



**The Vice-President's Cancer Moonshot
Blue Ribbon Panel 2016**
www.cancer.gov/brp

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National Cancer Institute**

Goals of the Cancer Moonshot

- Accelerate progress in cancer, including prevention & screening
 - From cutting edge basic research to wider uptake of standard of care
- Encourage greater cooperation and collaboration
 - Within and between academia, government, and private sector
- Enhance data sharing

(Presidential Memo 2016)

Vice President's Cancer Moonshot Workflow

Vice President's Office



**Cancer Moonshot
Federal Task Force**



NCI/NIH



National Cancer Advisory Board



"Blue Ribbon Panel"



Working Groups



Federal Task Force Goals

- Accelerate our understanding of cancer, its prevention, early detection, treatment and cure;
- Support greater access to new research, data, and computational capabilities;
- Improve patient access and care;
- Identify and address any unnecessary regulatory barriers and consider ways to expedite administrative reforms;
- Identify opportunities to develop public-private partnerships and increase coordination of the Federal Government's efforts with the private sector, as appropriate.

(Presidential Memo 2016)

Federal Task Force Report – Strategic Goals

- Catalyze new scientific breakthroughs
 - Expand mobile device use, create a tracking system for patients
- Unleash the power of data
 - Best practices for consent, seamless data environment, open platforms, workforce development
- Accelerate bring new therapies to patients
 - Modernize eligibility for clinical trials, develop site agnostic trials (eg MATCH), utilize real-world evidence
- Strengthen prevention and diagnosis
 - Improve HPV vaccination, smoking cessation strategies, expand CRC screening, screen environmental chemicals,
- Improve patient access and care
 - Education outreach, cancer survivorship issues, map cancer care across nation, develop virtual networks

Blue Ribbon Panel

- “The Blue Ribbon Panel ... will **provide expert advice on the vision, proposed scientific goals, and implementation** of the National Cancer Moonshot. ..The panel may also recommend other cancer research activities to enhance this effort.
- “The Panel will provide an intensive examination of the opportunities and impediments in cancer research... Findings and recommendations of the Panel will be reported to the NCAB.
- “The NCAB will use the Panel’s findings and recommendations to provide final recommendations to the NCI Director.”

(Presidential Memo 2016)

Blue Ribbon Panel

Tyler Jacks*
MIT

Peter C. Adamson, M.D.*
Children's Hospital of Philadelphia

James Allison
MD Anderson

David Arons
National Brain Tumor Society

Mary Beckerle
Univ. of Utah

Mitchel Berger*
UCSF

Jeffrey Bluestone
Parker Institute

Chi Dang*
U. Penn

Mikael Dolsten
Pfizer

Co-Chairs

Elizabeth Jaffee*
Johns Hopkins

James Downing
St. Jude Hospital

Levi Garraway
Harvard Medical School

Gad Getz
Broad Institute

Laurie Glimcher
Weill Cornell

Lifang Hou
Northwestern

Neal Kassell
Univ. Va.

Elena Martinez*
UCSD

Deborah Mayer
UNC

Edith Mitchell
Thomas Jefferson Univ.

Dinah Singer
NCI

Augusto Ochoa
Louisiana State Univ.

Jennifer Pietenpol
Vanderbilt Univ.

Angel Pizzaro
Amazon Web Services

Barbara Rimer
UNC

Charles Sawyers*
MSK

Ellen Sigal
Friends of Cancer Research

Patrick Soon-Shiong
NantWorks

Wai-Kwan Alfred Yung
MD Anderson

*NCAB/BSA member

Charge to Blue Ribbon Panel

- “The Blue Ribbon Panel ... will provide expert advice on the vision, proposed scientific goals, and implementation of the National Cancer Moonshot. ..The panel may also recommend other cancer research activities to enhance this effort.
- “The Panel will provide an intensive examination of the opportunities and impediments in cancer research... **the Panel may call upon special consultants, assemble ad hoc work groups** ... Findings and recommendations of the Panel will be reported to the NCAB.
- “The NCAB will use the Panel’s findings and recommendations to provide final recommendations to the NCI Director.”

(Presidential Memo 2016)

BRP Working Groups

Working Group	Co-Chair	NCI Staff
Cancer Immunology	Liz Jaffee, Jim Allison	Toby Hecht, Kevin Howcroft
Precision Prevention and Early Detection	Mary Beckerle, Jennifer Pietenpol	Elisa Woodhouse Tracy Lively
Tumor Evolution	Chi Dang, Levi Garraway	Joanna Watson, Suresh Mohla, Tony Dickherber
Clinical Trials	Charles Sawyers, Mitch Berger	Jeff Hildesheim Meg Mooney
Implementation Sciences	Elena Martinez, Augusto Ochoa	Bob Croyle, Wortá McCaskill- Stevens
Pediatric Cancer	Peter Adamson Jim Downing	Judy Mietz Malcolm Smith
Enhanced Data Sharing	Angel Pizarro Gaddy Getz	Juli Klemm Betsy Hsu, Jennifer Couch

Blue Ribbon Panel Working Groups

- **Each Working Group had 12-15 members.**
- **In total almost 150 individuals were engaged in the Working Groups, including academic researchers, clinicians, industry representatives and advocates.**
- **Charge was to generate 2-3 recommendations of major scientific opportunities that are poised for acceleration.**
- **The Working Groups met almost weekly to discuss and formulate their recommendations**

Scientific and Community Outreach Activities

Goal:

- Provide opportunities for the public and experts ways to submit ideas
- Increase the public's participation in the Cancer Moonshot

Approaches:

- Online public idea repository – over 1600 ideas submitted
- One-on-one public input: email
- BRP Listening sessions
- Professional conferences

Response:

- Over 1600 ideas received

Overview of Blue Ribbon Panel Report

- Seven Working Groups submitted a total of 14 recommendations
- All 14 were discussed at the July 20 meeting of the Blue Ribbon Panel
 - Thirteen were approved as “Moonshot recommendations”
 - One recommendation was converted to a demonstration project
- The Report summarizes these recommendations of exceptional research opportunities that could lead to powerful advances in our understanding of cancer
- The online Report includes all recommendations in their entirety at www.cancer.gov.brp

Cross-Cutting Themes

- National network of patient biological and clinical data
- Prevention
- Health disparities research
- Development of biomarkers, technology and preclinical models
- Data sharing, analytics and predictive computational modeling
- Collaboration; public-private partnerships

Summary of the Recommendations

→ A. Network for direct patient engagement:

- Enlist patients in federated network that includes patient tumor profiling data and “pre-registers” patients for clinical trials.

B. Cancer immunotherapy translational science network.

- Organize networks to discover and evaluate novel immune-based approaches for pediatric and adult cancers, and eventually develop vaccines.

C. Therapeutic target identification to overcome drug resistance.

- Launch interdisciplinary studies to delineate mechanisms that lead cancer cells to become resistant to previously effective treatments.

D. Creation of a national cancer data ecosystem.

- Create an ecosystem to collect, share, and interconnect datasets.

Summary of the Recommendations (continued)

E. Fusion oncoproteins in pediatric cancer.

- Improve understanding of the abnormal fusion proteins that result from chromosomal translocations and drive many pediatric cancers.

F. Symptom management research.

- Support research to accelerate development of guidelines for management of patient-reported symptoms to improve quality of life and adherence to treatment regimens.

G. Precision prevention and early detection:

- Implementation of evidence-based approaches. Conduct implementation science research to encourage broader adoption of HPV vaccination, colorectal cancer screening, and tobacco cessation.

Summary of the Recommendations (continued)



H. Retrospective analysis of biospecimens from patients treated with standard of care.

- Analyze biopsies to learn which features predict outcome to better plan treatment for future patients.

I. Creation of human tumor atlas.

- Catalog the evolution of genetic lesions and cellular interactions in tumor/immune/other cells in tumor microenvironment from the earliest detected lesions to metastasis

J. Development of new enabling technologies.

- Support development of technologies to accelerate testing of therapies and tumor characterization.

Summary of the Demonstration Projects

Prevention: Lynch Syndrome Demonstration Project

- A national effort to systematically screen all CRC and endometrial cancer patients for Lynch syndrome (LS)
- First degree relatives of patients with LS would be given the option to be screened and provided with genetic counseling

Therapy: Pediatric Cancer Immunotherapy Translational Science Network Demonstration Project

- A national pediatric immunotherapy clinical trials network to facilitate the testing of new immunotherapy approaches in childhood cancer
- Establish a robust research pipeline to advance pediatric immunotherapy

Emergent Technologies: Tumor Pharmacotyping Demonstration Project

- Develop intra- and extra-tumoral technologies for determining the most effective therapeutic agents for individual patients

Next Steps

- The Report identifies unique opportunities that are poised for acceleration that relate to the Cancer Moonshot
- Director, NCI, delivered the Report to the Vice President's Cancer Moonshot Task Force
- Policy issues identified by the BRP as barriers (e.g. coverage and reimbursement; uniform informed consent) were also forwarded to the Task Force for consideration.
 - Implementation will depend on the extent to which these barriers are addressed.

Next Steps (continued)

- NCI is now considering approaches for implementation of the recommendations
 - Identify those recommendations that are most feasible to implement in FY17
 - NCI will look to its advisory boards and the Blue Ribbon Panel for advice in the implementation
- Establish public-private partnerships and partnerships with other agencies
- Extent and rate of implementation will depend on Congressional appropriations
- Continued investment in investigator-initiated research and research areas beyond the scope of the Blue Ribbon Panel remains a high priority

Questions?



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