Lung Cancer: Failure, Inequity, Solutions.

Congressional Black Caucus
Health Braintrust
Washington D.C.
April 12, 2011

Frederic W. Grannis Jr. M.D.
Clinical Professor of Thoracic Surgery
City of Hope National Medical Center
Duarte, CA
“He wanted you to know.”
Take home points:

- The strategy of treating lung cancer patients after symptoms is not working.
  - Reduction of lung cancer morbidity and mortality can be achieved by:
    - 1. Tobacco Control public policy
    - 2. Smoking cessation
    - 3. Screening
Lung Cancer: Status Quo
The Late-Detection Strategy

- No attempt at early stage detection by screening.
- We wait for symptoms.
- Chemotherapy, surgery and radiation therapy in an attempt to cure advanced stage LC.
Richard Nixon Declares War on Cancer:
Success in the War Against Cancer?

- Breast Cancer
- Cervical Cancer
- Colon Cancer
- Prostate CA60

6 82 95
Success in the War Against Cancer? Disease Specific Survival

- Lung Cancer
- Breast Cancer
- Cervical Cancer
- Colon Cancer

6  82  95  2004

Survival rates for various cancers from 1974 to 2008.
NSCLC Overall Survival
Resection MND+RoRx
COH 1987-96 n=123

FWG
Why are the results so terrible?

A typical case of lung cancer is asymptomatic until it presents at an advanced stage.
Stage at Presentation of Lung Cancer 1991 SEER

- Localized
- Regional
- Distant

- NSCLC
- SCLC
Because so Few Cases are Diagnosed at Early Stage When Cancer is Most Curable

<table>
<thead>
<tr>
<th></th>
<th>Localized</th>
<th>Regional</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>60%</td>
<td>33%</td>
<td>5%</td>
</tr>
<tr>
<td>Prostate</td>
<td>80%</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>Colon</td>
<td>36%</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Lung</td>
<td>50%</td>
<td>22%</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Localized:* Cancer confined to the primary site

*Regional:* Cancer has spread to regional lymph nodes

*Distant:* Cancer has metastasized to other sites
This graph illustrates the total amount of FY 2005 research dollars from all three agencies (NCI, DOD, CDC) spent per estimated death in 2005.

- Breast: $23,474
- Prostate: $14,369
- Colon: $5,216
- Lung: $1,829
Budget:

Proposed Distribution of Lung Cancer Dollars:
Approximately 8 million dollars each year over the next five years plus an additional 40 million dollars for leveraged activities.

Management and Organizational Structure Chart

Trends in NCI Funding for Lung Cancer Research

The National Cancer Institute’s (NCI’s) investment in lung cancer research has increased from $175.0 million in fiscal year 2000 to an estimated $279.2 million in fiscal year 2005.

Source: NCI Financial Management Branch
http://www3.cancer.gov/admin/fmb

NCI Lung Cancer Research Portfolio

Percentage of Total Dollars by Scientific Area
Fiscal Year 2004

* Data on training grants are not included in this figure. A description of the relevant research projects can be found at the NCI Cancer Research Portfolio website at http://researchportfolio.cancer.gov.
Survival and Treatment Pattern of Non-small Cell Lung Cancer Over 20 Years.

Pitz MW, Musto G, Demers AA, Kliewer EV, Navaratnam S.
Cost of Cancer Care by Phase of Care, Lung, All Ages, Male and Female, in 2010 Dollars

Phase of Care

Initial  Continuing  Last

Cost ($) per Year (in millions)

2010  2020
4. Pricing & Cost Information of Regimen

Average Monthly Cost of Launched NSCLC Therapies

Average Lifetime Cost of Launched NSCLC Therapies**

* Indicates product will be generic within the next 5 years
** Based on stopping criteria or PFS

NOTE: Prices assume 75kg body mass, 1.7m² surface area

Avastin based on 10mg/kg, Gemzar based on 4 week dosing schedule
Lung Cancer:

- Rx of symptomatic lung cancer with drugs has not worked,
- isn’t working now and it is questionable whether it will ever work.
Lung Cancer: More Bad News

- Substantial disparities in lung cancer diagnosis and care..
- result in lower survival and higher mortality in multiple
- Racial, ethnic and priority populations.
Health Equity: Torchbearers Creed - Ben Horowitz

- "to be our brother's keeper means more than the social obligation of rescuing those plunged from the bright sunshine of health into the despairing darkness of disease. It involves a framework of social justice, emphasizing our larger responsibility and man's humanity to man."
The War Against Lung Cancer

Casualties

Age-Adjusted Cancer Death Rates, Males & Females by Site, US, 1930-1995

Rate per 100,000 male & female population

References
Lung Cancer: It’s a woman thing
Demographic Population: Census 2010


Poverty by Race/ Ethnicity: Census 2000

Smoking prevalence among California adults by SES, 1996-2009

Source: Behavioral Risk Factor Surveillance System and California Adult Tobacco Survey data is combined for 1996-2009. The data is weighted to the 2000 California population. 
Note change of smoking definition in 1996 that included more occasional smokers.
Prepared by: California Department of Public Health, California Tobacco Control Program, April 2010
Insurance by Race/Ethnicity: Census 2009

Percent population with no health insurance coverage, 2009


2009 California Health Interview Survey. Retrieved online on April 1, 2011. Website: http://www.chis.ucla.edu/
Percent Population with No Regular Source of Care, 2009

2009 California Health Interview Survey. Retrieved online on April 1, 2011. Website: http://www.chis.ucla.edu/

Website: http://www.cdc.gov/nchs/data/series/sr_10/sr10_249.pdf
Smoking prevalence among California adult males by race/ethnicity, 1996-2009

Survival Rates for the Three Next Biggest Cancers have Increased Significantly; the Rate for Lung Cancer Has Not

Five Year Relative Survival Rates 1999-2006

- **Lung**
- **Colon**
- **Breast**
- **Prostate**

<table>
<thead>
<tr>
<th>Group</th>
<th>Lung</th>
<th>Colon</th>
<th>Breast</th>
<th>Prostate</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American Male</td>
<td>11.3</td>
<td>55.6</td>
<td>95.9</td>
<td>99.6</td>
</tr>
<tr>
<td>White Male</td>
<td>13.8</td>
<td>66</td>
<td>99.6</td>
<td>99.6</td>
</tr>
<tr>
<td>African American Female</td>
<td>14.4</td>
<td>56.6</td>
<td>77.5</td>
<td>90.2</td>
</tr>
<tr>
<td>White Female</td>
<td>18.6</td>
<td>65.7</td>
<td>90.2</td>
<td>90.2</td>
</tr>
</tbody>
</table>
African American Men Have a 33% Higher Incidence Rate and a 28% Higher Mortality Rate of Lung Cancer than White Men

Incidence and Mortality Rates 2003-2007 per 100,000 of Population

<table>
<thead>
<tr>
<th></th>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American Male</td>
<td>101.2</td>
<td>87.5</td>
</tr>
<tr>
<td>White Male</td>
<td>76.3</td>
<td>68.3</td>
</tr>
<tr>
<td>African American Female</td>
<td>54.8</td>
<td>39.6</td>
</tr>
<tr>
<td>White Female</td>
<td>54.7</td>
<td>41.6</td>
</tr>
</tbody>
</table>
Lung Cancer is the Leading Cause of Cancer Deaths Among African Americans

Actual Deaths 2007
“I, too, believe nicotine is not addictive.” 1994
DYING FOR A MENTHOL?

They tell you the taste is cool, but 45,000 African Americans die each year from smoking-related diseases. Most of them smoke menthol.

HOW COOL IS THAT?

undo the death toll call 1-800-NO-BUTTS
Marie Evans:

- “a Suffolk Superior Court jury awarded the family of Marie Evans $152 million in damages for Lorillard’s practice of handing out free Newport cigarettes to black children* in Roxbury a half-century ago. Evans died of lung cancer in 2002 at age 54.”

* 9 year old children
CXR July 2010

60 yr. Mexican –American Smoker
CXR before hernia repair
Employed 14 yrs.
Health Insurance

CT October 2010

Bronchocopy Bx
Lung CA 10/28/2010
PET scan
January 2011

Lost health insurance
January 31, 2011
Thoracic Surgery Consultation
March 17, 2011

7 months later
LC has grown
3 cm. to 4 cm.
Figure 2. Curability of lung cancer within stage I disease by tumor diameter and for all stages combined as estimated by 10-year survival rates.
Smoking prevalence among California adult females by race/ethnicity, 1996-2009

Source: Behavioral Risk Factor Surveillance System (BRFSS) and California Adult Tobacco Survey data is combined for 1993-2009. The data is weighted to the 2000 California population.

Data modeled using a loess smoother.

Prepared by: California Department of Public Health, California Tobacco Control Program, January 2011.
‘Selling tobacco products to women currently represents the single largest product marketing opportunity in the world.’

Kaufman and Nichter 2001

Marketing Tobacco to Women
Amanda Amos, PhD
They Want New Customers Targeting Young People
SMOKIN’

Marlboro men kick butt in Fallujah

FULL STORY: PAGES 6-7

A Threat Within: Tracking the Deadly Ambitions of Najibullah Zazi

The War Up Close

Intimate images of the Troops in Afghanistan
BY ADAM PFEFFER

Why Nation-Building Can Work
BY PETER GIBSEN
Why It Won’t
BY LESLIE K. SELIB
NEW GIGS AIMED AT GAY SMOKERS

BY BILL HOFFMANN

Don't look now, Marlboro Man — but you've got a brand-new gay partner.

Philip Morris — which for years has used macho images to push its tobacco products — is now pushing a cigarette to homosexuals.

Benson & Hedges' Special King cigarettes will be introduced in the next issue of Genre, a fashion magazine for gay men.

It's the first time Philip Morris has advertised in a national gay-oriented publication — and

"I don't see how this can be construed as any kind of victory for gay rights."

— LAGERTA'S FAVORITE PERSON

"And it just seems so hypocritical. Don't forget, Philip Morris donated $250,000 for establishing

including Playboy, Cosmopolitan and Esquire.

Genre publisher defended the ad campaign.

"We are not as important as a market to be told The Post.

"It is the first time a corporation like Reaching out to the community."

Tuthill said the ad more gays to smoke and give those who do
Lung Cancer Mortality Rate by Economic Area 1970-94

White Males
Lung, Males
Age-Standardized mortality rate per 100,000

GLOBOCAN 2002, IARC
We can sharply reduce Lung Cancer suffering and death: Now....Today.

- Very strong evidence
- Detect Early Stage
- Small size
- Increase survival
- Decrease mortality
- Cost-effective
- Comparative-effective
- Implementation will save billions in budgeted health care costs
- in the short term.
Integrated Plan to Reduce Lung Cancer Mortality: Save Lives and Money

- Tax tobacco products
- Fund Tobacco control programs at CDC-recommended levels.
- Universal provision of smoking cessation.
- Implementation of population lung cancer screening in high-risk individuals (I-ELCAP)
- Insure Health Equity to priority populations (Obama Health Reforms).
- Enact WHO FCTC.
Reducing Lung Cancer Suffering and Death:

- Tobacco Control Public Policy
- Smoking Cessation Interventions
- Lung Cancer Screening
California adult per capita cigarette pack consumption and smoking prevalence, 1980 to 2010

Source: Behavioral Risk Factor Surveillance System (BRFSS) 1984-1992, BRFSS and California Adult Tobacco Survey data is combined for 1993-2009. The smoking prevalence is adjusted from 1984 to 1995 to account for the change in smoking prevalence that includes more occasional smokers. The data is weighted to the 2000 California population. California State Board of Equalization (packs sold) and US Census (population).

Funding for Tobacco Prevention from Settlement Dollars

- States that have committed substantial funding for tobacco prevention programs
- States that have committed modest amounts of tobacco settlement money for tobacco prevention programs
- States that have committed minimal amounts of tobacco settlement money for tobacco prevention programs
- States that have not allocated their tobacco settlement money or have placed the money into a trust fund with no guarantee of funding for tobacco prevention programs.
- States that made decisions concerning the tobacco settlement money, but did not appropriate any of that money for tobacco prevention or cessation.

*Arizona, California and Oregon have comprehensive tobacco prevention programs currently funded solely from state tobacco excise taxes. Massachusetts used funds from its tobacco settlement payments to supplement its current tobacco prevention program, funded by state tobacco excise taxes.

CAMPAIGN for TOBACCO-FREE Kids

January 11, 2001
Tobacco Revenue and Prevention Spending FY 2000-FY 2005

Dollars in Billions

FY 2000: $16.0
FY 2001: $17.4
FY 2002: $18.5
FY 2003: $19.9
FY 2004: $19.4
FY 2005: $20.0

*Some totals based on TFK estimates

Tobacco Control Programs Reduce Lung Cancer Deaths.

Cancer Epidemiol Biomarkers Prev; 19(11) November 2010
Annual Health Care Savings Attributable to Historical CA Tobacco Control Expenditures

Tobacco Control Programs Reduce Medical Expenditures.
California Tobacco Control Program: First 15 Years

- Over the first 15 years the California program cost $1.4 billion
- It saved $86 billion in healthcare costs
- These savings started appearing quickly and grew with time

Glantz UCSF
Reducing Lung Cancer Suffering and Death:

- Tobacco Control Public Policy
- Smoking Cessation Interventions
- Lung Cancer Screening
Reducing Lung Cancer Suffering and Death:

- Tobacco Control Public Policy
- Smoking Cessation Interventions
- Lung Cancer Screening
Benefits of Screening?:
Results are NOT controversial:

- Early stage detection
- Size detection
- Survival
- Mortality
### New Staging 2010

<table>
<thead>
<tr>
<th>UICC6 T/M Descriptor</th>
<th>Proposed TM</th>
<th>N0</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 (&lt; 2 cm)</td>
<td>T1a</td>
<td>IA</td>
<td>IIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T1 (&gt; 2-3 cm)</td>
<td>T1b</td>
<td>IA</td>
<td>IIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T2 (3 to ≤ 5 cm)</td>
<td>T2a</td>
<td>IB</td>
<td>IIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T2 (&gt; 5-7)</td>
<td>T2b</td>
<td>IIA</td>
<td>IIB</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T2 (≥ 7 cm)</td>
<td>T3</td>
<td>IIB</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T3 invasion</td>
<td>T3</td>
<td>IIB</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T4 (same lobe nodules)</td>
<td>T3</td>
<td>IIB</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
</tr>
<tr>
<td>T4 (extension)</td>
<td>T4</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
<td>IIIB</td>
</tr>
<tr>
<td>M1 (ipsilateral lung)</td>
<td>T4</td>
<td>IIIA</td>
<td>IIIA</td>
<td>IIIB</td>
<td>IIIB</td>
</tr>
<tr>
<td>T4 (pleural effusion)</td>
<td>M1a</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
</tr>
<tr>
<td>M1 (contralateral lung)</td>
<td>M1a</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
</tr>
<tr>
<td>M1 (distant)</td>
<td>M1b</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
<td>IV</td>
</tr>
</tbody>
</table>
Figure 2. Curability of lung cancer within stage I disease by tumor diameter and for all stages combined as estimated by 10-year survival rates.
Benefits of Screening?:
Results are NOT controversial:

- Early stage detection
- Size detection
- Survival
- Mortality
Survival:

Fig 1. Survival by resection and screen detection.

Group 1 (N=123)
RESECTED AND SCREEN-DETECTED

Group 2 (N=22)
RESECTED AND SYMPTOM-DETECTED

Group 4 (N=163)
NOT RESECTED AND SYMPTOM-DETECTED

Survival analysis showing:
- p<0.0001; overall (logrank)
- p=0.0075; Groups 3 versus 4
- p=0.20; Groups 1 versus 2

The PLCO study, begun in 1992, has not yet provided any data on efficacy of CXR in LCS. During this 19 years, CXR has become obsolete and more than 2 million Americans have died of LC. NCI has recently refused to allow the CXR arm of this study to Serve as a control group for the I-ELCAP study.
What is the chance of survival with LC detected by CT scan?

Survival of Patients with Stage I Lung Cancer Detected on CT Screening

The International Early Lung Cancer Action Program Investigators*
Short interval serial CT scans allow detection of tumor growth.
Figure 2. Kaplan–Meier Survival Curves for 484 Participants with Lung Cancer and 302 Participants with Clinical Stage I Cancer Resected within 1 Month after Diagnosis.

The diagnoses were made on the basis of CT screening at baseline combined with cycles of annual CT.
Overall survival curves of detected lung cancer patients

Screened with CT (9/93-8/02)

Screened without CT (9/75-8/93)

Logrank: p<.001

Months

Chiba Japan
Proceedings of the International Conference: Lung Cancer Screening and Early Diagnosis, Como Italy, November 8, 2003
Benefits of Screening?:
Results are NOT controversial:

- Early stage detection
- Size detection
- Survival
- Mortality
NLST, the National Lung Screening Trial, is a research study sponsored by the National Cancer Institute for men and women at risk for lung cancer.

**Mortality Reduction:**

NLST is comparing two ways of detecting lung cancer: spiral computed tomography (CT) and standard chest X-ray. Both chest X-rays and spiral CT scans have been used to find lung cancer early. So far, neither chest X-rays nor spiral CT scans has been shown to reduce a person's chance of dying from lung cancer. This study will aim to show if either test is better at reducing deaths from this disease.

By February 2004, nearly 50,000 current or former smokers had joined NLST at more than 30 study sites across the country. The trial, now closed to further enrollment, is slated to collect and analyze data for eight years, and will examine the risks and benefits of spiral CT scans compared to chest X-rays.... more info
On October 28, 2010, the National Lung Screen Trial Data Safety and Monitoring Board (DSMB) sent a letter to Dr. Harold Varmus, director of the National Cancer Institute (NCI), informing him that they were closing the NLST because that trial had reached a study endpoint of reduction in lung cancer-specific mortality of greater than 20% (statistically significant) in persons screened with CT scans compared to those screened with chest x-rays, among more than 50,000 study subjects.
Dr Varmus also emphasized, that because of the design of the study, which incorporated only three rounds of screening, there would be no point in awaiting longer follow-up, since the result would be diluted in longer follow-up, as the beneficial effects of three rounds of screening were lost progressively over the passage of time.

Dr Varmus also reported that no unusual, unanticipated risks had been identified in the NLST study.
Estimate of true mortality reduction Requires long-term follow-up of Annual screening.

NLST results underestimate Mortality Reduction Benefit
Survival following treatment of lung cancer: Screening CT (IELCAP) vs. Symptomatic Detection (SEER)
Scenarios for Early Detection

- **Current**: 160,000 Americans diagnosed Stage III or IV in 2007
  - only **8,600** will be alive by 2012

- **Base Scenario**: If all Stage III & IV cancers were detected at Stage IA one or two years before 2007
  - **84,000** would be alive by 2012

- **Stress Scenario**: various biases lead to increase in mortality ratio by 50%; detection at Stage IA occurs 3-5 years before 2007
  - **44,000** would be alive by 2012
Cost of a 5-year lung cancer survivor: symptomatic tumour identification vs proactive computed tomography screening.


- The predicted increase in long-term survival with CT screening and the potential for better utilisation of health-care dollars in terms of CP5YS, particularly when screening patients over the age of 60 years, are critically important considerations in directing effective future lung cancer management strategy.

• University of Pittsburgh School of Medicine, Pittsburgh, PA, USA; Department of Thoracic Surgery, City of Hope
• National Medical Center, Duarte, CA, USA and University of California San Diego, San Diego, CA, USA
PMPM: Key Metric for Healthcare Finance

Per Member Per Month =

$ Cost per Service (less cost sharing) \times

Annual Utilization per 1,000 members +

12,000

- The universal language of health insurance including commercial, Medicare and Medicaid
How Much Will "I-ELCAP" Screening Protocol Cost on a Population Basis?

- ANSWER: Very Little!
  - Under $1 PMPM
  - Comparison: Typical commercial population costs $300 PMPM, chiropractor costs > $5 PMPM

...more details follow

- 1st Step in Cost/Benefit Analysis of Lung Cancer Screening
- Builds on, An Actuarial Approach to Comparing Early Stage and Late Stage Lung Cancer Mortality and Survival, Feb 2010
Corporate Tax Cheats Are Bankrupting America

Thanks to foreign tax havens and other loopholes, many of America's largest corporations pay ZERO taxes. Many others pay effective tax rates of less than 10% (even though the actual corporate tax rate is 35%).

If these tax cheats paid their fair share...

$5.1 Billion
In 2010 GE reported $5 profits of $5.2 billion but got a $3.2 billion refund.

$1.6 Billion
Bank of America holds over $12 trillion in assets, and yet it pays less in taxes than the average American household.

$8.4 Billion
Verizon reported $14.2 billion in pre-tax U.S. income, and yet claimed a federal corporate refund of $4.3 billion.

$6.6 Billion
Citigroup has paid no taxes for the last 4 years. They were the largest recipient of bailout funds, receiving $486 billion.

And that's just the start. If these tax cheats paid their fair share, then we wouldn't have to cut.

No More Cuts Until Corporate Tax Cheats Pay Up!

Jobs
141 Billion for job training, unemployed and new workers

Kids
111.2 Billion for early childhood programs

Teachers
14.6 Billion for teacher training and after school programs

You angry? Then get active! Join USUncut! We're staging hundreds of actions nationwide and taking our demands straight to the tax cheats' doors.

www.USUncut.org
Integrated Plan to Reduce Lung Cancer Mortality: Save Lives and Money

- Tax tobacco products sufficient to fund
- Tobacco control programs at CDC recommended levels.
- Universal provision of smoking cessation interventions.
- Implementation of population lung cancer screening in high-risk individuals within the context of a proven regimen (I-ELCAP)
- Insure access to prevention, screening and treatment services to priority populations (Obama Health Reforms).
WASHINGTON, DC, APRIL 7, 2011.
The Lung Cancer Mortality Reduction Act

- Today, Lung Cancer Alliance (LCA) praised congressional leadership for again stepping forth and reintroducing federal legislation to provide for a compassionate and comprehensive plan of action for lung cancer – the leading cause of cancer death.

- The Lung Cancer Mortality Reduction Act, introduced simultaneously yesterday afternoon in both the United States Senate (S.752) and House of Representatives (H.R.1394), represents continued bi-partisan and bi-cameral support for a multi-pronged federal plan that would address all aspects of lung cancer, including now a national lung cancer screening demonstration program.
“the Government has established that Defendants (1) have conspired together to violate the substantive provisions of RICO, pursuant to 18 U.S.C. § 1962 (d), and (2) have in fact violated those provisions of the statute, pursuant to...
DOJ Decision: Guilty
Judge Gladys Kessler “what this case is really about”

“...It is about an industry, and in particular these Defendants, that survives, and profits, from selling a highly addictive product which causes diseases that lead to a staggering number of deaths per year, an immeasurable amount of human suffering and economic loss, and a profound burden on our national health care system.”
John Boehner
New House Majority Leader
Handed out checks from the tobacco industry on the House floor in 1995
THREE WAYS TO SAVE LIVES.

The treaty is the world's answer to the tobacco epidemic, which kills nearly 6 million people each year. It's legally binding in more than 175 countries. Its goal is to make tobacco products less attractive to young people and more difficult to get to.
SAVE THE DATE

Lung Cancer Research Call-In Day
Wednesday, April 13th, 2011

Lung cancer is the leading cancer killer in the United States, killing almost 160,000 people every year. Lung cancer has one of the highest incidence rates and one of the lowest survival rates.

Join our Lung Cancer Research Call-In Day to speak as one voice with others across the nation.
Thank you

- Kimlin Ashwin-Giwa PhD- Professor & Founding Director
  CCARE
  Center of Community Alliance for Research & Education
  Division of Population Sciences
  City of Hope National Medical Center

- Philip Gardiner Dr. P. H. Social and Behavioral Sciences
  Neurosciences and Nicotine Dependence Research
  Administrator, Tobacco Related Disease Research Program,
  University of California, Oakland CA

- David Cowling, Ph.D., Chief, Evaluation and Knowledge
  Management Section, California Tobacco Control Program

- Stanton Glantz PhD Professor of Medicine University of California
  San Francisco.
<table>
<thead>
<tr>
<th>Institution</th>
<th>Institutional Link</th>
<th>Researchers</th>
</tr>
</thead>
</table>
| Coordinating Site  
Joan & Sanford I. Weill Medical  
College of Cornell University  
Lung CT Screening Program  
Room J-030  
525 East 68th Street  
New York, N.Y. 10021  
USA | [Cornell University](http://www.cornell.edu) | Claudia Henschke, Ph.D., M.D.  
Principal Investigator  
Contact person:  
Senior Study Coordinator  
Kim Agnello  
(212) 746-2452  
kka2001@med.cornell.edu  
To make an appointment please call 212-746-1325 |
| **UNITED STATES** | | |
| California | | |
| City of Hope  
National Medical Center  
1500 E. Duarte Rd. | [City of Hope](http://www.cityofhope.org) | Fred Grannis, M.D.  
Principal Investigator  
Contact person:  
Study Coordinator |
Without the products of the following companies this talk would have been irrelevant.
Thank You
“I'd have been here sooner if it hadn't been for early detection.”
## Cancer Screening Rates in SPA 3

<table>
<thead>
<tr>
<th>Screening Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal Cancer Screening: Colonoscopy (Adults 50+, Past 5 Years)</td>
<td>46.9%</td>
</tr>
<tr>
<td>Colorectal Cancer Screening: Fecal Blood Test (Adults 50+, Past 2 years)</td>
<td>31.6%</td>
</tr>
<tr>
<td>Cervical Cancer Screening: Pap Test (Women 18+, Past 3 years)</td>
<td>81.0%</td>
</tr>
<tr>
<td>Breast Cancer Screening: Mammography (Women 50+, Past 2 Years)</td>
<td>72.4%</td>
</tr>
<tr>
<td>Prostate Cancer: PSA Test (Men 40+, Past Year)*</td>
<td>31.1%</td>
</tr>
</tbody>
</table>
Cervical Cancer Screening History
Pap Test History of Women 18+ in California and LA County by Race, 2007

Women, 18+, who have had a Pap Test in Past 3 years

Source: 2007 California Health Interview Survey
Breast Cancer Screening History

Mammogram History of Women 30+ in California and LA County by Race, 2009

Women, 30+, who have had a Mammogram in past 2 years

Source: 2008 California Health Interview Survey
Prostate Cancer Screening History

PSA Test History of Men 40+ in California and LA County by Race, 2009

Men, 40+, who have had a PSA Test within the past year

Source: 2009 California Health Interview Survey
Colon Cancer Screening History

Test History of Adults 50+ in California and LA County by Ethnicity / Race, 2009

Adults, 50+, who are compliant with Colon Cancer screening recommendations

Source: 2009 California Health Interview Survey
Clinical Trial Participation by Race / Ethnicity

Enrollment by Race and Ethnicity
National Cancer Institute, Publicly Funded Cancer Clinical Trials (Phase I-III Treatment Studies)
January 1, 2003 – June 30, 2005

- White, 88.6%
- Black/African American, 8.0%
- Asian/Pacific Islander, 2.8%
- Multiple, 0.1%
- Native American/Alaska Native, 0.5%
- Hispanic/Latino, 5.6%
- Non-Hispanic/Latino, 94.4%

Source: Baseline Study of Patient Accrual Onto Publicly Sponsored Trials,2 Coalition of Cancer Cooperative Groups for the Global Access Project, National Patient Advocate Foundation, April 2006
The reason for his decision to close the study was based upon the ethical consideration that, now that a statistically significant result in favor of CT screening had been obtained, individuals in the chest x-ray (CXR) arm of the study must be notified so that they might choose screening by the more effective modality. Dr Varmus agreed that the study should be stopped and that research subjects should be notified. Accordingly, a letter was sent to study subjects informing them that, not only had the trial identified a 20% reduction in lung cancer-specific mortality, but also that a 7% reduction in death from all causes (all-cause mortality) had been noted. This information was also communicated to the public in a press release as well as official notification on the NCI NLST web site and in the NCI Newsletter.
LA County Population, 2000 Census
by Asian and Hispanic Sub-Groups

*Groups of less than 1% are not shown*

**LA County Asian Population by Country of Origin**

- Chinese: 28%
- Filipino: 24%
- Japanese: 10%
- Korean: 17%
- Taiwanese: 3%
- Vietnamese: 7%
- Thai: 2%
- Cambodian: 3%
- Asian Indian: 6%

**LA County Hispanic/Latino Population by Country of Origin**

- Mexican: 71.71%
- Central American: 8.79%
- South American: 1.76%

Source: US Census Bureau via Los Angeles Almanac: www.laalmanac.com/
Buying protection from FDA regulation.

- Contributions to the sponsors and cosponsors of ineffective FDA legislation supported by Philip Morris.
- The 17 House members who sponsored the PM-backed FDA bill, H.R. 2180 in the 107th Congress, received, on average,
  - more than 20 times as much money from
  - the TI
- as the 127 sponsors of a public health community-supported FDA bill, H.R. 1097
- ($12,707 vs. $613 per sponsor)
Anticipointment

- **Scientific Progress Spurs Research Into Record Number of Cancer Medicines**

  - (PhRMA) Apr 5, 2011 - A record 887 medicines for various types of cancers are in clinical trials or awaiting Food and Drug Administration (FDA) review
NSCLC: Survival by Stage at Diagnosis

Serendipity: “a fortunate accident”
Stage IA Squamous NSCLC
Lung Cancer is the Only Cancer Blamed on the Patient, Even Though Nearly 80% of New Cases are Former or Never Smokers

- 20.9% Current Smokers
- 60% Former Smokers
- 17.9% Never Smoked
CHART 1. I-ELCAP BASELINE SCREENING PROTOCOL

CHART 2. I-ELCAP ANNUAL REPEAT SCREENING PROTOCOL

*Another option: PET. If positive, then biopsy; otherwise, CT 3 months after initial low-dose test.
Volume Rendering

**FIG. 3.** 3D surface rendering of the nodule in the CT scan above at baseline and 130 days later. The change in the volume was consistent with malignancy and the nodule was biopsied and the diagnosis of adenocarcinoma was made.
Figure 4. Percentage of Stage I and Stage II Female Breast Cancer Patients with Tumor Size ≤2cm Undergoing Breast-Conserving Surgery, 1988-1998

Note: Based on data from 11 SEER registries. Los Angeles registry data from 1988-1991 were not available.

Source: Singh GK, Miller BA, Hankey BF, Edwards, BK. Area socioeconomic status variations in US cancer incidence, mortality, stage,
FWG Potential Conflicts of Interest

- Principle investigator in City of Hope I-ELCAP screening protocol.
- $35,000 grant for research data management.
- Travel and accommodation to I-ELCAP meetings.
- Paid expert witness testimony in three medical monitoring lawsuits against Philip Morris in NY, MA and CA.
Stage at Diagnosis is Related to Survival. Only a Small Percentage of Lung Cancers are Being Diagnosed at an Early, Most Curable Stage

Percentage of Patients Diagnosed at Early Curable Stage

- Lung
- Colon
- Breast
- Prostate

African American Male
- Lung: 11%
- Colon: 35%

White Male
- Lung: 14%
- Colon: 40%

African American Female
- Lung: 14%
- Colon: 35%

White Female
- Lung: 17%
- Colon: 38%

Prostate:
- Lung: 61%
TOBACCO DEATHS (in millions)
Unless current smokers quit, smoking deaths will rise dramatically over the next 50 years.

Baseline
No change

If youth initiation halves by 2020

If adult consumption halves by 2020

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FIG. 6. Modeled survivors curves for Stage IV cohort without lead time. This shows stage IV survivors by duration, along with survivors for the same cohort if their lung cancers had been detected at an earlier stage. Unlike the following Figures 7–9, Figure 6 does not assume any lead time between early stage and stage IIIA, which overstates the resulting mortality advantage of early detection. The mortality advantage by year can seen as the difference between the late stage (LS) curve and the hypothetical early stage (ES) detection curve at any given study year.
THE ECONOMIC BURDEN OF HEALTH INEQUALITIES IN THE UNITED STATES

Thomas A. LaVeist, Ph.D., Darrell J. Gaskin, Ph.D., Patrick Richard, Ph.D.. September 2009

EXECUTIVE SUMMARY

We estimated the economic burden of health disparities in the United States using three measures: (1) direct medical costs of health inequalities, (2) indirect costs of health inequalities, and (3) costs of premature death. Our analysis found:

• Between 2003 and 2006 the combined costs of health inequalities and premature death in the United States were $1.24 trillion.

• Eliminating health disparities for minorities would have reduced direct medical care expenditures by $229.4 billion for the years 2003-2006.

• Between 2003 and 2006, 30.6% of direct medical care expenditures for African Americans, Asians, and Hispanics were excess costs due to health inequalities.

• Eliminating health inequalities for minorities would have reduced indirect costs associated with illness and premature death by more than one trillion dollars between 2003 and 2006.
San Francisco has recently passed a law prohibiting sales of cigarettes by drug stores.

Michael Friedman MD, CEO of City of Hope is on the Board of Directors of Rite Aid Corp. which sells hundreds of millions of $ worth of Cigarettes each year.
Tobacco Education: The expensive, effective program
No other disease vectors spends $ billions to disseminate itself.

- According to the Federal Trade Commission, a record $15 billion was spent by the tobacco industry on cigarette advertising and promotion in 2003.
“Parade of Torches”

New York Easter Parade
1929
Women assert their independence.

Or do they?
Edward Bernays and
Albert Lasker
James “Buck” Duke
Lung Cancer is the Least Funded in Dollars Per Death of the Leading Cancers

Federal Research Funding FY10
(Dollars per Death)

- Colon (2010: $6,872, 2005: $5,607)
- Lung (2010: $1,871, 2005: $1,386)
How much of the decrease in cancer death rates in the United States is attributable to reductions in tobacco smoking?

Michael J Thun and Ahmedin Jemal

- "without reductions in smoking, there would have been virtually no reduction in overall cancer mortality in either men or women since the early 1990s." in the USA.
Age Adjusted Heart Disease Mortality

Prop 99
Tax increase

United States - California
California

Lagniappe
Stigma:

Lung Cancer is the Only Cancer Blamed on the Patient, Even Though Nearly 80% of New Cases are Former or Never Smokers

- Current Smokers: 20.9%
- Former Smokers: 60%
- Never Smoked: 17.9%
- Others: 0-10%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Lung Cancer Morbidity and Mortality:

- Now some good news