

Catching Cancer Early

An update on liquid biopsies, AI and other scientific advances that help oncologists detect cancer at earlier stages—and why that’s important.

January 7, 2025 By American Institute for Cancer Research and Nigel Brockton

Key Takeaways

- Catching cancer early is important since it can require less invasive treatment and improve survival rates.
- Recent scientific advances are allowing oncologists to detect cancer at earlier stages through new techniques such as liquid biopsies and artificial intelligence.
- Some of these techniques are in their infancy, but AICR will continue to keep you up-to-date with the latest cancer research.

In the fight against cancer, early detection remains one of our most powerful weapons. Advancements in detection techniques are revolutionizing the ability to identify cancer at its earliest stages. This can improve treatment outcomes and save lives.

When cancer is caught early, treatment is often more effective and less toxic. Early-stage cancers are generally smaller and more localized, making them easier to treat effectively. They may require less aggressive treatment, which leads to fewer side effects and a better overall quality of life. Plus, early detection typically results overall lower medical bills.

Consider this statistic: the 5-year survival rate for localized breast cancer is over 99 percent, compared to less than 32 percent after the disease has spread. This stark difference highlights the need for more sensitive, accurate and accessible early detection methods.

Researchers are making significant strides in developing innovative techniques to catch cancer at its earliest stages.

Liquid Biopsies

One promising area is liquid biopsies, which can detect cancer through body fluids such as blood, urine or saliva. The most common method looks for circulating tumor DNA or other cancer-related biomarkers in the bloodstream. A recent study found that a multi-cancer early detection test, using liquid biopsies, could detect over 50 types of cancer, often before symptoms appear.

Artificial Intelligence

Another exciting development is the use of artificial intelligence (AI) in cancer screening. AI algorithms can analyze medical images with remarkable accuracy, often detecting subtle abnormalities that human eyes might miss. For example, an AI system developed for mammogram analysis was shown to reduce false positives by 5.7 percent and false negatives by 9.4 percent compared to human radiologists.

Benefits of Early Detection

These newer cancer detection methods offer some important factors:

1. Earlier diagnosis: New techniques can detect cancer before symptoms appear, allowing for earlier intervention.
2. Less invasive screening: New methods like blood tests are less invasive than traditional screening tests, such as colonoscopies.
3. Improved accuracy: Advanced technologies can reduce false positives and negatives, leading to more reliable results.
4. Personalized screening: Some new approaches can assess individual risk factors, allowing for more tailored screening schedules.

The Future of Cancer Care

While these developments are promising, it is important to note that many are still in the research phase. As we learn to detect cancers at their earliest phases of development, we must also understand which tumors need to be treated and how; over-diagnosis and over-treatment can be harmful.

It is crucial to follow current cancer screening guidelines and consult with your health-care provider about which screening tests are appropriate for you based on your age, risk factors and personal medical history.

As always, the American Institute of Cancer Research (AICR) is committed to exploring innovative

approaches to cancer care and will share the latest breakthroughs and innovations with you.

Nigel Brockton, PhD, is the Vice President of Research at AICR. He has spent more than two decades as a cancer researcher and is a two-time cancer survivor. He now directs the AICR research program spanning cancer prevention, treatment and survivorship.

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