **Hypertension screening and treatment—adults 18+**
- **Influenza immunization—adults 50+**
- **Vision screening—adults 65+**
- **Cervical cancer screening—women**
- **Cholesterol screening and treatment—men 35+, women 45+**
- **Pneumococcal immunizations—adults 65+**
- **Breast cancer screening—women 40+**
- **Chlamydia screening—sexually active women under 25**
- **Discuss calcium supplementation—women**
- **Vision screening—preschool children**

Any Form of Colorectal Cancer Screening Is Cost-Effective

- In a systematic review of seven cost-effectiveness studies of colorectal cancer screening, researchers found that compared with no screening, any form of colorectal cancer screening had a cost-effectiveness ratio of between $10,000 and $25,000 per year of life gained.

Source: "Cost-effectiveness Analyses of Colorectal Cancer Screening: A Systematic Review." Michael Pignone, MD, MPH; Somnath Saha, MD, MPH; Tom Hoerger, PhD; Jeanne Mandelblatt, MD, MPH. Article originally appeared in *Ann Intern Med* 2002; 137(2):96-104.
http://www.ahrq.gov/clinic/3rduspstf/colorectal/colocost1.htm

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Screening for Colorectal Cancer Save Lives

- Colorectal cancer screenings for all people aged 50 and over would save approximately 19,000 lives annually. Currently, only about 1/3 of adults in this age group are up to date on colorectal screenings.

Sources: Maciosek, M. V.; Solberg, L. I.; Edwards, N. M., et al. Colorectal cancer screening. Technical report prepared for the National Commission on Prevention Priorities, 2006.
Maciosek, M. V.; Coffield, A. B.; Solberg, L. I., et al. Colorectal Cancer Screening: Health Impact and Cost Effectiveness. Am J Prev Med 2006.

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Regular Screening for Colorectal Cancer

- According to the CDC, routine screening can reduce the number of people who die from colorectal cancer by at least 60%.

Source: http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/cancer.pdf

Colorectal Cancer Screening Extends Life for Reasonable Cost

- According to the CDC, screening for colorectal cancer extends life at a cost of between $11,890 to $29,725 per year of life gained, depending on the screening method used (e.g., fecal occult blood test, sigmoidoscopy, colonoscopy).

Source: http://www.cdc.gov/nccdphp/publications/factsheets/Prevention/pdf/cancer.pdf

Background on the U.S. Preventive Services Task Force

- The U.S. Preventive Services Task Force (USPSTF) is the leading independent panel of private-sector experts in prevention and primary care.
- The purpose of the USPSTF is to conduct rigorous and impartial evaluations of scientific evidence to determine the effectiveness of a broad range of clinical preventive services.
- The USPSTF is known for its publication of the “Guide to Clinical Preventive Services,” and its recommendations have informed the development of clinical standards for professional societies, health organizations, and medical quality review groups.

The Guide to Clinical Preventive Services Recommends Mammography

- The USPSTF recommends screening mammography, with or without clinical breast examination, every 2 years for women between the ages of 50 and 74.

Comparison of ACS and USPSTF Guidelines for Breast Cancer Screening

Recommendation	ACS	USPSTF
Mammography	Annually for women after age 40, and continuing as long as in good health	Every 2 years for women between the ages of 50 and 74
Clinical Breast Exam (CBE)	Every 3 years for women in their 20s and 30s, and annually for women over 40	Insufficient evidence to recommend for or against CBE beyond screening mammography for women 40 and older
Breast Self-Exam (BSE)	Optional for women beginning in their 20s	Recommends against teaching BSE
MRI Screening	Women at high risk should get an MRI and mammogram annually, women at moderate risk should discuss MRI screening with their doctors, and screening for lower-risk women is not recommended.	Not addressed

Sources:
http://www.cancer.org/docroot/PED/content/PED_2_3X_ACS_Cancer_Detection_Guidelines_36.asp?sitearea=PED
http://www.ahrq.gov/clinic/uspstf/uspsbrca.htm

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The Guide to Clinical Preventive Services Recommends Colorectal Cancer Screening

- The USPSTF recommends screening for colorectal cancer using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 and continuing until age 75.

Comparison of ACS/USMSTF/ACR and USPSTF Guidelines for Colorectal Cancer Screening (1 of 2)

Recommendation	ACS/USMSTF/ACR	USPSTF
Age to begin and end screening in average risk adults	Begin at age 50, and end screening at a point where curative therapy would not be offered due to life-limiting co-morbidity	Begin screening at age 50. Routine screening between ages 76-85 is not recommended. Screening after age 85 is not recommended.
Screening in high risk adults	Detailed recommendations based on personal risk and family history	No specific recommendations for age to begin testing or type of testing
Prioritization of tests	Tests are grouped into those that (1) primarily are effective at detecting cancer, and (2) those that are effective at detecting cancer and adenomatous polyps. Group 2 is preferred over group 1 due to the greater potential for prevention.	No specific prioritization of tests, though recommendations acknowledge that direct visualization techniques offer substantial benefit over fecal tests

Source: http://www.cancer.org/docroot/PRO/content/PRO_4_1x_ColonMD_Comparison_Guidelines.asp

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Comparison of ACS/USMSTF/ACR and USPSTF Guidelines for Colorectal Cancer Screening (2 of 2)

Recommendation	ACS/USMSTF/ACR	USPSTF
Stool Testing, Guaiac based FOBT (gFOBT)	Annual screening with high sensitivity guaiac based tests	Annual screening with high sensitivity guaiac based tests
Stool Testing, Immunochemical-based FOBT (FIT)	Annual Screening	Annual Screening
Stool Testing, Stool DNA (sDNA)	sDNA is an acceptable option	Insufficient evidence to recommend for or against sDNA
Flexible Sigmoidoscopy	Screening every 5 years. Screening every 5 years, with annual gFOBT or FIT is an option	Screening every 5 years, with gFOBT every 3 years
Colonoscopy	Screening every 10 years	Screening every 10 years
CT Colonography	Screening every 5 years	Insufficient evidence to recommend for or against CT colonography
Double Contrast Barium Enema (DCBE)	Screening every 5 years	Not addressed

Source: http://www.cancer.org/docroot/PRO/content/PRO_4_1x_ColonMD_Comparison_Guidelines.asp

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Routine Screening for Prostate and Lung Cancer Not Recommended

- Both the ACS and USPSTF find that there is not sufficient evidence to recommend routine screening for prostate cancer and lung cancer. The USPSTF goes further, recommending *against* prostate cancer for men aged 75 and older.

Sources:
http://www.cancer.org/docroot/PED/content/PED_2_3X_ACS_Cancer_Detection_Guidelines_36.asp?sitearea=PED
http://www.cancer.org/docroot/CRI/content/CRI_2_2_3x_How_Is_Non-small_Cell_Lung_Cancer_Found.asp?rnav=cri
http://www.ahrq.gov/clinic/uspstf/uspsprca.htm
http://www.ahrq.gov/clinic/uspstf/uspslung.htm

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U.S. Task Force on Community Preventive Services

- The U.S. Task Force on Community Preventive Services (Task Force) is a group of non-federal, volunteer public health and prevention experts, appointed by the Director of the CDC.
- The Task Force reviews public scientific studies to determine the effectiveness of a variety of public health interventions, and make recommendations for or against their use.
- The Task Force recommendations are published as “The Community Guide.” Taken with the “Guide to Clinical Preventive Services,” decision-makers have access to evidence-based recommendations across the prevention spectrum.

The Community Guide Recommends Provider-based Interventions

- The Task Force recommends the following health care provider-based interventions to increase screening for breast, cervical, and colorectal cancer:
  - Provider assessment and feedback (e.g., evaluating performance and sharing results with the provider)
  - Provider reminders (e.g., checklist, electronic message)

The Community Guide Recommendations for Client-based Interventions

- The Task Force recommends the following client-based interventions to increase screening for certain cancers:
  - Client reminders for breast, cervical, and colorectal cancer screening (e.g., postcard, phone call)
  - Small media for breast, cervical and colorectal cancer screening (e.g., flyers, newsletters)
  - One-on-one education for breast and cervical cancer screening (e.g., by phone, face-to-face)

The Community Guide Recommends Reducing Barriers to Cancer Screenings

- The Task Force recommends the following client-based interventions to increase screening for certain cancers: (cont'd)
  - Reducing structural barriers for breast and colorectal cancer screening (e.g., distance, hours open, language)
  - Reducing out-of-pocket costs for breast cancer screening (e.g., insurance coverage, co-payments)

Community-based Programs Prevent Cancer

- Evidence-based studies show that community-based disease prevention programs that lead to improvements in physical activity, nutrition, and preventing tobacco use can lead to reductions in some forms of cancer, COPD, and arthritis by 2.5% in 10 to 20 years.

Source: "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities." Trust for America's Health, February 2009.

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Many Effective Community-based Programs Are Relatively Inexpensive

- According to literature reviews of effective community-based disease prevention programs, the per capita cost of many effective programs is less than $10 per person per year.

Source: "Prevention for a Healthier America: Investments in Disease Prevention Yield Significant Savings, Stronger Communities." Trust for America's Health, February 2009.

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