

THE CANCER MOONSHOT BLUE RIBBON PANEL REPORT AT A GLANCE



“ I plan to do two things: 1) Increase resources—both private and public—to fight cancer. 2) Break down silos and bring all the cancer fighters together—to work together, share information, and end cancer as we know it. And the goal of this initiative is simple—to double the rate of progress. To make a decade’s worth of advances in 5 years. ”

Vice President Joe Biden
February 2016

In his final State of the Union address in January 2016, President Barack Obama tasked Vice President Joe Biden with heading up a new national mission—to make a decade’s worth of advances in cancer prevention, diagnosis, treatment, and care in 5 years.

The Cancer Moonshot is the coming together of science, technology, advocacy, social science, and big data to solve cancer’s greatest challenges.

Cancer is a complex disease that must be attacked on many fronts—through accelerating the best science and by breaking down administrative and financial barriers, increasing data sharing across all research sectors, and enhancing collaboration between the public and private sectors.

Since its launch, the Cancer Moonshot has brought diverse communities together to contribute their ideas and expertise for fast tracking progress against cancer.

Providing the Research Blueprint

To guide the scientific direction for the Cancer Moonshot, the Administration established a Blue Ribbon Panel of many of the nation’s top cancer experts—cancer researchers, oncologists, patient advocates, and private-sector leaders—to give careful thought to what could be done to expedite progress against cancer.

After just a few short months, the Blue Ribbon Panel delivered a report that summarizes the work of the Panel and its working groups into 10 transformative recommendations to shape the research blueprint for the Cancer Moonshot.

10 Years of Progress in 5: Blue Ribbon Panel Recommendations

A. Establish a network for direct patient involvement

Cancer clinical trials offer patients the opportunity to directly engage in cancer research and receive potentially promising treatments. But trials can be hard for patients to find and enroll in. This recommendation calls for cancer patients to join a new national network that, with appropriate privacy safeguards, will provide them with a genetic profile of their own cancer and let them “pre-register” for clinical trials, so they can be contacted when a trial for which they may be eligible opens. Researchers will be able to access patient outcomes reported in the network database to conduct studies on what treatments work, in whom, and in which types of cancer.

B. Create a clinical trials network devoted exclusively to immunotherapy

Unleashing a patient’s own immune system to attack cancer is transforming cancer treatment. But, understanding why these promising immunotherapies work in only some patients will take intensive research before more patients can benefit. Establishing clinical trials networks devoted exclusively to immunotherapies for pediatric and adult cancers would advance research in this area and could lead to new vaccines to prevent cancers of all types in children and adults.

C. Develop ways to overcome resistance to therapy

A major cause of cancer deaths is drug resistance, when treatments that are initially effective lose their ability to control the disease. This recommendation calls for establishment of multidisciplinary research teams to understand how drug resistance develops and find ways to prevent tumors from resisting the drugs meant to kill them.

D. Build a national cancer data ecosystem

Technology has enabled the collection of a massive amount of patient data. But these data are often stored in proprietary databases or accessible only to a select group of people, limiting their usefulness as a research resource. A national ecosystem that links many of the nation’s largest data repositories would enable one-stop, free access for researchers, doctors, and patients to share data on cancer and fuel faster progress.

E. Intensify research on the major drivers of childhood cancers

Researchers have learned that one of the major drivers of pediatric cancers are rogue proteins, known as fusion oncoproteins. Better understanding of how these proteins function is critical for advancing progress against pediatric cancers. Intensifying research in cell biology, genomics, proteomics, and drug development would accelerate development of new therapies that target these cancer-causing proteins.

F. Minimize cancer treatment's debilitating side effects

The side effects of cancer and its treatment can be excruciating for patients, particularly for children, with the impact on their developing bodies too often causing long-term health problems. This recommendation calls for research to support development of guidelines for managing patient-reported symptoms and side effects of cancer treatment in adults and children, with the goal of helping patients stay on their drug regimens and improve their quality of life.

G. Expand use of proven prevention and early detection strategies

Several cancer prevention and risk-reduction strategies have proven to be highly effective, including tobacco control, colorectal cancer screening, and HPV vaccination. Boosting prevention research to identify ways to increase uptake of these strategies, especially in medically underserved populations, could greatly reduce incidence and death from lung and other tobacco-related cancers, colorectal cancer, and cervical and other HPV-related cancers. The recommendation also calls for increasing testing for hereditary cancer syndromes in people with certain types of cancer and their family members, so those identified as high risk can begin early prevention or screening efforts.

H. Mine past patient data to predict future patient outcomes

Understanding why some patients with the same type and stage of cancer, and same treatment may end up with different outcomes continues to be a research challenge. Analysis of existing tumor tissue from patients who received standard-of-care treatment, stored at biobanks around the country, may enable discovery of genetic and other factors that distinguish which individuals would benefit from standard care versus experimental treatment in a clinical trial.

I. Develop a 3D cancer atlas

Oncologists today rely on past experience, consultation with multidisciplinary teams, published studies, and other sources to make diagnosis and treatment decisions. Providing a web-based catalog of the genetic lesions and cellular interactions in tumor, immune, and other cells in the tumor microenvironment that maps the evolution of tumors—from development to metastasis—will enable researchers to develop predictive models of tumor progression and response to treatment that will ultimately help oncologists make informed treatment decisions for each patient.

J. Develop new cancer technologies

Under this recommendation, increased public-private sector collaboration to develop new tools or refine technologies that are showing remarkable promise—including implantable microdosing devices that deliver drugs directly into a tumor to test their effectiveness, and advanced imaging technologies to study cancers at extremely high resolution—would help doctors deliver smarter, more effective therapies to patients.

When implemented, the Blue Ribbon Panel recommendations will advance critical areas of research to prevent and treat cancer, and to meet the goals of the Cancer Moonshot and the hopes of cancer patients and their loved ones.

Taken together, these recommendations create a vision for the future of cancer research and treatment in which:

- Patients contribute their cancer data, obtain a genomic profile about their tumor, learn about what treatments might work best given their profile, and find other relevant information, including clinical trials that may be appropriate for them.
- Doctors have access to information that better predicts treatment outcomes and helps control their patients' symptoms and side effects.
- Researchers can identify possible targets for the development of new cancer treatments and preventive interventions, including immunotherapies, as well as learn more about how to avoid or counter cancer drug resistance in patients.

For the Blue Ribbon Panel Report visit cancer.gov/brp



**VICE
PRESIDENT
JOE BIDEN**

"This is our moonshot.

I know that we can help solidify a genuine global commitment to end cancer as we know it today—and inspire a new generation of scientists to pursue new discoveries and the bounds of human endeavor."