

MCED Tests Show Promise for Earlier Cancer Detection at ASCO 2026

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The challenge of diagnosing cancer at an early, treatable stage persists, especially for malignancies without established population-level screening protocols. Multi-cancer early detection (MCED) tests, utilising circulating tumour DNA (ctDNA), present a novel approach to identify multiple cancer types from a single blood sample, potentially shifting diagnosis to earlier stages.

KEY TAKEAWAYS

- ° The Pivot: MCED tests aim to detect multiple cancers early, including those without current screening.
- ° The Data: Early data indicates MCED tests can detect cancer with varying sensitivities and specificities across different cancer types and stages.
- ° The Action: Clinicians should monitor evolving evidence on MCED test performance and consider their role in high-risk populations.

Current cancer screening programmes, such as mammography for breast cancer and colonoscopy for colorectal cancer, have demonstrated efficacy in reducing mortality for specific cancer types. However, a significant proportion of cancer deaths occur from cancers for which no routine screening is available, or for which existing screening is underutilised. This diagnostic gap contributes to later-stage diagnoses, often associated with poorer prognoses. The concept of multi-cancer early detection (MCED) addresses this by employing a single blood test to screen for multiple cancer types simultaneously, leveraging advances in genomic sequencing and molecular biology. The objective is to detect cancer at earlier stages, when interventions are more likely to be curative.¹

Globally, cancer remains a leading cause of mortality, with an estimated 10 million deaths in 2020. Many of these deaths are attributable to cancers that are often diagnosed at advanced stages, such as pancreatic, ovarian, and esophageal cancers, for which five-year survival rates are considerably lower than for cancers with established early detection methods. The development of MCED tests represents a strategic effort to shift the diagnostic paradigm for these hard-to-detect cancers, potentially improving patient outcomes by enabling earlier therapeutic interventions. The clinical need for such tools is substantial, particularly in populations at elevated risk due to age, family history, or other environmental factors.

Inside the Evidence: MCED at ASCO 2026

Presentations at ASCO 2026 focused on the clinical utility and performance characteristics of various MCED platforms. These tests typically analyse cell-free DNA (cfDNA) in peripheral blood for cancer-specific alterations, such as methylation patterns, somatic mutations, or fragmentomic signatures. The underlying principle is that tumour cells

release cfDNA into the bloodstream, which can be distinguished from normal cfDNA.²

The methodologies employed by MCED tests are diverse, but commonly involve high-throughput sequencing of cfDNA. Methylation-based platforms, for instance, identify abnormal methylation patterns on cfDNA, which are characteristic of cancer cells and differ from those found in healthy cells. Other approaches may focus on detecting specific somatic mutations known to be drivers of oncogenesis, or on analysing the size and end-motif patterns of cfDNA fragments, which can also provide signatures indicative of cancer. These molecular signatures are then analysed using sophisticated bioinformatics algorithms and machine learning models to generate a cancer signal detection and, in some cases, predict the tissue of origin.

One prominent MCED platform discussed, utilising methylation-based detection, demonstrated a sensitivity for detecting cancer of 51.5% (95% CI, 47.7%-55.3%) across all cancer stages in a prospective cohort of 6,621 individuals. Specificity, the ability to correctly identify individuals without cancer, was 99.5% (95% CI, 99.3%-99.6%). For cancers with no guideline-recommended screening, the sensitivity was 40.7% (95% CI, 35.0%-46.6%). The positive predictive value (PPV) for a cancer signal was 38.3% (95% CI, 34.2%-42.5%), indicating that approximately 38% of individuals with a positive test result were subsequently diagnosed with cancer. The negative predictive value (NPV) was 99.9% (95% CI, 99.9%-100.0%).³

Further analysis revealed that the sensitivity of MCED tests varied by cancer type and stage. For example, sensitivity for stage I-III pancreatic cancer was 63.3% (95% CI, 45.3%-78.7%), while for stage I-III colorectal cancer, it was 93.5% (95% CI, 87.0%-97.3%). In contrast, sensitivity for stage I-III prostate cancer was lower, at 16.7% (95% CI, 8.8%-28.2%). The ability of these tests to localise the origin of the cancer signal was also presented, with an accuracy of 88.7% (95% CI, 86.1%-91.0%) in identifying the tissue of origin among individuals with a cancer diagnosis.⁴

Another study presented data from a cohort of 10,000 asymptomatic individuals undergoing MCED testing. This study reported a cancer detection rate of 1.4% (N=140) in the screened population. Of these detected cancers, 75% were identified at stage I or II, compared to 30% of cancers typically diagnosed through standard care pathways in a matched historical control group. The time to diagnosis following a positive MCED test was a median of 73 days (IQR, 45-110 days), highlighting the need for efficient diagnostic follow-up pathways.⁵

Limitations of current MCED tests include their variable sensitivity across different cancer types and stages, particularly lower sensitivity for early-stage cancers of certain types. The potential for false positives, despite high specificity, necessitates careful consideration of downstream diagnostic workups and the associated patient anxiety and healthcare resource utilisation. The long-term impact on cancer-specific mortality and overall survival remains to be established through large-scale, randomised controlled trials. Future research is focused on improving test sensitivity for early-stage disease, refining tissue of origin prediction, and integrating MCED testing into existing healthcare systems to optimise patient pathways and minimise harms.⁶

CLINICAL IMPLICATIONS

The prospect of a single blood test detecting multiple cancers is compelling, but clinicians must temper enthusiasm with a precise understanding of the current evidence. While MCED tests offer high specificity, the positive predictive value, though improving, still means a substantial proportion of positive results will not lead to a cancer diagnosis. This necessitates clear communication with patients about the potential for false

positives and the subsequent diagnostic cascade, which can be lengthy, invasive, and anxiety-provoking. Integrating these tests into routine practice without robust evidence of improved mortality outcomes and well-defined follow-up protocols risks over-investigation and patient distress.

For the industry, the race to market with MCED tests is evident. Companies like GRAIL and Exact Sciences are investing heavily, but regulatory bodies like the FDA will demand more than just detection rates. The true measure of success will be a reduction in cancer-specific mortality and an acceptable balance of benefits versus harms, particularly in asymptomatic populations. Payers will also scrutinise the cost-effectiveness of these tests and the subsequent diagnostic workups, especially given the current lack of long-term outcome data from randomised controlled trials. The current data, while promising for certain hard-to-screen cancers, does not yet support widespread population screening.

Patients, understandably, will be drawn to the idea of a simple blood test for early cancer detection. However, it is incumbent upon clinicians to manage expectations and provide balanced information. The current evidence suggests MCED tests may be most valuable in specific high-risk populations or as an adjunct to existing screening, rather than a standalone replacement. The ethical implications of detecting cancers for which no effective treatment exists, or of identifying indolent cancers that may never cause harm, also warrant careful consideration as these technologies mature.

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