LEGISLATIVE PROPOSALS FOR REVERSING THE CANCER EPIDEMIC AND CONTROLLING RUN-AWAY INDUSTRIAL TECHNOLOGIES

Samuel S. Epstein

An interlocking legislative complex is proposed for the control of carcinogenic and other adverse impacts of established run-away petrochemical and radionuclear technologies, with particular reference to winning the losing war against cancer. These proposals are also applicable to the poorly recognized, potentially adverse public health and environmental hazards of emerging technologies, particularly genetically engineered food production. The proposals embody fundamental democratic rights—the right to know and balanced and transparent decision making—the "Precautionary Principle," reduction in the use of toxics, incentives for the development of safe industrial technologies, and criminal sanctions for suppression or manipulation of information.

LOSING THE WINNABLE WAR AGAINST CANCER (1, 2)

We are losing the winnable war against cancer. Over recent decades, the age-standardized incidence of cancer in industrialized nations has escalated to epidemic proportions, with lifetime cancer risks in the United States now approaching one in two for men and one in three for women. The overall increase of all cancers in the United States from 1950 to 1995 was 55 percent, of which lung cancer, primarily attributed to smoking, accounted for about 12 percent. Over the same period, non-smoking-related cancers increased as follows: prostate cancer, non-Hodgkin's lymphoma, and multiple myeloma, 200 percent; testicular cancer, 110 percent; brain and nervous system cancer, 80 percent; breast and male colon cancer, 60 percent; and childhood cancer, 20 percent. Similarly, a survey of 15 other major industrialized nations has shown that non-smoking-related cancers are responsible for about 75 percent of the overall increased incidence of cancer since 1950.

International Journal of Health Services, Volume 30, Number 2, Pages 353–371, 2000

While cancer rates have escalated, our ability to treat and "cure" most cancers, with the notable exception of the relatively rare childhood and testicular cancers, has, contrary to general impressions, remained largely unchanged for decades.

The modern cancer epidemic cannot be explained away on the basis of increasing longevity, because incidence and mortality rates are adjusted (age-standardized) in cancer registries to reflect this trend. Nor can the epidemic be largely attributed to faulty personal lifestyle factors. Although smoking is clearly the single most important cause of cancer, the incidence of lung cancer in men, but not women, is declining because of a reduction in smoking, while the incidence of a wide range of non-smoking-related cancers is increasing at proportionately greater rates. Nor can the role of high-fat diets be incriminated as a major cause of cancer, in sharp contrast to heart disease. Illustratively, not only are breast cancer rates in Mediterranean countries low despite diets with up to 40 percent olive oil fat, but epidemiological studies over the past two decades have consistently failed to establish any causal relationship between breast cancer and the consumption of fat per se, excluding consideration of meat and dairy fats heavily contaminated with carcinogenic pesticides and industrial pollutants (2). Finally, increasing cancer rates cannot be attributed to genetic factors, which are directly implicated in, at most, well under 10 percent of all cancers; the genetics of human populations cannot possibly have changed within the last few decades.

What, then, is the predominant cause of the modern cancer epidemic? The answer is based on a strong body of scientific evidence pointing to the role of run-away industrial technologies, particularly in the petrochemical and radio-nuclear industries, whose explosive growth since the 1940s has, to varying degrees in different nations, outstripped the development of social control infrastructures and mechanisms. As a result, our total environment—air, water, consumer and medicinal products, and the workplace—has become pervasively contaminated with a wide range of often persistent industrial carcinogens. Thus the public at large is unknowingly exposed to avoidable chemical and radionuclear carcinogens from conception to death.

How have those institutions charged with responsibility for fighting the war against cancer responded to this crisis? In the United States, the predominant complex of responsible institutions, the "cancer establishment," is comprised of the governmental National Cancer Institute (NCI) and the private "charity," the American Cancer Society (ACS), together with their national network of funded university scientists and Comprehensive Cancer Centers. The cancer establishment has massive resources at its disposal. The 1999 budget of the NCI was $2.8 billion, up from $220 million in 1971 when President Nixon declared the "War Against Cancer" in response to cancer establishment pressures and demands for increased funding, with the highly misleading promise that this would enable the conquest of cancer by 1987. With ACS support, the NCI is now aggressively lobbying to increase its budget still further, to $5 billion by 2003. The current

budget of the ACS is about $580 million, with cash reserves and other assets of $800 million.

The policies and priorities of the cancer establishment are narrowly fixated on damage control—diagnosis and treatment—and basic molecular research with indifference, not always benign, to cancer prevention. For the ACS, this indifference reaches the level of overt hostility (3, 4). These and other concerns relating to fiscal malpractice have led the *Chronicle of Philanthropy,* the authoritative U.S. charity watchdog, to charge that the ACS is "more interested in accumulating wealth than saving lives." The NCI's budgetary allocation for occupational cancer, the most avoidable of all cancers—which according to conservative estimates is responsible for about 10 percent of all U.S. cancer deaths, besides being a major cause of childhood cancer—is only 1 percent. The budget for research and outreach on African-American and other ethnic minorities, with their disproportionately high cancer rates, is also only 1 percent of the NCI's $2.8 billion annual funding. Allocations for all primary prevention activities, smoking apart, are well under 5 percent.

The cancer establishment's professional mindset and priorities are compounded by disturbing conflicts of interest, particularly for the ACS, with the cancer drug and other industries. As the NCI's previous director Dr. Samuel Broder recently admitted, the NCI has become "what amounts to a governmental pharmaceutical company." The establishment's myopic mindset is further illustrated by a succession of widely publicized misleading claims to have turned "the tide against cancer" and for the latest "miracle" or "magic bullet" cancer drugs, claims that have rarely been subsequently substantiated over the last four decades.

Most seriously, the poorly accountable U.S. cancer establishment has failed to provide Congress, regulatory agencies, and the public with available scientific information on a wide range of avoidable carcinogenic exposures. As a result, corrective legislative and regulatory action has still not been taken, and the public has been and still is denied its right to know of such information and the opportunity to take action to reduce its risks of cancer. At the same time, the U.S. and other cancer establishments, explicitly relying on obsolete evidence and biased claims by industry-indentured academic and institutional apologists in the United States and United Kingdom, particularly Sir Richard Doll (1, 5), still seek to trivialize escalating cancer rates and to explain them away on the virtually exclusive basis of "blame-the-victim" or faulty lifestyle causation, coupled with "guesstimates" to the effect that "pollution [and] industrial products" account for only 3 percent of cancer mortality. The reliability of Doll as the alleged leading international expert on public health and cancer causation is even more strikingly challenged by his invidiously unique insistence that neither leaded petroleum nor low-level radiation nor dioxin pose any public health hazards (5).

Based on a fully documented, published analysis of such evidence, the U.S. and U.K. cancer establishments have recently been charged with major responsibility

for losing the winnable war against cancer (1). This serious charge against the NCI and ACS comes as no surprise, having first been raised at a February 4, 1992, press conference held in Washington, D.C., by an ad hoc coalition of some 65 leading U.S. experts in public health, preventive medicine, and cancer prevention, including past directors of three major federal agencies. These concerns are all the more serious in view of the strong influence exerted by U.S. cancer establishment policies on those of Canada, the United Kingdom, and other nations worldwide, and their mutually reinforcing and interlocking relationships. As disclosed at a September 13, 1999, London press conference, the policies of the U.K. cancer charities are as gravely derelict as those of the United States (6). We are thus faced with an unparalleled crisis of international proportions and one that will be further exacerbated with the growing industrialization of relatively underdeveloped European nations, such as Greece, Spain, and Portugal, besides "lesser developed" Asiatic and other nations.

A series of six legislative proposals has been developed to address these critical concerns. While one or two of these are under consideration, to varying degrees, in some Parliaments worldwide, most appear unprecedented. These proposals form an interlocking complex, the whole of which is greater than the sum of its parts.

While these proposals are primarily directed to cancer and avoidable and involuntary carcinogenic exposures, we should keep in mind that the majority of carcinogens also induce other chronic toxic effects—including reproductive, endocrine disruptive, neurotoxic and immunotoxic—for which there are no comparable systematic data on incidence trends, thus limiting correlative analysis. Cancer in effect thus represents a quantifiable paradigm of the adverse public health effects of run-away industrial technologies, as well as a paradigm of failed democratic decision making. A reduction of cancer rates per se will most likely be paralleled by a reduction in the incidence of other chronic, environmentally induced diseases.

It should come as no surprise that these legislative proposals are also highly applicable to the potential and poorly predictable, untested public health and environmental impacts of unrelated emerging industrial technologies, particularly genetically engineered food production.

PROHIBITION OF AUTHORIZATION OF NEW CARCINOGENIC PRODUCTS AND UNTESTED NEW TECHNOLOGIES

Under the terms of the 1948 U.N. Universal Declaration of Human Rights, the right to life and its corollary right to health are the first and most important of all fundament rights recognized by many international conventions. Thus, implementary legislation is needed to mandate that considerations of life and health take absolute precedence over economics and trade.

The first line of defense against risks from avoidable carcinogenic and otherwise toxic exposures is an absolute prohibition of further increasing the burden of current exposures due to the authorization of new carcinogenic products and processes. Such a prohibition is based on the obvious "Precautionary Principle" that preventing new risks and following zero-risk policies are essential for public and environmental protection. As such, this "Principle" is particularly relevant to genetically engineered food, for which industry claims of safety are based on "trust us" assurances rather than published scientific data.

The Precautionary Principle was first politically invoked by the German government, at the Second North Sea Conference in 1994, in relation to marine dumping of toxic wastes (7). Such policies are clearly preferable to deliberately accepting risks and then attempting to "manage" them by reducing exposures to levels claimed "acceptable" by self-interested industry or complicit regulatory agencies. While recognizing the sovereign rights of each nation to set its own levels of sanitary protection, zero-risk policies must constitute the standard principle and not the rare exception, as is current practice. In this connection, it may be noted that French President Jacques Chirac, at a 1998 meeting of the World Conservation Union, proposed increasing the powers of the U.N. Environment Program to avoid sovereignty disputes that hamper the global fight against pollution. President Chirac warned that countries were holding on to an outdated idea of sovereignty, while environmental pollution ignored national borders.

The Precautionary Principle would thus mandate the categorical responsibility of industry to provide unequivocal evidence on the safety of any new product and process, thereby ensuring that it does not pose potential or recognized human or environmental risks. This principle further absolves citizens and regulatory agencies from the heavy burden of proving risks in response to industry challenges, and allows the banning of suspect products in circumstances of scientific uncertainty. The raw data on which industry claims of safety are based, apart from their interpretation, must be fully disclosed and evaluated at industry's expense by an independent agency with qualified representation of nongovernmental organizations (NGOs). This is essential to exclude bias or manipulation, for which there is a well-documented and decades-old track record in a wide range of petrochemical and other industries (8). An illustrative recent example is afforded by the review of 161 studies in the National Library of Medicine files on four heavily regulated industrial chemicals—formaldehyde, perchloroethylene, atrazine, and alachlor. While only 14 percent of industry studies reported toxic or carcinogenic effects, such effects were disclosed in 71 percent of independent studies (9). The recent announcement by the U.S. Chemical Manufacturers Association of a new, $1 billion safety testing program merits skepticism rather than reassurance, compounded by the program's being headed by Dr. Roger McLennan. Over the last decade, McLennan has worked hard to disprove the overwhelming evidence on the cancer risks of diesel exhaust, and before that he worked for the Chemical Industry Institute of Toxicology, whose major function

was to challenge or attempt to explain away evidence on the carcinogenicity of profitable industrial chemicals.

REDUCTION OF TOXICS IN USE

The second line of defense against avoidable carcinogenic exposures is the reduction or phase-out of toxics in use in the wide range of petrochemical and other carcinogenic products and processes already established in commerce. Strategies based on reduction in the use of toxics—phasing out the manufacture, use, and disposal of carcinogenic and otherwise toxic chemicals, coupled with their replacement by safe alternative technologies—are not only practical but cost-effective. The effectiveness of such strategies clearly depends on the establishment of an explicitly defined, strict schedule for the shortest feasible phase-out time and for monitoring industry compliance.

Such initiatives were strongly endorsed at the February 4, 1992, press conference. Among recommendations for reforming the U.S. cancer establishment and reorienting its priorities to cancer prevention, major emphasis was directed to a reduction in toxics use (1):

> In close cooperation with key regulatory agencies and industry, the NCI should initiate large scale research programs to develop non-carcinogenic products and processes as alternatives to those currently based on chemical and physical carcinogens. This program should also include research on the development of economic incentives for the reduction or phase out of the use of industrial carcinogens, coupled with economic disincentives for their continued use, especially when appropriate non-carcinogenic alternatives are available.

It should be stressed that toxics use reduction is based on the principle of risk prevention, in sharp contrast to the "risk management" strategies strongly favored by industry; a growing battery of handsomely funded industry think tanks, such as the Harvard Center for Risk Analysis and the International Life Sciences Institute, specializing in "risk assessment"; and complicit regulatory agencies. Risk management accepts the inevitability of risk from industrial processes and products while claiming that such risks can be managed to levels variously described as "acceptable" or "insignificant" or "minimal." These claims are derived from highly dubious, if not manipulated, risk-assessment mathematical formulas, shaped by predetermined financial or regulatory interest, claiming to predict minimal deaths expected from any particular carcinogenic exposure.

Following a well-organized political campaign by environmental groups, the Commonwealth of Massachusetts unanimously passed the Toxics Use Reduction Act in 1989, which created the Massachusetts Toxics Use Reduction Program (10). The Act is a specific form of pollution prevention that focuses on reducing the use of toxic chemicals and generation of hazardous waste by improving

and redesigning industrial products and processes. The Toxics Use Reduction Institute of the University of Massachusetts, Lowell, played an important role in developing the Act by providing education, training, research on new materials and processes, a technical library and information source, and specialized laboratories for evaluating alternative safe technologies. The achievements of this Act include reducing the generation of toxic wastes from 1989 to 1997 by 50 percent by reducing toxics use by 20 percent; establishing toxics use reduction as the preferred means for achieving compliance with federal and state environmental statutes; promoting reduction in the production and use of toxic chemicals; enhancing and strengthening the enforcement of existing environmental laws; promoting coordination between state agencies administering toxics-related programs; and sustaining and promoting the competitiveness of Massachusetts industry (11).

The Massachusetts Act could also serve as a useful model for national and state U.S. and international legislation. The active interest of mainstream industry in such initiatives could well be encouraged by granting tax incentives for the urgent development of safe alternatives to toxic-based conventional technologies, and assessing tax penalties for failure to adopt available safe alternative technologies.

The relatively new trend to voluntary and economy-driven corporate environmentalism, however, may prove more potent than ideologically and legislatively driven toxics use reduction (12). A major development in this trend is the selling of services and functions rather than products (13, 14). For instance, the Atlanta-based U.S. company Interface Inc. leases floor-covering services and recycles old carpets rather than selling carpets that otherwise must eventually be incinerated or dumped in landfills. Similarly, Xerox now leases copiers and recycles old models. A parallel development is Eco-efficiency and Pollution Prevention (E2 P2), typified by the growing investment of Royal Dutch Shell, Amoco, and British Petroleum in renewable, sustainable energy sources, including wind, solar power, and fuel cells, and in extending product ranges to improved gasoline mixes (15). While cynicism from citizen groups may be reasonably anticipated, given the past environmental track record of these companies, these initiatives should nevertheless be welcomed. In addition, the potential mutually reinforcing role of legislative and marketplace pressures should be fully recognized.

A further example of the role of marketplace pressures that merits legislative recognition and support relates to consumer products—food, cosmetics and toiletries, and household products. The growth of organic and nontoxic non-mainstream products in U.S. markets has reached double-digit annual figures over the last decade. A 1995 published rating of some 4,000 conventional mainstream and safe non-mainstream products for undisclosed carcinogenic ingredients and contaminants resulted in a significant market shift away from hazardous to safe products, which are becoming increasingly price competitive (1, Appendix XIV;

16). Clearly, such health-driven marketplace pressures depend on a fully informed public that recognizes its right to know of involuntary and avoidable exposures to carcinogens in consumer products, as well as in the air, water, and workplace. Such knowledge and concerns have recently been reflected by the success of expensive safe products. Illustrative are the booming sales of a leading sportswear manufacturer, Patagonia, which has completely converted to organic cotton by using well-established integrated pest management strategies (12); this is particularly important as cotton is the most pesticide-intensive U.S. crop, accounting for 10 percent of all national pesticide use. These concepts have recently been amplified and extended into a new paradigm for a system called "natural capitalism," which has set a landmark agenda for a rational and ecologically sound concept of industrial development (17).

RIGHT TO KNOW

The right to know is, or should be, an inalienable and fundamental democratic principle, with the probable exception of national security concerns. Industry claims of confidentiality and trade secrecy are often a serious deterrent to the recognition of potential risks from carcinogenic and otherwise toxic products. There is thus an urgent need to develop international rules to restrict claims of confidentiality to what is unarguably essential to protect independently validated proprietary information, exclusive of any health considerations. All other information on the carcinogenic and otherwise toxic risks of a product, drug, or process must be automatically and fully released and made fully available to the public. It should be emphasized, however, that with limited exceptions, the right to know in most nations is more honored in the breach than in the observance.

The greatest incentive to reducing toxics use is public knowledge of their identity and routes of avoidable exposure, particularly when safe alternatives are available. Right-to-know initiatives are thus among the most practical and potent political strategies in the war against cancer and against untested new products and technologies. Critical steps in this direction have already been developed in Europe with recent requirements for the labeling of genetically engineered foods.

However, labeling per se is inadequate unless accompanied by an explicit "Red Flag" warning of recognized cancer and other health, environmental, and occupational risks and also of poorly defined or potential risks, as is the case with genetically engineered foods. Furthermore, labeling should not be used as a justification for authorizing new carcinogens or for the continuing use of carcinogenic products already in commerce. Labeling is no substitute for a moratorium or a ban. Labeling not only discriminates against uneducated and lower socioeconomic population groups, but may encourage industry to target such groups and penetrate national markets by price-regulation strategies.

Consumer Products

Mainstream industry consumer products—foods and beverages, cosmetics and toiletries, and household products including home, lawn, and garden pesticides—contain a wide range of undisclosed carcinogens (ingredients, contaminants, and precursors) that pose major, but generally unrecognized, avoidable risks of cancer.

Examples of carcinogens in 12 common consumer products, "The Dirty Dozen," none of them labeled with any cancer warning, are listed in Table 1 (1, Table 17.4 and Appendix XIV). The gravity of these risks is illustrated by the following examples.

- Beef frankfurters: Children eating up to about a dozen each month are at an approximately fourfold risk of brain cancer and sevenfold risk of leukemia.
- Talc: Women, in the reproductive years, regularly dusting their genital area with talc after bathing or showering are at about a threefold risk of developing ovarian cancer.
- Permanent hair color: Women using permanent or semi-permanent black or dark brown hair dyes are at increased risk for non-Hodgkin's lymphoma, multiple myeloma, chronic leukemia, and breast cancer. In fact, growing evidence suggests that use of these hair dyes accounts for about 20 percent of all non-Hodgkin's lymphomas in U.S. women.

Consumer product legislation is well overdue. All foods grown with the application of carcinogenic pesticides should be clearly labeled with a cancer warning, the name of each carcinogenic pesticide, and the concentrations of its residues. Of particular concern are the high residues of multiple carcinogenic pesticides in grains, vegetables, and fruit. Recent estimates indicate that by the age of one, cancer risks from residues of just eight common pesticides in 20 infant foods exceed lifetime "acceptable" cancer risks estimated by the U.S. Environmental Protection Agency. The complete chemical composition of all cosmetics and toiletries should be clearly labeled, and all carcinogenic ingredients, contaminants, and precursors should be identified, together with a cancer warning against each. The complete composition of all household cleaning and other products, including home, lawn, and garden pesticides, should also be clearly labeled, together with "Red Flag" cancer warnings for each listed carcinogenic ingredient. Consumer product legislation should require data and affidavits in support of claims of safety for organic or other products. Consideration should also be given to the granting of tax incentives to the manufacturers of safe alternative products.

Prescription Drugs

A recent survey of 241 high-volume U.S. prescription drugs reported that nearly half posed cancer risks based on carcinogenicity tests designed by their

Table 1

The "Dirty Dozen" consumer products

FOOD

Beef frankfurters (e.g., Oscar Mayer Foods Corporation)

Unlabeled toxic ingredients: *benzene hexachloride,* carcinogenic; *dacthal,* carcinogenic (can be contaminated with dioxin); *dieldrin,* carcinogenic; *DDT,* carcinogenic; *heptachlor,* carcinogenic; *hexachlorobenzene,* carcinogenic; *lindane,* carcinogenic; *hormones,* carcinogenic and feminizing; *antibiotics,* some are carcinogenic, e.g., sulfamethazine.

Labeled toxic ingredient: nitrite, interacts with meat amines to form carcinogenic nitrosamines

NOTE: Substantive evidence of causal relation to childhood cancer.

Whole milk (e.g., Borden or Lucerne)

Unlabeled toxic ingredients: *DDT,* carcinogenic; *dieldrin,* carcinogenic; *heptachlor,* carcinogenic; *hexachlorobenzene,* carcinogenic; *antibiotics,* some are carcinogenic; *recombinant bovine growth hormone and IGF-1,* evidence of breast, prostate, and colon cancer promotion.

COSMETICS and TOILETRIES

Talcum powder (e.g., Johnson & Johnson, Inc.)

Labeled toxic ingredient: *talc,* carcinogenic.

NOTE: Substantive evidence of causal relation to ovarian cancer.

Cover Girl Replenishing Natural Finish Make-up (Foundation) (Procter & Gamble, Inc.)

Labeled toxic ingredients: *BHA,* carcinogenic; *talc,* carcinogenic; *titanium dioxide,* carcinogenic; *triethanolamine (TEA)*, interacts with nitrites to form carcinogenic nitrosamines; *lanolin,* often contaminated with DDT and other carcinogenic pesticides.

Crest Tartar Control Toothpaste (Procter & Gamble, Inc.)

Labeled toxic ingredients: *FD & C Blue #1,* carcinogenic; *saccharin,* carcinogenic; *fluoride,* possible carcinogen.

Alberto VO5 Conditioner (Essence of Neutral Henna) (Alberto-Culver USA, Inc.)

Labeled toxic ingredients: *formaldehyde,* carcinogenic; *polysorbate 80,* can be contaminated with the carcinogen 1,4-dioxane; *FD & C Red #4,* carcinogenic.

Clairol Nice 'n Easy (Permanent Haircolor) (Clairol, Inc.)

Labeled toxic ingredients: *quaternium-15,* formaldehyde releaser, carcinogenic; *diethanolamine (DEA),* interacts with nitrites to form a carcinogenic nitrosamine; *phenylene-diamines,* include carcinogens and other ingredients inadequately tested for carcinogenicity.

NOTE: Substantive evidence of causal relation to lymphoma, multiple myeloma, and other cancers.

Table 1

(Cont'd.)

HOUSEHOLD PRODUCTS

Ajax Cleanser (Colgate-Palmolive, Inc.)
Unlabeled toxic ingredient: *crystalline silica,* carcinogenic.

Zud Heavy Duty Cleanser (Reckitt & Colman, Inc.)
Unlabeled toxic ingredient: *crystalline silica,* carcinogenic.

Lysol Disinfectant Spray (Reckitt & Colman, Inc.)
Labeled or unlabeled toxic ingredient: *orthophenylphenol (OPP),* carcinogenic.

Zodiac Cat & Dog Flea Collar (Sandoz Agro, Inc.)
Labeled toxic ingredient: *propoxur,* carcinogenic.

Ortho Weed-B-Gon Lawn Weed Killer (Monsanto Co.)
Labeled toxic ingredient: *sodium 2,4-dichlorophenoxyacetic acid (2,4-D),* carcinogenic.
NOTE: Substantive evidence of causal relation to lymphoma, soft tissue sarcoma, and other cancers.

manufacturers to prove safety (18). Many carcinogenic drugs have been identified at low-test dosages, near or at therapeutic levels. These risks are compounded because carcinogenic drugs are often administered individually or in various combinations to tens of millions of patients, sometimes for decades and starting in childhood. One leading authority has claimed that prescription drugs may pose the single most important class of unrecognized and avoidable carcinogenic risks for the entire U.S. population (18).

To argue that such risks are more than justified by the very real benefits of these drugs is to posit a false dilemma, especially given that patients are rarely affirmatively and explicitly informed of these risks and of the availability of safer and effective alternatives. Legislation is urgently required to ensure that the pharmaceutical industry provides clear and explicit information on carcinogenic prescription and nonprescription drugs, which should also be labeled with clear warnings of such risks. Physicians should also be required to endorse these warnings, provide patients with information on safe and effective alternatives, and be held accountable for failure to do so.

Occupational Cancer

In addition to the use of controlled production and closed-system technologies and other control systems including local exhaust ventilation, workers

and their representatives have inalienable rights to full information on the identity of all carcinogens, including raw materials, intermediates, impurities, and final products, to which they are exposed, provided by explicit labeling and posting. Additionally, they are entitled to quantitative information on levels of inhalation and skin exposure for each carcinogen. All such information should be made available to workers daily and should be reported to the responsible regulatory authorities.

Environmental Cancer

Citizens are entitled to full access to information from local and national government on their avoidable carcinogenic exposures from air and water. Such information is likely to encourage industry to reduce environmental emissions and discharges of carcinogenic and toxic pollutants and also to encourage more stringent governmental regulation.

Every regional municipal authority should be required to provide consumers with a complete list of carcinogenic contaminants and their concentrations in drinking water, enclosed with each water bill. Similarly, every chemical, mining, and nuclear industry should be required to disclose to local communities and regional and national governments a complete listing of all carcinogens, including intermediates and products, that they use, process, manufacture, and dispose of. They should also be required to disclose the amounts of each carcinogen they discharge into surrounding air and water. No industry should be allowed to operate unless it provides ongoing quantitative information on smokestack and other atmospheric emissions of carcinogens in the air of its perimeter and in the local community.

DECISION MAKING ON CANCER AND RELATED PUBLIC HEALTH EFFECTS

Key governmental decisions and policies are generally determined by recommendations of cancer institutions, designated expert scientific committees, and regulatory bodies. The independence, integrity, expertise, and accountability of these groups are thus matters of critical concern.

All institutions comprising the cancer establishment and receiving government or other tax-exempt funds should be required to provide clear and audited budgetary statements defining their sources of funding and their expenditures on basic molecular research, diagnosis and treatment, and primary prevention.

Budgetary information on prevention should specify allocations for the following: (*a*) research primarily directed to investigating avoidable causes of cancer; (*b*) research on all possible risk factors for each type of cancer whose incidence has increased substantially over recent decades; (*c*) research on cancer risks from carcinogens identified in well-designed animal tests or listed by the

International Agency for Research on Cancer; (*d*) activities directed toward the development of a comprehensive registry for all carcinogens to which general populations and populations at high risk may be exposed; and (*e*) outreach activities providing Congress or Parliament, governmental agencies, and the public with available information on all avoidable carcinogenic exposures and the actions that may be taken to reduce or avoid such exposures.

Legislation to ensure full accountability and transparency of all cancer institutions involved in cancer research and related activities is long overdue. Legislation is also needed to ensure that cancer institutions direct the highest priorities, with at least half their budgets specifically allocated to research and outreach on primary cancer prevention. As an examination of the track records of the U.S. and U.K. cancer establishments makes clear, only drastic reforms of their policies, priorities, and leadership will achieve such objectives and belatedly restore an overdue sense of mission and balance to winning the losing war against cancer.

The 1972 U.S. Federal Advisory Committee Act requires that the composition of regulatory agency advisory committees reflect balanced and qualified representation of all concerned interests, and meetings be publicized in advance and open to the public (19). However, in practice, these requirements are generally honored more in the breach than the observance.

In a 1997 U.S. and Canadian challenge against the E.U. ban on hormonal meat before the World Trade Organization, the 134-nation trade regulatory authority, I served together with other international scientists as public health consultant to the European Union in defense of its ban. Apart from documenting the scientific evidence on the cancer and other risks from high residues of unmonitored sex hormones in meat, I analyzed the reports and composition of the relevant Food and Agriculture/World Health Organizations (FAO/WHO) committees, particularly the 1988 Joint Expert Committee on Food Additives (JECFA) on whose authority the U.S. and Canadian legal action was largely based, all of which had claimed that hormonal meat was safe. On the basis of this analysis, I concluded (1, Appendix XI):

> The membership of these committees reflects disproportionate representation of U.S. senior regulatory officials and of veterinary and food scientists, with minimal if any involvement of independent experts in preventive medicine, public health and carcinogenesis. The European Commission Scientific Conference of November 29–December 1, 1995 also reflects such imbalanced representation. While Conference participation of "scientists directly employed" by industry was "generally refused," no apparent attempt was made to identify or exclude industry consultants, contractees or grantees. Furthermore, the Conference based its findings and conclusions largely on unpublished industry data.

The FAO/WHO advisory committees thus clearly represent a sanitized front for powerful industry interests and predetermined regulatory decisions, rather than sound science and consumer safety (20). Similar concerns relate to the February

1998 JECFA committee report and the September 1998 Codex Committee on Veterinary Drugs in Foods report, both of which concluded that genetically engineered (rBGH/rBST) milk is safe in spite of strong published evidence to the contrary (1, Appendix XII).

Clearly, legislation is needed to require that expert scientific committees, such as JECFA, and regulatory agencies, such as the Codex Alimentarius, International Office of Epizootics, FAO, and WHO/International Labor Organization (ILO), that deal with health and environmental concerns conform to basic requirements to ensure unbiased and sound scientific findings and appropriate subsequent regulatory decisions (20, 21). Examination of the structure of the WHO/ILO committee on asbestos over recent years is illustrative of extreme pro-industry representation, bias, and reckless indifference to occupational safety and health. Past experience clearly confirms that scientists appointed to expert committees exclusively by administrative or regulatory agencies are rarely, if ever, impartial and objective, apart from serious questions on their competence, qualifications, and standing in the independent scientific community. These considerations apply particularly to the World Trade Organization, the current global regulatory authority.

Absolute rights should be given by law to grant consumer, environmental, occupational, cancer prevention, and other concerned NGOs full membership on scientific and advisory committees. They should also be given full right to participate in the evaluation and selection of scientists performing risk assessment, and also financial support to appoint their own experts to work with scientific and regulatory committees charged with safety evaluation of industrial products and processes, medicinal drugs, consumer products, and emerging technologies, notably genetically engineered foods.

Similar and equally rigorous legislation is needed for executive, advisory, and scientific committees of all cancer institutions, (governmental, charitable, and academic) to ensure full accountability and transparency of their deliberations and to ensure that maximal priority is directed to cancer prevention, rather than virtually exclusively to damage control—diagnosis and treatment—and basic molecular research.

Transparency of all scientific and regulatory proceedings should be further ensured by providing advanced public information on scheduled committee meetings that should be open without restriction to the public.

WHITE-COLLAR CRIME

There is an overwhelming disparity between the full force of criminal law and punishment directed at perpetrators of theft, property damage, or personal violence and the lenient civil proceedings against industry managers and executives and their consultants who knowingly manipulate, distort, or suppress information on the environmental, occupational, and consumer hazards of their products and processes. As Ralph Nader has aptly commented, there are two

standards of justice in modern industrialized society: "jail for crime in the streets, but bail for crime in the suites." This flagrant inequity in our dual system of justice is exacerbated by major socioeconomic differences between the two classes of offenders, notably the differences in opportunity, education, income, and social standing. Furthermore, the obvious one-to-one direct and immediate impact of blue-collar crime on a single victim is generally in striking contrast to white-collar industry crime, the effects of which are largely sanitized by the nonpersonal and indirect relationship between the criminal and the multiple victims, often numbering in the many thousands, and by the usually long latency between crime and effect.

Over two decades ago, Congressman John Conyers, the distinguished Democratic chairman of the U.S. Congress House Committee on the Judiciary, invited me to assist in drafting legislation and to testify on white-collar crime, as defined by "nondisclosure of certain matters by certain business entities and personnel," in relation to environmental and health concerns (22). Congressman Conyers's bill, which urged criminal penalties including imprisonment for such corporate crimes, was presented to Congress on July 26, 1979. However, its passage was blocked by Republican committee members, and it has not since been reintroduced.

In testimony on this proposed legislation, I stated (22):

> In my activities in the interface between science and public policy, I have had occasion to undertake detailed investigations of the regulatory data base of a wide range of consumer products and industrial chemicals. These investigations have revealed a pattern of constraints, including gross negligence, manipulation, distortion, suppression and destruction of data, which are so frequent as to preclude their dismissal as exceptional aberrations. Besides the businesses concerned, involved in the generation and interpretation of such constrained data are a complex of commercial testing and consulting laboratories and organizations and academic consultants, supported by a network of industry front organizations and quasi-professional societies. Such constrained data have served as the basis for the past and continuing successful strategies of some segments of the industry which have minimized or denied risk to workers and the public-at-large, and have maximized product or process efficacy and the apparent preoccupations with short term economic growth to the detriment of considerations of long term adverse public health and environmental impacts, have resulted in a burgeoning toll of cancer and other preventable diseases.
>
> These grave charges, including "knowing (acts of) nondisclosure," are not made lightly or speculatively. They pose fundamental questions of legal equity, besides reflecting the subversion of democratic decision making processes by special interests.
>
> The thrust of this bill is consistent with the finest traditions of American business. It offers business the timely opportunity to explicitly reassert its highest ethical standards and, by policing itself, to preclude or limit the need for further regulatory policing. Clearly, the bill imposes no unreasonable restraints on commerce or on technological innovation, but merely seeks to encourage honest disclosure of 'lethal defects,' and to deter and punish those

> who knowingly commit criminal acts on 'nondisclosure.' In so doing, the bill will discourage the introduction into commerce of products and processes with 'lethal defects,' with attendant major economic, dislocation following their subsequent withdrawal once these defects become belatedly recognized. Successful self-policing by business will act as a major brake to burgeoning product liability suits, such as those we are now experiencing for asbestos products. Finally, the bill offers a unique opportunity to restore the eroding public confidence in big business, in general, and the chemical industry, in particular, and thus to reverse the growing and nationally damaging trend of polarization and confrontation between business, and the general public and labor. Recognition of these various considerations and the overall favorable impact of this bill on business has been clearly recognized by Irving S. Shapiro, Chairman of E.I. DuPont de Nemours & Co. who, speaking on behalf of the Business Roundtable, agreed in hearings of September 13, 1979 that the same standard of criminal law should be applied to business executives and corporations as for the general public and who, with the Justice Department, on November 28 [1979], approved a tough package of white collar crime proposals.

In the absence of such legislative disincentives, white-collar crime affecting environmental and health safety has continued unabated and extended into global markets. Such misconduct, which I have investigated over three decades and have reported on in peer-reviewed scientific journals and otherwise publicized, includes:

- Suppression and manipulation by Vesicol Chemical Company of data on the carcinogenic and other chronic toxic effects of the pesticides chlordane and heptachlor, which have been extensively used for termite treatment of wood (23).
- Monsanto's suppression and denial of clear evidence of adverse veterinary and public health effects of genetically engineered milk hormone (rBGH/rBST) and of excess levels of a growth factor, IGF-1, in hormonal milk, which poses serious cancer and other risks to consumers (1, Appendix XII).
- The undisclosed cancer risks of a wide range of consumer products.
- The cancer risks of silicone gel breast implants, particularly those coated with polyurethane foam, long-standing evidence of which has been suppressed by Dow Corning Company, Bristol-Myers Squibb, and other manufacturers, as well as by plastic surgeons and their professional associations (1, Appendix V; 24).
- Suppression by Eli Lilly Company of its own evidence on the grave risks of ovarian cancer from its aggressively promoted and advertised new drug Evista (raloxifene), used for the prevention of postmenopausal osteoporosis (1, Appendix V).

A 1990 publication, "Corporate Crime: Why We Cannot Trust Industry-Derived Safety Studies," details evidence illustrating the gravity and commonplace nature of these concerns, and warns (23):

> The control of pesticides, as of all synthetic chemicals, in most industrialized countries relies heavily or even entirely on safety data supplied by the manufacturers. Such a regulatory system can only be effective if the companies conducting and reporting the studies honestly disclose any adverse findings. The record shows, however, that all too often company executives and their scientists knowingly suppress or manipulate information that could affect the licensing and sale of their products.

Among more recent examples of corporate misconduct is the reckless behavior of the tobacco industry, now the subject of multiple federal, state, and civil litigations. The most egregious of such conduct has been detailed in extensive secret documents obtained from R. J. Reynolds Company in the course of civil litigation and released to the public in January 1998 (25). The Company's "Joe Camel" advertising campaign deliberately targeted underage smokers in calculated efforts to recruit lifetime adult smokers, most of whom start smoking or become addicted by the age of 18. With huge promotional expenditures from 1987 to 1998, R. J. Reynolds recruited about 560,000 underage U.S. smokers. No criminal charges have yet been brought against this industry despite the devastating scourge of future disease and death we can expect from the Camel campaign, including cancers of the lung and other sites, cardiovascular disease, stroke, chronic obstructive lung disease, and adverse complications of pregnancy, apart from inflationary medical costs and loss-of-productivity costs.

More serious than such corporate crime is professional white-collar crime of the U.S. and other cancer establishments. Despite mandated and avowed responsibility in all areas relating to cancer, and despite massive resources and the nation's misplaced trust, the NCI and ACS have failed for decades to inform the public, let alone Congress and national and global regulatory agencies, of well-documented scientific data on a wide range of avoidable cancers caused by undisclosed carcinogenic exposures, such as those in common consumer products (Table 1). Equally serious concerns extend to the irresponsible policies of the U.K. cancer establishment, notably the Cancer Research Campaign and the Imperial Cancer Research Fund (6). Another blatant example of the U.S. cancer establishment's grossly derelict conduct relates to its failure to warn healthy women aggressively recruited for chemoprevention trials for breast cancer with the highly profitable cancer drug Tamoxifen—although evidence for such prevention is at best highly arguable—that the drug is a very potent liver carcinogen (1, Appendix V; 26). The willful suppression of this information poses major risks of cancer to healthy women and raises grave ethical and legal concerns that extend well beyond medical malpractice.

Clearly, white-collar environmental and health crime legislation is critically needed and well overdue worldwide. Congressman Conyers's 1979 bill could well serve as a useful model. Consideration should also be directed to the establishment of an International Public Health Crimes Court or Tribunal, modeled along the lines of the International War Crimes Tribunal, for the investigation and

indictment of transnational corporations whose products and processes pose recognized or potential dangers to public health and environmental integrity.

Apart from criminal prosecution of white-collar crime, legislation is also needed to empower citizens who become aware of undisclosed carcinogenic hazards in consumer products to take civil action to enjoin their distribution and sale and to receive as a benefit a share of past illegal sales together with some type of mandatory financial sanctions. Precedents for such initiatives have been embodied in the Proposition 65 law passed by California in 1986. Similar laws have been enacted in other U.S. states.

INDEPENDENT CITIZEN SAFETY AGENCY

There are critical and long overdue needs for the establishment of an Independent Citizen Safety Agency. This agency should be given wide powers to police the effectiveness of current health and safety regulations and to act as intermediary between consumers, workers, and their NGOs on the one hand, and regulatory authorities and industry on the other. The agency should be empowered to establish a clearinghouse for receiving and evaluating complaints from individual consumers, workers, and their interest groups on all health-related issues; to collect, systematize, and evaluate new scientific data and assess their implications for current and proposed new regulations; and to publish and disseminate information, in explicit and simple language, on possible health and environmental risks from regulated products and processes and from the proposed authorization of new products and processes.

The agency should be fully independent and responsible only to Congress or Parliament. It should be established on the models of antitrust and cartel agencies, with wide powers of investigation, decision making, and fining of violators. The agency should be a public watchdog, an ombudsman with teeth, directly accountable only to Congress or Parliament.

Note — This article is largely based on a December 9, 1998, address to the Swedish Parliament on the occasion of my receipt of the 1998 Right Livelihood Award (better known as the Alternative Nobel Prize).

REFERENCES

1. Epstein, S. S. *The Politics of Cancer Revisited.* East Ridge Press, Fremont Center, New York, 1998. Web site: www.preventcancer.com
2. Epstein, S. S., Steinman, D., and Le Vert, S. *The Breast Cancer Prevention Program,* Ed. 2. Macmillan, New York, 1998.
3. Epstein, S. S. American Cancer Society: The world's wealthiest "non-profit" institution. *Int. J. Health Serv.* 29: 565–578, 1999.
4. Cancer Prevention Coalition. American Cancer Society Indicted for Losing the Winnable War Against Cancer. PR Newswire press release, October 25, 1999.
5. Walker, M. Sir Richard Doll: A questionable pillar of the cancer establishment. *The Ecologist* 28: 82–92, 1998.

6. Epstein, S. S. U.K. Cancer Charities Indicted for Losing the Winnable War Against Cancer. PR Newswire press release and press conference, Imperial College, London, September 13, 1999.
7. Thorpe, B. European Initiative as a New Chemical Policy: Phasing Out Carcinogens. Working Paper. Clean Action Production, Montreal, 1999.
8. Epstein, S. S. *The Politics of Cancer.* Sierra Club Books, San Francisco, 1978.
9. Fagin, D., Lavelle, M., and the Center for Public Integrity. *Toxic Deception: How the Chemical Industry Manipulates Science, Bends the Law and Endangers Your Health.* Carol Publishing Group, Secaucus, N.J., 1996.
10. Commonwealth of Massachusetts. *Toxic Use Reduction Act (TURA),* 1989.
11. Massachusetts Department of Environmental Protection. 1997 Toxics Use Reduction Information Release, March 23, 1999.
12. Something else that can be reduced: Costs. *International Herald Tribune,* June 7, 1999, p. 11.
13. Interface, Inc. Sustainability Report. Atlanta, 1999.
14. Selling not products, but services. *International Herald Tribune,* June 7, 1999, p. 11.
15. Friendlier technology, or the E2 P2 factor. *International Herald Tribune,* June 7, 1999, p. 2.
16. Steinman, D., and Epstein, S. S. *The Safe Shoppers Bible: A Consumer's Guide to Non-Toxic Household Products, Cosmetics and Food.* Macmillan, New York, 1995.
17. Hawken, P., Lovins, A., and Lovins, L. H. *Natural Capitalism: Creating the Next Industrial Revolution.* Little, Brown, Boston, 1999.
18. Moore, T. J. *Prescription for Disaster.* Simon and Schuster, New York, 1998.
19. Gage, K., and Epstein, S. S. The Federal Advisory Committee System: An assessment. *Environmental Law Reporter* 7(2): 50001–50012, 1977.
20. Verall, J. V. *The Manipulation of Codex Alimentarius.* Report to Mr. R. J. Santer, President of the European Commission, March 31, 1999.
21. Castleman, B. J., and Lemen, R. A. The manipulation of international scientific organizations. *Int. J. Occup. Environ. Health* 4: 53–55, 1998.
22. Epstein, S. S. Testimony on White Collar Crime (H.R. 4973) before the Subcommittee on Crime of the Committee on the Judiciary. Washington, D. C., December 13, 1979.
23. Epstein, S. S. Corporate crime: Why we cannot trust industry-derived safety studies. *Int. J. Health Serv.* 20: 443–458, 1990.
24. Epstein, S. S. Implants pose poorly recognized risks of breast cancer. *Int. J. Occup. Med. J.* 4: 315–342, 1995.
25. *Mangini vs. R. J. Reynolds Tobacco Company.* Case No. 939359, Superior Courts of the State of California, November 2, 1998.
26. Fugh-Berman, A., and Epstein, S. Tamoxifen for breast cancer prevention: A precautionary review. *Rev. Endocrine-Related Cancer* 43: 43–53, 1993.

Direct reprint requests to:

Dr. Samuel Epstein
University of Illinois at Chicago
School of Public Health, MC 922
2121 West Taylor Street
Chicago, IL 60612-7260