Improved Survival but Continued Disparities in Cancer: The 1971 National Cancer Act through Moonshot 2017

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Disclosures

• None.
Questions

• Cancer mortality rates have decreased over the last decade by:
  • A. 12%
  • B. 16%
  • C. 22%
Questions

• The causes on cancer disparities are:
  • Social injustice, Poverty / low economic status, culture
  • Possible influence on gene environment interaction
  • All of the above.
  • None of the above.
Questions

• Methods of improving cancer survival rates include:

• A. Prevention
• B. Early diagnosis and treatment.
• C. Improved treatment strategies.
• D. Post treatment quality of life.
• E. Survivorship and surveillance.
• F. All of the above.
• G. None of the above.
Trends in Death Rates Among Males for Selected Cancers: 1930-2009

Trends in Death Rates Among Females for Selected Cancers: 1930-2009

Five-Year Relative Survival Rates for Selected Cancers by Race and Stage at Diagnosis: 2002-2008

Causes of Health Disparities

Poverty / low economic status
Social injustice
Culture

Possible influence on gene environment interaction

Prevention  Early detection  Diagnosis/ incidence  Treatment  Post treatment/ quality of life  Survival and mortality

Freeman H. Adapted from Cancer Epidemiology Biomarkers & Prevention, April 2003.
Incidence Rates for Total Cancers in Men by Race and Age

Source: SEER 1996–2001
Note: Graphs may not begin at age 20 due to sample size limitations.
Note: Excludes basal and squamous skin cancers and carcinomas in situ. This exclusion applies to all analyses.
Age-adjusted Total Cancer Mortality Rates by Race and Gender

The Beau Biden Cancer Moonshot: 2016

Vice President’s Office

Cancer Moonshot Federal Task Force

NCI/NIH

NCAB

“Blue Ribbon Panel”

Working Groups
Overall Goals of the Cancer Moonshot

- Accelerate progress in cancer, including prevention & screening
  - From cutting edge 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)
Cancer Moonshot: Why now?

- The need has been present for decades; it is now matched by the opportunity to be able to benefit from a major infusion of additional resources.
- Many opportunities for bold, but feasible, initiatives that could have important implications for understanding cancer and for patients through improved prevention, screening, treatment, and survivorship.
- Immunotherapy has come of age.
Blue Ribbon Panel Goals

- Identify major scientific opportunities that are poised to be accelerated by additional emphasis and funding
- Identify major scientific and regulatory hurdles that can be overcome with additional emphasis and funding
- Develop ~10 recommendations of opportunities that would be pursued through the Cancer Moonshot
- Full report available at: cancer.gov/brp
Blue Ribbon Panel
Co-Chairs

Tyler Jacks
MIT

Elizabeth Jaffee
Johns Hopkins

Dinah Singer
NCI

Members

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. Pen

Mikael Dolsten
Pfizer

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

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

Edith Mitchell
Thomas Jefferson Univ.
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 a network to discover and evaluate novel immune-based approaches for adult and pediatric cancers, and develop preventive vaccines against cancers not attributable to infectious agents.

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.
E. Fusion oncoproteins in pediatric cancer.
   • Improve understanding of the abnormal fusion proteins that result from chromosomal translocations and drive many pediatric cancers, and develop specific inhibitors.

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.
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 genetic lesions and cellular interactions in tumor/immune/other cells in tumor microenvironment. Goes beyond TCGA in at least two ways: 1) includes premalignant lesions; 2) includes spatial arrangement of microenvironment

J. Development of new enabling technologies.
   - Support development of technologies to accelerate research, from basic to therapeutic.
Implementation research and increased dissemination of standard of care

- Cancer health disparities: racial, socio-economic, demographic
- Linking proposed implementation research to a sustainable dissemination plan
- Blue Ribbon Panel recommendations:
  - Colorectal cancer screening
  - Tobacco cessation
  - HPV vaccination
Cancer Funding in 21st Century Cures Act

- The cancer research portion is named the Beau Biden Cancer Moonshot Initiative
- $1.8 billion over 7 years, with $300 million for FY17
- Aligns well with BRP recommendations
Answers

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Thank you for your attention.

Questions?

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