

BENEFITS AND POTENTIAL HARMS OF CANCER SCREENING

Benefits of Screening

Reduced cancer incidence

Some screening tests can detect precancerous lesions. Removal of the precancerous lesions can reduce, or even eliminate, an individual's risk of developing the screened cancer at that site.



Reduced incidence of advanced disease

If a screening test detects cancer at an early stage of development, it can reduce an individual's risk of being diagnosed with the screened cancer at an advanced stage when the malignancy has spread to other parts of the body and is difficult to treat and/or manage.

Reduced cancer mortality

Diagnosis at an early stage of disease can increase the likelihood that a patient can be successfully treated. It can also indicate that making behavioral changes—for example smoking cessation if a screening test finds early signs of lung cancer—will reduce the chances of developing cancer. Both these possibilities increase quality of life and reduce an individual's risk of dying from the screened cancer.

Potential Harms of Screening

Adverse events

Screening tests are medical procedures, and they carry minimal but measurable risks of side effects due to the intervention. It is important to note that U.S. Preventive Services Task Force and other professional societies carefully weigh potential risks of a screening procedure against benefits from cancer screening before recommending a test. Thus, the chance of an adverse event from a recommended screening test is low.

False-positive test results

Researchers are actively identifying new biomarkers that are specific to the cancer an individual is being screened for and are developing innovative approaches to reliably detect these changes in individuals who are at an average risk of developing cancer. It is still possible that some individuals who have a positive screening test result do not have the screened cancer. The rates of false-positive test results vary depending on the test but are generally low. Nonetheless, a false-positive test result can result in additional unnecessary medical procedures, treatments, and anxiety.

False-negative test results

There is also the possibility, albeit low, that some individuals who have a negative screening test result are not free from the screened cancer. A false-negative test result indicating that the individual is free of cancer may lead to missed opportunities for early treatment.



Anxiety

Screening individuals who are not at risk of disease can cause unnecessary anxiety during the waiting period for the test results.

Overdiagnosis and overtreatment

Not all precancerous lesions or cancers detected by screening will go on to cause symptoms and threaten life. Overdiagnosis, as this is called, can lead to overtreatment, which carries its own potential harms and costs. The rates of overdiagnosis and overtreatment vary among cancer types. Additional research is needed to determine which of the early-stage cancers detected through screening are most likely to develop into advanced-stages cancer and threaten life.