



# “What’s Past is Prologue”: A Tribute to Abraham Lilienfeld

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I am profoundly honored to be the recipient in the year 2002 of the Abraham Lilienfeld Award. The award has both professional and personal significance in that Dr. Lilienfeld was my mentor, colleague, and friend over a period of 25 years. In my office at the University of Michigan is an inscribed photograph of Abraham Lilienfeld, with his characteristic warm smile, reflecting on our years of collaboration in research and in teaching in the University of Minnesota Graduate Summer Program. It is the same photograph that appeared in the *American Journal of Epidemiology* in the August, 1980 issue that contained papers from a symposium celebrating his 60<sup>th</sup> birthday and in which the theme was “Chronic Disease Epidemiology: At the Threshold of a New Decade” (1). Dr. Lilienfeld died 5 years later in August, 1984. I regret that I was not able to share with him my decision in 1986 to be appointed the Chair in the Department of Epidemiology at the University of Michigan School of Public Health. I was privileged to serve as editor of a symposium issue that was published in December, 1986 in the *Journal of Chronic Diseases* entitled “Frontiers in Epidemiology: Compelling Issues and Concepts” (2). The publication, sponsored by the American College of Epidemiology, was prepared as a tribute to the extraordinary career of Abraham Lilienfeld and his legacy as the Founding President of the College.

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## MENTORING

In a survey of senior epidemiologists about the academic training experiences and personal attributes essential for achieving a successful career, Brownson et al. (3), included having a scholarly curiosity, never losing the joy of discovery, carefully choosing the institutional setting for training and early investigative work, acquiring skills in using modern information technologies, and being associated with an effective mentor. Effective mentoring throughout the challenging developmental years of a young investigator involves a trusting relationship, accessibility, and where the mentor is a role model for scholarship and integrity.

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I was fortunate in experiencing such a relationship with Dr. Lilienfeld throughout my career, which began with my assignment as an Epidemic Intelligence Service Officer in 1960 at the Johns Hopkins University School of Public Health. We collaborated in a multi-centered case-control study of carcinoma of the male breast. After completing my training in internal medicine, medical oncology, epidemiology and preventive medicine, I pursued a career from 1963 to 1986 in cancer epidemiology at the Memorial Sloan-Kettering Cancer Center.

In 1964, Dr. Lilienfeld invited me to join him as a staff member of the Heart Disease, Cancer and Stroke Commission during the administration of President Lyndon Johnson. The “killer diseases,” cardiovascular, cerebrovascular, renal, and cancer, accounted for 65 to 70 percent of total mortality in the United States. The Commission published a two-volume report in 1965 accompanied by 35 recommendations that would have served to establish a national network of university-based regional medical programs involved in research, treatment, and physician education and training. The Commission proposed that a 5-year program be implemented with sufficient funds to establish diagnostic and treatment centers, rehabilitation centers, and biomedical research institutions. Clearly, this was a visionary blueprint for the future, because the resulting legislation passed in 1965 advocated voluntary partnerships in the public and private sectors without financial assistance in the construction of new facilities or incentives for networking in treatment practices.

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## AMERICAN COLLEGE OF EPIDEMIOLOGY

The founding of the American College of Epidemiology in 1979 was achieved because of the assertive and courageous leadership of Abraham Lilienfeld, the Founding President. Curt Mettlin was appointed Founding Secretary-Treasurer and served for 5 years. Dr. Lilienfeld asked me to serve as a Founding Member of the Board of Directors and to chair the Membership Committee. A primary objective was to provide a vehicle for certifying practicing epidemiologists based on education and training, and past and current employment. Although the model was that of a college conferring fellowship in a medical specialty, the concern was in establishing parity for relevant doctoral degrees. The option of a certification examination was controversial from

its inception and was viewed as impeding the processing of applications from new qualified members.

The College was to provide at each meeting the setting for vigorous intellectual exchange and continuing professional education. An important distinction from the Society for Epidemiologic Research was in the advocacy of health policies that were based on epidemiologic research. The interaction of science and public policy has been manifested in the burgeoning applications of epidemiology in guiding decisions by environmental regulatory agencies or providing the foundation for clinical decision-making, and in the deliberations of the courts in adjudicating probable cause. The Policy Committee of the College is currently reviewing issues concerning research on the various instruments of mass destruction, infectious agents as global biological weapons, and data sharing and the confidentiality of federally supported research.

The future vitality of the College must be sustained by a clear statement of mission as we risk fragmentation and redundancy with the proliferation of scientific societies concerned with epidemiology, preventive medicine, and public health. In this connection, I applaud the efforts of Professor Betsy Foxman in forming a “loose federation” of 17 national and international organizations that will foster intercommunication among the leadership of the various organizations about the salient challenges facing our discipline.

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## SHAPING FUTURE GOALS: CHALLENGES AND DISTRACTIONS

Acheson (4) has defined public health as the “art and science of preventing disease, promoting health, and extending life through the organized efforts of society.” Gains in average life expectancy in a society are largely based on public health interventions such as improvements in sanitation, nutrition, controlled fertility rates in conjunction with decreasing infant mortality, effective immunization practices, and available treatment and control of infectious diseases. The health profiles of nations are being impacted by persistent poverty and social disparities, epidemic diseases, and disruptions by civil or ethnic conflicts, violence, and deteriorating environmental quality (5). Of approximately 54 million global deaths each year, 31% are attributed to cardiovascular diseases, 25% to infectious diseases, 13% to cancer, 11% to injuries, 5% to maternal and newborn diseases and adverse events, and 15% to a listing of other causes (6). Current epidemics of human immunodeficiency virus, tuberculosis, malaria, and antibiotic-resistant infections erode our optimism about the effectiveness of current biomedical technology. As stated by Ash and Jasny (7), “the key hurdle to overcome in alleviating poverty and

global disease is public recognition that the present inequities are intolerable.”

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## EPIDEMIOLOGY AND GENOMIC MEDICINE

“If you can look into the seeds of time, and say which grain will grow and which will not, speak then to me...”  
William Shakespeare: *Macbeth*, Act 1, Scene 3.

Genomics may be defined as the study and identification of the functions and interactions of genes in the genome (8). In the quotation cited above in Shakespeare’s *Macbeth*, I view the “seeds of time” as a metaphor for the double-coiled thread of DNA that is being unraveled by genome research. The commonly occurring chronic degenerative diseases are presumably caused by a complex of environmental and lifestyle risk factors that are interactive with susceptibility-conferring genotypes. Holtzman and Manteau (9) have addressed the uncertainty in correlating a genotype and phenotype because of incomplete penetrance of the genotype. Furthermore, the positive predictive value of a susceptibility allele is a function of gene prevalence, estimated relative risk of disease associated with the allele, and the lifetime cumulative risk of the disease in the target population. I suspect that Geoffrey Rose’s admonition is correct that when targeting interventions in high-risk groups, most risk factors have limited impact on population mortality rates (10).

Thus we may question how the emerging molecular biotechnology will impact global health. I am excited about how genomic medicine will elucidate the complex biology of chronic degenerative diseases, provide the pharmacogenetic rationale for cancer therapy, and augment endogenous mechanisms that eliminate mutagenic agents. But we should proceed with caution and not overstate what is achievable. Our perspective in epidemiology is public health and the population distribution of the major determinants of mortality.

A Nobel laureate in atomic physics, Isidor Rabi, in addressing the Israel Institute of Technology in 1963, stated: “It is the very nature of science that new discoveries open new fields of further activity. It is like climbing a mountain peak and seeing new landscapes not visible in the valley.”

We are privileged to pursue new mountain peaks through creative application of the tools of our discipline and for the benefit of mankind. Ralph Waldo Emerson in the American Scholar, his Phi Beta Kappa oration at Harvard in 1837, reflected on the scholar as one “in whom the past instructs and the future invites.” The broad mission of epidemiology has evolved through the exchange of concepts and methods derived from interactions with various disciplines, and is nurtured by a societal concern for advancing public health. Abraham Lilienfeld’s legacy as a teacher and scientist has been the advancement of education and training at

Schools of Public Health, and the attraction of young scholarly and inquisitive minds into our discipline. Transcending this aspect of his career is my enduring memory of a compassionate, caring, unpretentious man for whom you reached to the limits of your grasp because you wished it to be so.

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