American Association for Cancer Research

Advancing the Prevention and Cure of Cancer through Research, Strategic Leadership, and Partnerships

Report to the National Cancer Advisory Board

Geoffrey M. Wahl, Ph.D.
President, AACR

Bethesda, MD
February 6, 2007

AACR and NCI - Shared Missions

AACR

To prevent and cure cancer through research, education, communications, and collaborations

NCI

Reduce the burden and eliminate adverse outcomes of cancer by leading an integrated effort to advance fundamental knowledge about cancer across a dynamic continuum of discovery, development, and delivery

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AACR and NCI Collaborations

- Molecular Targets and Cancer Therapeutics Conference
- Frontiers in Cancer Prevention Research Conference
- Courses and Workshops:
  - Methods in Clinical Cancer Research (Vail and Flims)
  - Molecular Biology in Clinical Oncology
  - Pathobiology of Cancer
  - Cancer Imaging Camp
  - Accelerating Anticancer Agent Development and Validation Workshop
- AACR-FDA-NCI Think Tank on Clinical Biomarkers
- AACR-NCI programs for minorities and medically underserved
  - Comprehensive Minority Biomedical Branch Program
  - Center to Reduce Cancer Health Disparities
- Service by individuals on Committees, Task Forces, Think Tanks, and Editorial Boards

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“Cancer Research is Working”

- 1990-2002: 1% decrease per year in age-adjusted death rate (315,000 people saved or lives prolonged)
- 2002-2003: For the first time in 70 years, fewer people (369) died of cancer than the prior year
- 2003-2004: 3014 fewer people died of cancer than the prior year

American Cancer Society. Cancer Facts & Figures, 2007.

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"Cancer Research is Working"

The Economic Impact

- 2005 Estimate for Cancer Patient Care: **$72 billion** (excluding screening costs, value of time lost from work, decreased productivity, premature death)
- Lifetime cost of caring for ONE breast cancer patient: **$70,000** x 213,000 patients = **$15 billion**
- NIH estimate of overall costs for cancer in 2006 = **$206.3 billion**

*Cancer Center Directors' Report to NCI, 2006;
American Cancer Society. Cancer Facts & Figures, 2007

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"Cancer Research is Working"
...and shows a positive economic return on investment

1% decrease in cancer mortality is worth $500 billion

- 3014 fewer deaths from 2003-2004 = **$279 billion** in 'savings'
- Plus, advances in cancer treatment have **applications for other diseases** (e.g. angiogenesis inhibitors to treat macular degeneration)
- Total cost of the "War on Cancer" since 1971: **$69.3 billion**
- **The social returns on investment are inestimable**

Murphy, K.M. and Topel, R.H., Journal of Political Economy, 2006; 114(5), 871-904

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The Cancer "Tsunami"

- Cancer is a disease of aging
- By 2030, 20% of the U.S. Population will be over the age of 65, compared with 12% in 2004

Ries LAG, Eisner MP, Kosary CL, Hankey BF, Miller BA, Clegg LX, Edwards . SEER Cancer Statistics Review, 1973–1998. National Institute of Health. 2000 NIH publication 00-2789

- Cancer incidence rate for those >65 is **10X greater**
- Cancer mortality rate for those >65 is **16X greater**

Yancik, R, Holmes, ME. NIA/NCI Report of the Cancer Center Workshop (June 13–15, 2001). Exploring the Role of Cancer Centers for Integrating Aging and Cancer Research. 2002.

A Tsunami may come with little warning, leaving no time for preparation.

By contrast, we have warning of this **LOOMING CANCER CRISIS**, and our investment in research has prepared us to act **NOW**!

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AACR Core Characteristics

- World's collective brain trust in cancer research and all cancer-related fields
  - Basic, translational, and clinical research, population science
- Consistent focus on cutting-edge science and scientific programs
- Authoritative source of the latest cancer research findings
- Size, diversity, and international scope of the membership
- Networking, mentorship, and cross-disciplinary interactions
- Dedicated service of its members

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Sub-fields of Cancer Research Encompassed by AACR Membership

Our diverse scientific scope creates a unique environment for cross-disciplinary interactions and research integration

- Angiogenesis
- Animal models
- Behavioral science
- Bioinformatics
- Biomarkers
- Biophysics
- Carcinogenesis
- Cell death and senescence
- Chemistry
- Clinical trials
- Computational biology
- Drug development
- Epigenetics/epigenomics
- Gene expression
- Genomics
- Imaging
- Immunology
- Mathematical modeling
- Metabolism
- Metastasis/tumor microenvironment
- Molecular epidemiology
- Molecular targeted therapies
- Nanotechnology
- Nutritional science
- Population science
- Prevention
- Proteolysis
- Proteomics
- RNAi
- Signal transduction
- Stem cells
- Structural biology
- Systems biology
- Virology

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AACR - Driving the Scientific Agenda

- Identify and promote new and promising research opportunities, interventions, and strategies to hasten progress
- Foster creativity and innovation in cancer research through various mechanisms:

  - Scientific Think Tanks
  - Task Forces
  - Scientific Committees
  - Scientific Working Groups
  - Annual Meetings
  - Special Conferences
  - Educational Workshops
  - Publications & Website

- Engage in synergistic partnerships, both nationally and internationally

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  - Public

- both nationally and internationally

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Council of Scientific Advisors

- **George F. Vande Woude, Ph.D., Chair**
- Martin D. Abeloff, M.D.
- James P. Allison, Ph.D.
- José Baselga, M.D.
- Anton J. M. Berns, Ph.D.
- J. Michael Bishop, M.D.
- Nancy Brinker
- Joan S. Brugge, Ph.D.
- Ronald M. Evans, Ph.D.
- Napoleone Ferrara, M.D.
- Waun Ki Hong, M.D.
- Susan Band Horwitz, Ph.D.
- Hamilton Jordan
- Sherry Lansing
- Theodore S. Lawrence, M.D., Ph.D.
- Arnold J. Levine, Ph.D.
- Edison T. Liu, M.D.
- Cecil B. Pickett, Ph.D.
- Janet D. Rowley, M.D., D.Sc.
- Phillip A. Sharp, Ph.D.
- Ellen V. Sigal, Ph.D.
- Margaret R. Spitz, M.D.
- Craig B. Thompson, M.D.
- Daniel D. Von Hoff, M.D.
- Karen H. Vousden, Ph.D.
- Irving L. Weissman, M.D.

Newly Appointed Council Charged with:

- Reviewing the status of cancer research and evaluating the progress
- Identifying scientific challenges and opportunities
- Determining novel funding mechanisms
- Considering ways to address national policy issues
- Proposing new strategies for implementation

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Advances Contributing to Reduced Cancer Mortality

- **Prevention**
- **Early Detection**
- **Treatment**

Significant progress has been made because of advances in basic, translational, and clinical research, but challenges remain....

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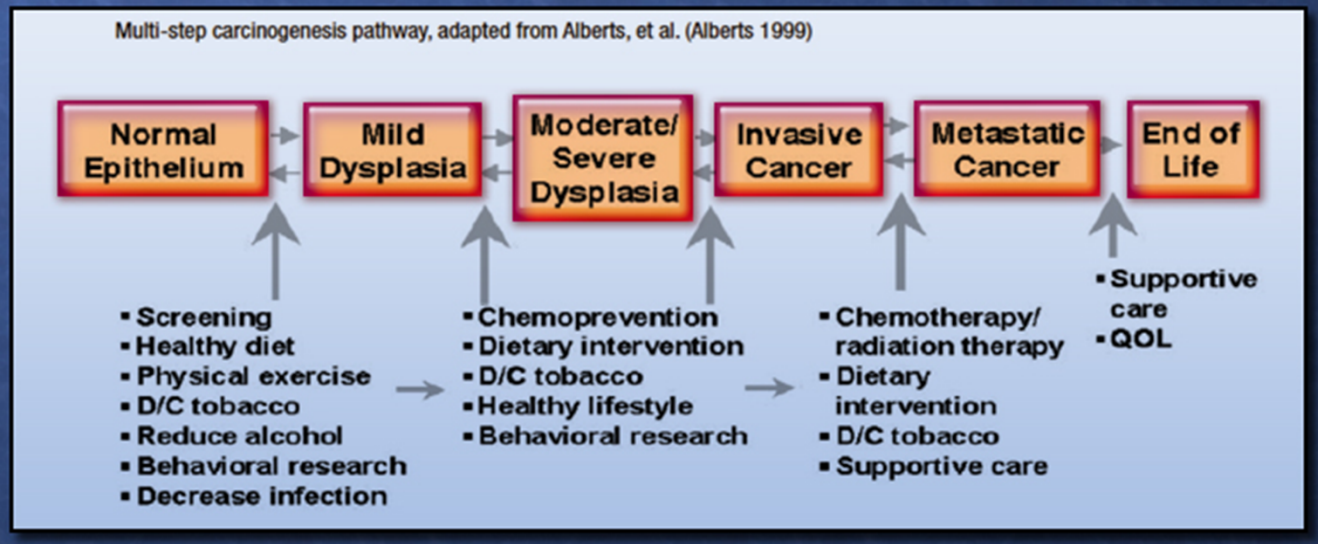
Significant progress has been [illegible] of advances in basic, translati[illegible] clinical research, [illegible] remain…

Cancer Prevention

Prevention can intervene at all stages of carcinogenesis:



Areas encompassed by Prevention:

- Basic Science
- Behavioral Science
- Biomarkers
- Carcinogenesis
- Chemoprevention
- Clinical Trials
- Epidemiology
- Epigenetics
- Genomics
- Imaging
- Immunology
- Inflammation
- Metabolism
- Nutrition
- Virology

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AACR - Advancing Prevention Research

- AACR International Conference on Frontiers in Cancer Prevention Research
  - December 5-8, 2007, Philadelphia, PA
  - The world's most comprehensive, transdisciplinary cancer prevention meeting with over 600 participants in 2006
- *Cancer Epidemiology, Biomarkers & Prevention*
  - 403 articles and 2580 pages published in 2006
- Cancer Prevention Task Force
  - Developing a comprehensive cancer prevention strategy
- New avenues are now being explored to increase the dissemination of leading research in prevention science

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Public Education - A Key Element for Prevention

In America: 36% feel that fate determines whether they will get cancer.

(ACS Poll, Reported on CNN)

In Britain: 27% of all questioned, (34% of smokers, 36% of overweight, and 43% of poor, but only 14% of wealthy) feel they can do nothing to alter cancer risk.

(Cancer Research UK study, 2007)

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AACR - Making Information About Cancer More Accessible

- Website
- CR Magazine
- Podcasts
- Scientist <–> Survivor Program
- Public Forum
- Outreach to community oncologists to ensure they have the most up to date information to share with patients

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Early Detection and Molecular Diagnostics

- New in 2006 – Meeting on Molecular Diagnostics in Cancer Therapeutic Development: Maximizing Opportunities for Individualized Treatment

  September 12-15, 2006, Chicago, IL

  September 17-20, 2007, Atlanta, GA

  David Sidransky, M.D., Chair, Program Committee

- AACR/FDA/NCI Think Tank on Clinical Biomarkers

  November 26-27, 2006, Philadelphia, PA

- Annual Meeting sessions dedicated to detection and diagnostics – including a special forum on Controversies in Lung Cancer Screening
- Workshop on Early Detection Research

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AACR - Accelerating Progress in Translational Research and Cancer Medicine

- AACR-NCI-EORTC International Conference on Molecular Targets and Cancer Therapeutics
- AACR-JCA Conference: In the Forefront of Basic and Translational Cancer Research
- Translational Breast Cancer Research Grant Program
- Translational Cancer Medicine Think Tank, July 2007
- International Meeting Series on Translational Cancer Medicine
  - Singapore, Amsterdam, Madrid, US
- Landon Prize for Translational Cancer Research
- Rosenthal Award for Translational Cancer Research
- Team Science Award - New for 2007
- AACR-Industry Roundtable
- New Annual Meeting Educational Sessions to train basic scientists to consider clinical applications

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AACR's Vision for the Future of Cancer Therapeutics

- Establish a new biology driven paradigm for drug development
- Overcome the challenges of molecular targeted therapies and combination therapies
- Improve clinical trial design and enhance the efficacy of clinical trials
- Help bring the new science into the regulatory process
- Accelerate drug discovery, development, and delivery of new therapeutic agents for improved patient care

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  - Public Forums
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Global Cancer Burden

New Cancer Cases
2000 - 10,000,000
2010 - 15,000,000

New Cancer Deaths
2000 - 6,200,000
2010 - 10,000,000

B. W. Stewart and P. Kleihues, *World Cancer Report*, WHO-IARC. Lyon: IARC Press, 2003

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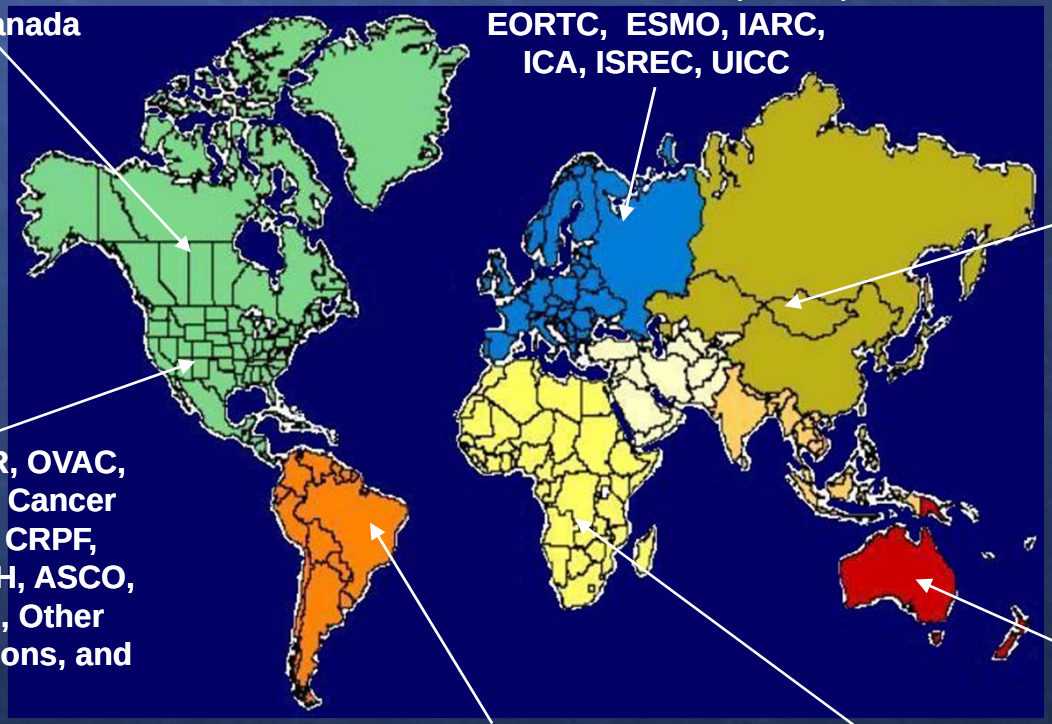
International Scientific Partnerships



Italian Cancer Society, BACR, EACR, Fredrich Miescher Institute, FECS, EORTC, ESMO, IARC, ICA, ISREC, UICC

NCI of Canada

National Health Research Institute of Taiwan, JCA, JSMO, CACA, KCA

NCI, NCCR, OVAC, Friends of Cancer Research, CRPF, NFCR, ASH, ASCO, EMS, ONS, Other Organizations, and Industry

Australian Cancer Society, MOGA

Brazilian Association of Philanthropic Institutions to Combat Cancer

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Persistent Problem in Cancer Health Disparities

While access to cancer care is a big issue, other factors play a strong role:

- Tumor biology and genetics
- Lifestyle
- Screening policies
- Personal health beliefs
- Comorbidities
- Quality of therapy
- Tolerance and response to therapy
- Post therapeutic surveillance

AACR - Committed to Eliminating Cancer Health Disparities

- AACR Minorities in Cancer Research (MICR)
- MICR Annual Meeting Forum: Genetic Variability and Ethnicity in Cancer Treatment Outcomes: Challenges and Opportunities
  Chairpersons: Francis Ali-Osman, D. Sc. and Judith S. Kaur, M.D.
- 2007 Public Service Award Recipients: Harold P. Freeman, M.D. and LaSalle D. Leffall, M.D.
- AACR Conference on the Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved, (co-sponsored by the NCI), November 27-December 1, 2007
  - This meeting will focus on the biological basis of health disparities from a range of disciplines including genetics, cell biology, epidemiology, behavioral science, and clinical research

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AACR Annual Meeting 2007

- April 14-18, 2007, Los Angeles, CA
- Featuring the latest developments in basic, translational, and clinical cancer research
- Projected Attendance: 17,500
- 2007 Highlights:
  - Centennial Plenary Session
  - Educational Organ Site Sessions at the Clinical-Basic Science Interface
  - Drug Development Track Featuring Phase I Trials
  - Phase II Proof of Concept Clinical Trials
  - Phase III Clinical Trials

Ronald A. DePinho, M.D.
Program Committee Chairperson

Professor of Medicine
Harvard Medical School
Dana-Farber Cancer Institute
Boston, MA

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AACR Centennial 2007

A Century of Progress in Cancer Research - A Future of Prevention and Cures

Centennial Events and Initiatives:

- Centennial Meeting, April 14-18, 2007, Los Angeles
- Centennial Cancer Research Landmarks
- Publication series on the history and evolution of cancer research
- Centennial Research Fund
- Centennial Dinner, May 8, 2007, Washington, DC
- Capitol Hill Day, May 9, 2007, Washington, DC

Ideal opportunity to draw public attention to the importance of cancer research

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From the Trenches

- Unparalleled opportunity, optimism, and enthusiasm
- Serious concerns for the future of cancer research
  - Inconsistent and insufficient funding
  - Cost of sophisticated technologies
  - Losing the next generation of researchers
  - Losing the competitive edge in science and technology to other countries

The Cancer Research "Engine"

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The Cancer Research "Engine"

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The Cancer Research "Engine"

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AACR Centennial Grant Research Fund

- Established in 2006
- Emphasizes leveraged funding
- Stringent reviews using facile review format
- Will fund proposals in promising new areas
- Will fund meritorious new investigators

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By Lance Armstrong
Special to CNN

AUSTIN, Texas (CNN) -- I'm not known for my patience. Patience is a polite quality and often appropriate, but it rarely gets things done. Impatience, however, is the hunger for results
and intolerance for excuses and delays. Impatience got me over countless mountain passes, across the finish line in New York City and through four rounds of ruthless chemotherapy 10 years ago.

Lance Armstrong says his patience is running thin with politicians in Washington.

TENNESSEAN.com

The Tennessean (Nashville, Tennessee)
August 28, 2006 Monday
1ST Edition
We're beating cancer, so why stall funding for research?
Earlier this year, with surprisingly little media attention, we celebrated a major milestone in the fight against cancer -- for the first time in record-keeping history, the number of American lives lost to cancer declined.

The San Diego Union-Tribune.

Fighting the terrorist within
By Geoffrey M. Wahl November 17, 2006

Fighting cancer bears a striking resemblance to our fight against terrorism. Cancer strikes just as randomly and unpredictably, and its causes suffering, death and great personal loss to family, friends and loved ones left behind.

FOX NEWS.com

Cancer Rate Down, but the War Not Yet Won

Monday , January 22, 2007
By Dr. Manny Alvarez
FOX NEWS

Last week's announcement by the American Cancer Association that the number of cancer deaths fell in the United States for the second year in a row was celebrated…

Association
Research

AACR Science Policy and Legislative Activities

AACR members are educating legislators about the value of cancer research

- Maintain the cancer research enterprise at this important juncture when discovery and innovations will lead to new therapies
- Advocate for sufficient appropriations to sustain scientific momentum
- Strengthen science education at all levels to maintain scientific competitiveness
- Reduce the nation's economic burden due to cancer
- Washington, DC office for government relations

Ensure that cancer research becomes a national priority AGAIN!

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AACR - Strengthening Collaborations with Other Sectors and Groups

- Academia/Cancer Centers
- Government (NCI, FDA, and other agencies)
- Other scientific societies around the world
- Industry
- Survivor and patient advocacy organizations
- Philanthropic organizations and individuals
- General public

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AACR and NCI - Shared Missions

- Meet regularly to discuss research priorities
- Work together to develop strategies to optimize resource utilization and strengthen translational research
- Identify bottlenecks and develop solutions

Optimize research opportunities today to ensure a competitive and productive cancer research enterprise for tomorrow!!

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