Public policy and cancer prevention

E. R. Greenberg MD
Public policy

All countries, regardless of income, should develop and implement a cancer control policy.
58th World Health Assembly Resolutions

• Collaborate in developing and reinforcing comprehensive cancer control programmes.

• Set priorities based on national burden of cancer, resource availability and health system capacity.
58th World Health Assembly Resolutions

• Integrate national cancer-control programmes in existing health systems.

• Pay special attention to cancers for which avoidable exposure is a factor: chemicals and tobacco smoke in the workplace and the environment, certain infectious agents, and ionizing and solar radiation.
58th World Health Assembly Resolutions

• Encourage scientific research necessary about the burden and causes of human cancer in low resource settings.

• Give priority to research on cancer prevention, early detection and management strategies.
58\textsuperscript{th} World Health Assembly Resolutions

• Develop information systems, including outcome and process indicators, that support planning, monitoring and evaluation.
The role of policy in cancer control.

• Contrasting population vs individual approaches.

• Assessing the effectiveness of policy interventions.
"Sick individuals and sick populations."

Sick individuals and sick populations.

• The causes of cases within a population may not explain differences in disease incidence between populations.
Distributions of systolic blood pressure in middle-aged men in two populations

- Kenyan nomads
- London civil servants
Sick individuals and sick populations.

• Most disease within a population occurs in individuals who are not at “high risk”.
Percentage distribution of serum cholesterol in middle-age men
Prevention by the ‘high-risk strategy’: Advantages

• Intervention appropriate to individual

• Subject motivated and able to choose

• Physician motivated and rewarded

• Focused use of resources

• Benefit: risk ratio favorable for individual
Prevention by the ‘high-risk strategy’: Disadvantages

• Difficulties and costs of screening

• Palliative and temporary—not radical

• Limited potential for population

• Behaviorally inappropriate
Prevention by the ‘population strategy’: Advantages

- Radical
- Large potential for population
- Behaviorally appropriate
Prevention by the ‘population strategy’: Disadvantages

- Small benefit to individual (‘Prevention Paradox’)
- Poor motivation of subject
- Poor motivation of physician
- Benefit: risk ratio worrisome
The High Risk Strategy in Cancer Prevention

• Futility of a genetic-defined high-risk strategy.

• Issues in biomarker-defined risk strategy.
Challenges of a genetic-defined strategy

• Few cancer patients get multiple tumors.

• Cancer is a disease of cells, not individuals, so at the cellular level, all inherited cancer genes must be of exceedingly low penetrance.

• Only about 5% of cancer patients have a clear familial pattern of cancer.
Biomarker-defined risk

• Markers for inherited risk factors seem unlikely to have much effect at the population level.

• Markers that reflect progress of carcinogenesis have more promise for screening.
An example of a policy intervention.

The California Tobacco Control Program
The California Tobacco Control Program
Implemented in 1988

- Supported programs to help cessation.
- Supported antismoking education programs
- Increased the sale tax on cigarettes.
- Media campaigns
- Community clean air campaigns
- Governor attempted to divert funds to general use in 1995-1996.
The California Tobacco Control Program

Lung cancer incidence predicted from the regression model with (solid line) and without (dotted line) the Tobacco Control Program (San Francisco).
Percentage reductions in per capita cigarette consumption (solid line) and lung cancer incidence (dotted line).
Barnoya and Glanz 2004

- During the first decade, the Program was associated with about a 6% reduction in lung cancer incidence; state-wide that corresponds to about 11,000 cases avoided.

- Conclusion: A comprehensive tobacco control program is associated with a lower incidence of lung cancer.
Conclusions

• Population-based strategies hold more promise for controlling cancer than individual-based strategies.

• Implementing population-based strategies requires relatively fewer resources but more political will.