

IN FOCUS

Cancer in 2025 

Lillian L. Siu, on behalf of the AACR Cancer Progress Report 2025 Steering Committee

Summary: Adapted excerpts from the 15th edition of the annual American Association for Cancer Research Cancer Progress Report (<https://cancerprogressreport.aacr.org/progress/>) to the US Congress and the public highlight significant strides made possible through medical research, much of which is supported by federal investments in the NIH, NCI, FDA, and Centers for Disease Control and Prevention.

INTRODUCTION

We are making remarkable strides against the collection of diseases known as cancer. Breakthroughs across basic, translational, clinical, and population sciences—combined with rapid technological innovation—are transforming how we prevent, detect, diagnose, and treat cancer.

Now in its 15th edition, the American Association for Cancer Research (AACR) *Cancer Progress Report* series to Congress and the American public is a major cornerstone of the AACR's educational and advocacy efforts. Over the past decade and a half, these reports have showcased the extraordinary momentum in cancer research and how sustained federal investment has led to improvements in treatment options, survival, and quality of life for patients with cancer. This year's report continues that tradition and makes clear that continued progress hinges on unwavering support for the NIH, NCI, FDA, and Centers for Disease Control and Prevention and on a stable research infrastructure that can deliver advances for the benefit of all patients.

SNAPSHOT OF A YEAR OF PROGRESS

Significant progress against cancer has led to a steady decline in cancer death rates and a consistent increase in the number of individuals living longer, fuller lives after a diagnosis. In the United States, this reduction in cancer mortality is largely attributable to national public health efforts, including prevention initiatives, screening programs, and advancements in treatment for certain cancers.

Fueled by research, innovative personalized cancer treatments are rapidly moving from the laboratory to the clinic, offering patients safer and more effective options than ever before. Between July 1, 2024, and June 30, 2025, the 12 months covered in the *AACR Cancer Progress Report 2025*, the FDA approved 20 new therapeutics for treating various cancer

types, approved one wearable device that uses low-intensity electrical fields to slow the growth of lung cancer cells, and expanded indications for eight previously approved therapies to include new cancer types (Table 1). These agents span modalities including cell signaling inhibitors, angiogenesis inhibitors, epigenome-modifying agents, transcription factor inhibitors, antibody–drug conjugates, chimeric antigen receptor T-cell therapy, T-cell receptor T-cell therapy, and immune checkpoint blockade.

In addition to prevention, screening, and personalized treatment strategies for individuals, early detection of cancer is a very active area of research, with growing excitement around new technologies. Between July 1, 2024, and June 30, 2025, the FDA has approved several devices and software that use artificial intelligence (AI) to detect cancer earlier and more accurately.

Another area of rapid progress is the development of minimally invasive screening approaches, with FDA approvals of a liquid biopsy test and a next-generation multitarget stool DNA test for colorectal cancer screening, as well as a self-collection device that enables at-home sample collection for cervical cancer screening. Innovations in imaging, as well as a better understanding of genetic alterations that increase a person's cancer risk, are also improving early detection of cancer. These advances hold promise, but experts emphasize the need for long-term studies to ensure these tools improve outcomes without causing harm or widening existing cancer disparities.

BRINGING THE PROMISE OF PRECISION MEDICINE TO CHILDREN, ADOLESCENTS, AND YOUNG ADULTS WITH CANCER

Enormous progress has been made in the treatment of childhood and adolescent and young adult cancers over the past several decades, as reflected in the greater than 85% 5-year relative survival rates for all cancers combined for both populations. Between July 1, 2024, and June 30, 2025, the FDA approved a number of new therapeutics that will continue the momentum of progress against pediatric and adolescent and young adult cancers. In August 2024, vorasidenib was approved by the FDA for patients 12 years and older with certain slow-growing gliomas, known as grade 2 astrocytoma or oligodendroglioma, that have *IDH1* or *IDH2* mutations, after patients have undergone surgery, whether a full removal, partial removal, or just a biopsy of the tumor. FDA approval was

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Table 1. Newly FDA-approved anticancer agents (July 1, 2024–June 30, 2025).

Type of treatment	Generic name	Trade name	Description	Approved for
Molecularly targeted therapy	▶ Avutometinib + defactinib	Avmapki + Fakzynja	RAF/MEK clamp and FAK inhibitor	Certain types of ovarian cancer
	Belzutifan	Welireg	HIF-2 α transcription factor inhibitor	Pheochromocytoma or paraganglioma ^a
	Cabozantinib	Cabometyx	Multitargeted tyrosine kinase inhibitor	Certain types of pancreatic and extra-pancreatic neuroendocrine tumors ^a
	▶ Datopotamab deruxtecan-dlnk	Datroway	Anti-TROP2 antibody–drug conjugate	Certain types of breast and lung cancers
	▶ Denileukin diftitox-cxdl	Lymphir	IL2 receptor–directed immunotoxin	Certain types of lymphoma
	▶ Ensartinib	Ensacove	ALK inhibitor	Certain types of lung cancer
	▶ Inavolisib ^b + palbociclib + fulvestrant	Itovebi	PI3K inhibitor, CDK4/6 inhibitor, and ER antagonist	Certain types of breast cancer
	▶ Lazertinib + amivantamab-vmjw	Lazcluze + Rybrent	EGFR inhibitor and anti-EGFR/anti-MET bispecific antibody	Certain types of lung cancer
	▶ Mirdametinib	Gomekli	MEK inhibitor	Plexiform neurofibromas
	▶ Revumenib	Revuforj	Menin inhibitor	Certain types of leukemia
	Sotorasib ^b + panitumumab	Lumakras + Vectibix	KRAS ^{G12C} inhibitor and anti-EGFR monoclonal antibody	Certain types of colorectal cancer ^a
	▶ Taletrectinib	Ibtrozi	ROS inhibitor	Certain types of lung cancer
	▶ Telisotuzumab vedotin-tllv ^b	Emrelis	Anti-c-MET antibody–drug conjugate	Certain types of lung cancer
	▶ Vimseltinib	Romvimza	CSF1R inhibitor	Tenosynovial giant cell tumor
	▶ Vorasidenib	Voranigo	IDH1/2 inhibitor	Certain types of brain tumors
	▶ Zanidatamab-hrii ^b	Ziihera	Anti-HER2 bispecific antibody	Biliary tract cancer
▶ Zenocutuzumab-zbco	Bizengri	Anti-HER2/anti-HER3 bispecific antibody	Certain types of lung and pancreatic cancers	
Immunotherapy	▶ Afamitresgene autoleucl	Tecelra	MAGEA4-directed TCR T-cell therapy	Synovial sarcoma
	▶ Cosibelimab-ipdl	Unloxcyt	Anti-PD-L1 monoclonal antibody	Cutaneous squamous cell carcinoma
	Durvalumab	Imfinzi	Anti-PD-L1 monoclonal antibody	Certain type of bladder cancer ^a
	▶ Obecabtagene autoleucl	Aucatzyl	Anti-CD19 CAR T-cell therapy	Certain type of leukemia
	Pembrolizumab	Keytruda	Anti-PD-1 monoclonal antibody	Pleural mesothelioma ^a
	▶ Penpulimab-kcqx		Anti-PD-1 monoclonal antibody	Nasopharyngeal carcinoma
	Retifanlimab-dlwr	Zynyz	Anti-PD-1 monoclonal antibody	Certain type of anal cancer ^a
	Tafasitamab-cxix	Monjuvi	Anti-CD19 monoclonal antibody	Certain type of lymphoma ^a
▶ Zolbetuximab-clzb ^b	Vyloy	Anti-claudin 18.2 monoclonal antibody	Gastric or gastroesophageal junction cancers	
Device	Optune Lua		Tumor treating fields device	Certain type of lung cancer ^a

▶ Denotes newly approved anticancer agents.
 Abbreviations: CAR, chimeric antigen receptor; TCR, T-cell receptor.
^aExpanded approval for use in a new cancer type.
^bApproved with a new companion diagnostic test.

based on results from a clinical trial showing that vorasidenib significantly delayed tumor progression and the need for additional treatments. In February 2025, the FDA approved a second MEK-targeted therapeutic, mirdametinib (Gomekli), for both adult and pediatric patients 2 years of age and older with NF1 who have symptomatic plexiform neurofibromas not amenable to complete resection. The FDA expanded the use of two previously approved anticancer therapeutics for the treatment of childhood cancers. These include belzutifan as the first oral therapy for the treatment of children 12 years and older and adults with pheochromocytomas or paragangliomas that have spread or are not surgically removable and cabozantinib for the treatment of children 12 years and older and adults with pancreatic or nonpancreatic neuroendocrine tumors that have spread or are not surgically removable and have not responded to earlier treatments.

TECHNOLOGICAL INNOVATIONS ADVANCE CANCER SCREENING FOR EARLY DETECTION

Driven by innovative research, advances in molecular diagnostics, AI, and minimally invasive screening approaches are enabling earlier and more precise cancer detection. Recent studies demonstrate the transformative potential of AI in improving how breast cancer is detected while also reducing the workload of radiologists.

A large Swedish screening trial involving over 100,000 women showed that AI-assisted mammography detected 29% more cancers without increasing false positives, which are cases in which a test incorrectly indicates that a person has cancer when they do not. In addition, it led to a 44% reduction in the number of screenings requiring radiologist review (1). In a randomized controlled trial, AI triage reduced the time from mammogram to biopsy by 30%—nearly 17 fewer days—with no missed cancers (2). Another study, involving nearly half a million women, found that using AI to support mammogram interpretation improved breast cancer detection by nearly 18% (3). Another large study of racially and ethnically diverse women that used current as well as up to 4 years of prior mammograms to train an AI model for predicting a woman's risk of developing breast cancer found that this approach markedly improved the accuracy of the model (4). These findings offer a powerful tool for high-risk populations such as women with dense breasts, for whom many organizations recommend receiving MRI to supplement mammography. Together, these studies support a future in which AI helps detect breast cancer earlier and more precisely without overwhelming healthcare systems.

AI-assisted tools are also revolutionizing colorectal cancer detection. Two recent studies offer strong evidence that AI significantly improves polyp detection during colonoscopy, a key factor in preventing colorectal cancer. An analysis of 28 screening trials with over 23,000 participants found that AI-assisted colonoscopy improved polyp detection rates by 20% and reduced the rate of missed polyps by 55% (5). However, the improvements were primarily for small, low-risk lesions, suggesting the need for further refinement. In another study from the United Kingdom involving 2,000 patients, the FDA-approved GI Genius AI module is a deep learning

algorithm that improved the detection of small, high-risk polyps that often go unnoticed during colonoscopy. These benefits were observed in patients both with and without symptoms, indicating real-world utility across screening populations (6).

Furthermore, between July 1, 2024, and June 30, 2025, several new minimally invasive tests and devices have been approved by the FDA, reflecting the rapid pace of innovation in this field. Several recent studies underscore the promise of minimally invasive tests in detecting colorectal cancer early. One study using samples from patients with colorectal cancer found that a next-generation stool DNA test correctly identified 95% of colorectal cancers and over 57% of advanced precancerous lesions (7). Another study evaluated a new blood test that detected more than 80% of early-stage colorectal cancers while producing fewer false positives than standard methods (8). Both tests received FDA approval in 2024.

Beyond tests for the early detection of individual cancers, researchers are also developing multicancer early detection tools that can detect multiple cancer types by analyzing molecular markers, such as ctDNA shed by cancer cells. A large international study tested a blood-based multicancer early detection method that analyzed DNA methylation patterns in cell-free DNA, which are fragments of DNA shed by normal and unhealthy cells into the bloodstream. The test analyzed 13 different types of cancers and detected 79% of early-stage malignancies, with very few false positives. It also performed well in finding 58% of early-stage pancreatic cancers and 100% of early-stage liver cancers, both highly aggressive cancers that are rarely caught early (9). A growing body of evidence shows that these tools can detect cancer signals with remarkable accuracy, even in people with no symptoms (10). But important challenges remain, such as unequal access, limited insurance coverage, lack of transparency about what markers the tests are detecting and what the findings might mean, and concerns about missing cancers, especially precancerous lesions or early-stage cancers, or unclear results.

INVESTING IN RESEARCH TO ACHIEVE A HEALTHIER FUTURE

The remarkable progress against cancer has been driven by sustained federal investments in biomedical research. Key agencies, including the NIH, NCI, FDA, and Centers for Disease Control and Prevention, play vital roles in cancer prevention, early detection, treatment, and survivorship. For decades, these agencies have served as a catalyst for advancing cancer science and improving patient care. Strategic investments in research have led to groundbreaking discoveries and more targeted treatments, while efforts to strengthen the cancer workforce, modernize regulatory science, and expand access to prevention and screening have accelerated progress across the cancer continuum.

According to a recent poll conducted by Hart Research of 1,001 registered voters surveyed from August 26 to 30, 2025, an overwhelming 89% of the American public support the federal funding of medical research via institutions, including the NIH. Moreover, 77% of Americans oppose reducing federal funding for medical research. By rejecting

the administration's proposed cuts to the NIH, the US Senate aligned with the public's priorities, recognizing the vital role of the NIH in accelerating progress against cancer and countless other diseases affecting millions of Americans. These bipartisan actions are essential to protecting our nation's scientific enterprise, preserving public trust in science, and sustaining the lifesaving research on which patients and families depend.

As cancer research and care become increasingly complex, sustained funding for federal agencies and aligning public policy with the latest scientific evidence will remain essential to improving outcomes for all patients with cancer and ensuring a healthier future for them.

CALL TO ACTION

For more than 50 years, bipartisan investment in medical research has driven historic progress against cancer, delivering earlier detection, better treatments, and more time for millions of patients and families. That progress is now in jeopardy. Prolonged funding uncertainty and administrative and political interference are weakening cancer research, undermining scientific integrity, and eroding the infrastructure that turns discovery into patient care. Promising signs of bipartisan resolve in Congress show that this damage can be stopped and progress restored. The fight against cancer is at a decisive moment, and lawmakers have the power to ensure that promising science moves forward, discoveries reach patients, and hope for a future without cancer is not lost.

The AACR urges Congress to take immediate action to do the following:

- **Restart clinical trials and restore canceled research grants** to ensure that patients are not turned away from lifesaving studies and that promising science is not lost at a critical stage.
- **Support the federal research infrastructure** to repair the damage caused by mass reductions in workforce, frozen contracts, and suspended peer review. Discovery has stalled, and scientific capacity is breaking down.
- **Protect public health programs that prevent cancer** to avoid losing ground on screening, HPV vaccination, tobacco cessation, and early interventions. These efforts save lives.
- **Ensure that new treatments reach patients without delay** to prevent promising therapies from being trapped in bureaucratic limbo while families wait for help that may come too late.
- **Foster early-career and early-stage scientists and stabilize research careers** to stop the exodus of post-doctoral researchers and junior investigators who are abandoning science or being recruited overseas. When they leave, they take future cures with them.
- **Defend the independence and integrity of science by reversing the August executive order** that politicizes federal grant-making, thus restoring safeguards that keep research free from political interference and ensuring that grant-making, peer review, and public policies are guided by scientific evidence rather than ideology.

- **Reassert America's global leadership in medical innovation** to preserve decades of progress and prevent other nations from overtaking the United States in the race for the next generation of cures.
- **Provide no less than the Senate Appropriations Committee-approved levels of \$47.2 billion for the NIH and \$7.374 billion for the NCI, in addition to funding for the Advanced Research Projects Agency for Health, in fiscal year 2026** to sustain the scientific workforce, power new breakthroughs against cancer and other human diseases, and uphold a national commitment to the patients and families who are relying on lifesaving progress.

Cancer touches every family, every community, and every generation. At this defining moment, Congress owes it to every patient, every survivor, and every family to protect the progress we have made and deliver on the promise of a future without cancer.

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Note

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