

Cancer Early Detection and Screening



WHAT IS IT?

Early detection refers to finding a cancer in its earlier stages, often when the tumor is small and hopefully before it has begun to spread. For some cancers, treatment is easier and more effective following early detection. **Screening** refers to looking for cancer in people who have no signs or symptoms of disease. **Testing** refers to examinations done in the presence of symptoms. Screening tests vary by cancer and including laboratory tests, imaging, and physical exams. Screening is not a single event, as results from the first screening test may lead to other tests. Screening includes a balancing of benefits and harms, as the vast majority of people screened do not have cancer but could be harmed by the screening test. Harms include physical pain, a small risk of death, unnecessary treatment, unnecessary cost, etc.

EFFECTIVENESS AND GUIDELINES

Screening does work, but it does not work for all cancers – yet. The important question **is not** whether a screening test finds a cancer early. The important question **is** whether treatment following early detection reduces death and/or morbidity. Demonstrating this “effectiveness” is difficult and often requires long, extensive study. When study has not or not yet conclusively shown that screening reduces death, we debate the appropriateness of screening. One side, particularly when the burden of cancer is high, emphasizes the potential benefit of screening and the lives that could have been saved if screening turns out to be effective. The other side, particularly when the burden of cancer is lower, emphasizes the harms from screening and the unnecessary testing, treatment and other costs that occurred if screening turns out not to be effective.

Although many professional organizations and expert groups publish guidelines for cancer screening, two primary sources are the American Cancer Society (ACS) and the United States Preventive Services Task Force (USPSTF), a group convened by the United States Public Health Service to rigorously evaluate research to assess the merits of preventive measures, including screening tests and immunizations. Other major sources include the National Cancer Institute (NCI) and the Centers for Disease Control and Prevention (CDC).

USPSTF Guide to Clinical Preventive Services, 2007: <http://www.ahrq.gov/clinic/pocketgd07/index.html>

ACS – Early Detection: http://www.cancer.org/docroot/PED/ped_2_1_introduction.asp?sitearea=PED

See also: Smith RA, Cokkinides V, Eyre HJ. Cancer screening in the United States, 2007: a review of current guidelines, practices, and prospects. *CA Cancer J Clin.* 2007 Mar-Apr;57(2):90-104.

NCI – Prevention and Early Detection: <http://prevention.cancer.gov/prevention-detection/cancers>

CDC – Preventive Cancer Screening and Vaccination: <http://www.cdc.gov/cancer/screening.htm>

The section below summarizes USPSTF recommendations. Recommendations fall into three categories: 1) For screening – good to fair evidence that the benefits outweigh the harms; 2) Insufficient – evidence is lacking and the balance of harms and benefits can not be determined; and, 3) Against screening: At least fair evidence that harms outweigh benefits. In large part, guideline recommendations from the USPSTF and the ACS are similar. Key differences are noted.

FOR Screening

Colon / Rectal cancer: The USPSTF **strongly recommends screening** for men and women 50 years of age or older for colorectal cancer. The Task Force supports use of one of four tests: periodic fecal occult blood testing (FOBT), sigmoidoscopy alone or in combination with FOBT, colonoscopy alone, and double-contrast barium enema. No alternative is considered superior. Costs and frequency of screening differs for each approach. Patients should choose the test that best suits their circumstances. The USPSTF found insufficient evidence that newer screening technologies (e.g., computed tomographic (CT) colography) are effective in improving health outcomes.

Cervical: The USPSTF **strongly recommends screening** for cervical cancer in women who have been sexually active and have a cervix. It recommends against routinely screening (a) in women older than age 65 for cervical cancer if they have had adequate recent screening with normal Pap smears and are not otherwise at high risk for cervical cancer, and (b) in women who have had a total hysterectomy for benign disease. It concludes that the evidence is insufficient to recommend for or against the routine use of new technologies, including HPV tests, to screen for cervical cancer.

Breast: The USPSTF recommends screening mammography, with or without clinical breast examination (CBE), every 1-2 years for women aged 40 and older. The USPSTF recommends that women whose family history is associated with an increased risk for mutations in breast cancer susceptibility gene 1 or gene 2 (*BRCA1*, *BRCA2*) be referred for genetic counseling and evaluation for BRCA testing. It recommends against routine referral for genetic counseling or routine testing for women whose family history is not associated with an increased risk for deleterious mutations in these genes.

Insufficient – Neither FOR nor AGAINST

Prostate: The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for prostate cancer using prostate specific antigen (PSA) testing or digital rectal examination (DRE). The USPSTF found good evidence that PSA screening can detect early-stage prostate cancer but mixed and inconclusive evidence that early detection improves health outcomes. Screening is associated with important harms, including frequent false-positive results and unnecessary anxiety, biopsies, and potential complications of treatment of some cancers that may never have affected a patient's health. Despite the absence of firm evidence of effectiveness, some clinicians may opt to perform prostate cancer screening for other reasons. Given the uncertainties and controversy surrounding prostate cancer screening, clinicians should not order the PSA test without first discussing with the patient the potential but uncertain benefits and the possible harms of prostate cancer screening. Men should be informed of the gaps in the evidence, and they should be assisted in considering their personal preferences and risk profile before deciding whether to be tested.

The ACS recommends a different approach to prostate cancer screening. The Society recommends that providers annually offer both the PSA and DRE beginning at age 50 to men who have at least a 10-year life expectancy. Men at high risk (African-American men and men with a strong family of one or more first-degree relatives [father, brothers] diagnosed before age 65) should begin testing at age 45. Men at even higher risk, due to multiple first-degree relatives affected at an early age, could begin testing at age 40. Depending on the results of this initial test, no further testing might be needed until age 45. Information should be provided to all men about what is known and what is uncertain about the benefits, limitations, and harms of early detection and treatment of prostate cancer so that they can make an informed decision about testing. Men who ask their doctor to make the decision on their behalf should be tested. Discouraging testing is not appropriate. Also, not offering testing is not appropriate.

The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for **skin cancer** (total-body skin examination), **lung cancer** (low dose computerized tomography/LDCT, chest x-ray, sputum cytology, or a combination of these tests) and **oral cancer** (for either adults at average or high-risk - over the age of 50 who use tobacco). The USPSTF encourages physicians to be alert for physical changes that might indicate skin or oral cancer. The ACS recommends a cancer-related check-up as part of a periodic health examination for adults (≥ 20 yrs). That exam might include physical examination for skin and oral cancers. Although the ACS does not recommend lung cancer screening, the Society supports informed decision-making regarding testing for persons at high risk.

AGAINST Screening

The USPSTF recommends against routine screening for **bladder cancer**, **ovarian cancer**, **pancreatic cancer**, **testicular cancer**, and **thyroid cancer**.

HOW IS NORTH CAROLINA DOING?

Overall, North Carolina is doing relatively well, with screening and counseling rates that are slightly higher than national rates, although colon cancer screening rates are low both in NC and the US. Over the past several years, NC screening rates have been fairly stable, if not slightly increasing. Although rates vary slightly by region, knowing what this variation means is difficult. Screening rates differ significantly by income. Persons with lower incomes have lower screening rates. Persons with low income are also less likely to have health insurance and a primary care provider. They are also more likely to report not going to a doctor due to financial reasons.

RESOURCES

NC Behavioral Risk Factor Surveillance System (BRFSS): www.schs.state.nc.us/SCHS/brfss/2006/index.html
Cancer Control PLANET - State Cancer Profiles: <http://statecancerprofiles.cancer.gov/>
CDC BRFSS – Prevalence Data: <http://apps.nccd.cdc.gov/brfss/index.asp>
Carolina's Center for Medical Excellence – Colorectal Testing / Medicare Population <http://www.mrnc.org/crcreport2/>
NCCancer.com – NC Advisory Committee on Cancer Coordination and Control: <http://nccancer.com/>