American College of Occupational and Environmental Medicine (ACOEM):

A Professional Association in Service to Industry

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The American College of Occupational and Environmental Medicine (ACOEM) is a professional association that represents the interests of its company-employed physician members. Fifty years ago the ACOEM began to assert itself in the legislative arena as an advocate of limited regulation and enforcement of occupational health and safety standards and laws, and environmental protection. Today the ACOEM provides a legitimizing professional association for company doctors, and continues to provide a vehicle to advance the agendas of their corporate sponsors. Company doctors in ACOEM recently blocked attempts to have the organization take a stand on global warming. Company doctors employed by the petrochemical industry even blocked the ACOEM from taking a position on particulate air pollution. Industry money and influence pervade every aspect of occupational and environmental medicine. The controlling influence of industry over the ACOEM physicians should cease. The conflict of interests inherent in the practice of occupational and environmental medicine is not resolved by the ineffectual efforts of the ACOEM to establish a pretentious code of conduct. The conflicted interests within the ACOEM have become too deeply embedded to be resolved by merely a self-governing code of conduct. The specialty practice of occupational and environmental medicine has the opportunity and obligation to join the public health movement. If it does, the ACOEM will have no further purpose as it exists, and specialists in occupational and environmental medicine will meet with and be represented by public health associations. This paper chronicles the history of occupational medicine and industry physicians as influenced and even controlled by corporate leaders. *Key words*: American College of Occupational and Environmental Medicine; industry influence; public health; policy; conflicts of interest.

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With the passage of the Occupational Safety and Health Act in 1970 we came under public scrutiny as never before, as to how we practice occupational medicine. "Whose agent is the occupational physician—the employer's or the employee's?" The workers are the company—what's best for them is best for the enterprise.—IRVING R. TABERSHAW, MD, delivered the C. O. Sappington Memorial Lecture entitled "The Health of the Enterprise" to the annual meeting in 1977.[1]

The American Association of Industrial Physicians and Surgeons was organized in 1915 as a professional association of physicians concerned with health hazards in the workplace.[2] As a result of the positive image industrial medicine projected during the First World War, the new specialty was guardedly embraced by organized medicine.[3] Again during the Second World War, because of their contribution to wartime industry, physicians working in the war effort enjoyed a high level of esteem.[4] Moreover, industrial medicine was viewed as an attractive opportunity by military physicians returning to civilian life.[5] The transition of so many physicians to company employment was met with surprising endorsements. The AMA Council on Medical Education ventured that, "given proper compensation, professional experience should be as stimulating and attractive in industrial medicine as in other medical specialties."[6]

By 1959, renamed the Industrial Medical Association (IMA), the association had a membership of 4,000 physicians, almost as large as the American College of Occupational and Environmental Medicine (ACOEM) of today. Then, as now, the majority of IMA members practiced occupational medicine on less than a full-time basis. Only a small percentage of the members had any formal training or board certification in occupational medicine. On the other hand, most officers and Directors of the IMA and its successors were an elite group of full-time medical directors of major industrial corporations.[7,8]

Occupational physicians at that time, especially company doctors, shared the politically conservative, albeit fanciful, sentiments of Seward Miller of the Institute of Industrial Health at the University of Michigan:

> In the United States we live in a highly industrialized society. This phenomenal development has been achieved with less governmental regulation and dictation than exists in any other industrialized country. Many Europeans find it difficult to comprehend how our industries can be clean, healthy, and safe places in which to work with so little specific governmental regulation of the work environment. The answer lies in the generally excellent job American industry presently is doing in building and maintaining clean, safe, work establishments and its ever-willingness to correct hazardous practices.[9]

Albert J. Hayes, President of the International Machinists Union, saw things quite differently, pointing out the "tragic fact that although industry in the United States has made vast studies in the development and use of new substances, materials, and processes for production at profit, we appear to be far behind some other countries of the world in our interest and knowledge of the adverse effect of these substances and chemicals upon the men and women who are forced to use them in their quest for a livelihood." He added that "we shall have more common concern for occupational health when industry has to bear a more realistic share of the cost of occupational illness."[7] Asa Barnes, of the United Mine Workers, pointed out that, "Attention to proper organization and quality of medical care has become as important as financing. Medical care programs must be given a chance to develop along ethical lines."[10] George Meany, President of the AFL-CIO, tactfully summarized labor's view on occupational medical care,

> We have no urge to dictate or to control the practice of medicine, for we know that we are not competent to do so. We want only to help bring into being the kind of programs and facilities that will attract the best doctors and that will bring out the best that is in them. We favor any method of organization and payment that will enable them to practice freely as their professional judgment indicates, with no economic barriers between our members and their services.[11]

In 1959, the IMA published the first volume of the *Journal of Occupational Medicine* (JOM). Robert A. Kehoe, of the Kettering Laboratory in the Department of Preventive Medicine and Industrial Health at the Cincinnati College of Medicine, celebrated the new journal with a hopeful description of the emerging specialty of occupational medicine:

> With but few exceptions, the features which can now be recognized as milestones of substantial progress toward the present concept of this specialized form of medical activity have come into existence within the lifetime of men now actively engaged therein. It is even more significant that these milestones—the specialized professional organizations, the facilities and personnel for relevant research, the scientific and professional periodical and reference works, and the organized disciplines for professional training—have achieved dimensions that have given adult stature to occupational medicine among other medical specialties only within the past two decades.[8]

Kehoe figured prominently in the training of many company doctors. His long history of consultation with industry predicted the influence he would have on the physicians he sent into the country's major corporations. As far back as 1925, Kehoe had enunciated a distinction between expectations and conjecture from hard scientific facts on exposure outcomes. It became known as the "show me the data" mentality. As an example of its impact on occupational and environmental medicine, it led to a precedent-setting system of voluntary self-regulation by the lead industry as a model for environmental control. The mind set implicitly signaled the level of industrial responsibility for lead pollution. It established a cascading uncertainty rule by melding the concepts that uncertainty may always be found in a world of imperfect information with a highly skewed cost–benefit analysis concept. The immediate financial worth of tetraethyl lead additives became weighted against probable yet uncertain future human health hazards. Over the years, many studies were funded by the lead industry to develop a theoretical framework for the paradigm, which served as a strong defensive strategy against lead critics. It resulted in an unfettered growth in automotive lead pollution to over 270,000 tons per year in the United States and 350,000 tons per year worldwide during the early 1970s.[12]

An editorial in the inaugural issue of JOM asserted that, "From time to time editorial pieces will present and interpret the collective views of its policy makers upon matters of practice and ethics so far as these can be determined."[13] The IMA President asserted that, "With our own journal we can point up such projects, studies, and statements as are of practical concern to our membership."[14] He would later expand the role of the journal by pointing out that it had, "the requirement of keeping friends and influencing people—the public relations of the editorial function."[15] It would not be long before readers would see what he had in mind.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHAct)

Events moved swiftly, thrusting the IMA into a political and legislative storm. In 1967, J. F. McCahan of Western Electric, the IMA President, was instructed by the Board of Directors to appoint an ad hoc committee representing management, labor, education, and research to gain

their advice and counsel concerning directions the IMA might take in meeting the unmet needs in occupational health and safety perceived by the Federal government. No sooner was the committee formed than the initial Occupational Safety and Health Act (OSHAct) was introduced in Congress. The OSHAct raised serious questions about the "fairness and adequacy of workers' compensation programs in light of substantial changes in the economy, labor force, and health and safety risks at work."[16] Norbert Roberts of Standard Oil, then President of IMA, observed that, "This Act and the regulations being issued under it have immense and direct relationships to our activities and programs in occupational medicine."[17]

The IMA President and his ad hoc committee were given the responsibility of developing a position statement on the Act and of requesting the opportunity to testify before the appropriate Senate and House committees. The committee consisted of Richard Call of Union Oil, William Jend of Bell Telephone, Craig Wright of Xerox Corporation, and Mark Bond of U.S. Steel, and the Executive Director, Howard Schulz, along with the executive committee. The IMA President remarked that, "To my knowledge, this is the first time that our Association has chosen to take a stand on legislative matters which have come before the United States Congress. It may well be a beginning which will see our Association taking an increasingly active role in the development of occupational health programs to meet the needs of the ever-expanding work force."[18]

The Statement of the IMA on the Occupational Safety and Health Act was presented on March 11, 1968, by the IMA President to the Select Sub-committee on Labor of the House of Representatives. Much of the presentation was self-serving and self-congratulatory:

> In many of the major industries the programs in occupational safety and health have been developed to the point where the most important remaining problem is human failure. It is generally recognized that in many industries the worker is safer at his job than he is away from it. In almost all industries the rate of absenteeism resulting from non-occupational illness and injury far exceed that for illness and injury which is causally related to the job.[19]

The Statement supported the basic objectives of the legislation dealing with education and training, research, and grants to states. But on the critical issue of what was to be the principal activity of the Occupational Safety and Health Administration (OSHA), the IMA had, "a number of reservations about the provisions of the bill concerned with inspection and enforcement procedures."

In 1970 Congress passed the Occupational Safety and Health Act (OSHAct), creating the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Review Commission (OSHRC). With enactment and implementation of the OSHAct, the IMA realized that more involvement with the legislative process would be required than an occasional appearance at a Congressional hearing. A Committee on Legislation was appointed by IMA President Norbert Roberts of Standard Oil, made up of three members, J. F. McCahan of Western Electric, T. E. Allen, and H. H. Golz of the American Petroleum Institute (API). The Committee on Legislation inaugurated the IMA Report as an insert in each issue of their journal. The content of these reports summarized important events and legislation provided under contract by the Center for Political Research, described by the IMA President as, "a most respected source of in-depth reporting, research and analysis of U.S. Federal government activities."[17] The Committee on Legislation and the JOM editor chose to report summaries of legislation with which they agreed, and to report in greater detail on the legislative attempts by organized labor with which they disagreed.[20] Environmental issues were also presented to give IMA members insight into legislative proposals they and their employers might oppose. At the same time various strategies were nuanced for future consideration or action.

Marcus Key, a long-time consultant to the petrochemical industry, was appointed in 1971 by President Richard M. Nixon as the first Director of the National Institute for Occupational Safety and Health (NIOSH). Key moved to establish an advisory committee to expedite the development of emergency standard recommendations for hazardous substances. The committee would be composed of six members: two each from labor, industry, and government. This tripartite formula, developed in Europe by international agencies, would eventually be shown to provide industry with a substantial advantage over competing interests in the legislative process.[21,22] The IMA Report stated the opinion that, "There seems little likelihood that either the Senate or House will pass a toxic substances control bill this session."[23]

OCCUPATIONAL HEALTH STANDARDS

The Industrial Medical Association noted with alarm the rising recognition of "threshold limit values" as health standards in industry. The TLVs were introduced in 1946 by the American Conference of Governmental Industrial Hygienists, drafted by a committee of industrial hygienists, toxicologists, and chemists. By 1952, the term TLV itself had still not been defined, and no documentation had been published to support the growing list of recommended exposure limits for air contaminants at work. At a meeting of the IMA Committee Chairmen on April 24 that year, Dr. Frank Princi exclaimed, "Most of the TLVs are picked out of

a hat, 95 percent are on the basis of animal experiments only, and we are faced with ridiculous standards. Is there a doctor among the group that puts out these standards?"

There was then one doctor on the TLV Committee, Dr. Arthur Vorwald of the Saranac Laboratory, an industry consulting group in upstate New York. Vorwald had just been honored with the Merit in Authorship Award by the IMA for "Experimental Studies on Asbestosis," published in 1951. In preparing this paper, Vorwald had removed all reference to cancer and tumors at the direction of industry sponsors of the research, but this would not come out until decades later. What, if anything, Vorwald said in defense of the TLVs was not recorded in the IMA meeting minutes, though he was one of 27 identified as present at the discussion.

The TLV Committee quickly proved its limits posed no threat to business from being overly strict. In the case of toluene, the TLV was set at a level (200 ppm in air) that was "dangerous to their own safety and the safety of the operation," according to Esso's Dr. Horace Gerard, writing in 1956, citing a 1942 study. The toluene TLV was unchanged eight years later, when Esso's Dr. Robert Eckardt wrote to raise concern that not only was the toluene TLV excessive, but the TLV for xylene (also 200 ppm) could cause "severe irritation (and) impairment of reaction time." These TLVs were lowered to 100 ppm in 1967 (xylene) and 1973 (toluene).[24,25]

Industry doctors would find the TLV Committee scientifically uncritical in accepting their suggestions. Union Carbide Associate Medical Director Carl Dernehl was able to get TLVs he recommended based on "industrial experience" accepted for tungsten compounds and diphenylamine in 1966–67. Dow's Dr. D. J. Killian was able to get the TLV committee to accept the limit he recommended for ethyleneimine, based on two sentences in his letter relating a phone conversation he had had with a doctor at BASF in 1973.[26] Owens–Corning Fiberglas Corporation Medical Director Jon Konzen noted in a 1969 internal memorandum that TLV Committee member Dr. Paul Gross was "representing the interests of fibrous glass manufacturers in trying to get the current limit raised to that of an inert dust."[27]

There were plenty of reasons for criticizing the TLVs from a medical standpoint. The Documentation of Threshold Limit Values, first published in 1962, included minimal reference to medical literature. It remained the case that few doctors were on the TLV Committee, and the volunteer work of the committee was incomplete in citing reference articles on which exposure limits could have been better based. But the limits were not interfering with business as usual, and the companies had a professional body saying these limits were more or less safe for workers, a guarantee the companies would not have dared make. States without air-sampling analysis laboratories began listing the TLVs as advisory limits in their "regulations."

A British asbestos industry doctor, John F. Knox, observed in 1960 after visiting his company's U.S. subsidiary, "The legislative framework under which industries operate in the U.S.A. makes it difficult for me here to follow the lines of thought which prompt action over there in the matter of standards of industrial practice. In many industries, the employers seem so far in front of legislation as to have created a special code of practice for themselves."[28]

The men who ran the corporations had uses for the TLVs, and they regarded company doctors as hired help. Corporate lawyers had envisioned what would later be called the "TLV defense" to liability by 1935, before there were TLVs or even professional associations of industrial hygienists.[29] The company doctors kept their misgivings about TLVs and their hurt professional pride to themselves, at least publicly, while the workers paid for their abandonment by the occupational medicine profession. By the 1970s, "TLV" had become the generic term for occupational exposure limits for air contaminants, and corporate toxicologists were on the TLV Committee writing the documentations of the TLVs for their own companies' products.

NIOSH established that all TLV determinations were part of an "interim" standards package that was not subject to the requirement of the OSHAct that all employees be notified when exposed to "hazardous substances or agents." Organized labor objected to this shrewd, industry-friendly maneuver, but the issue of employee notification was effectively stymied and would remain so for some time to come:

> It has been estimated that NIOSH, at peak capacity, can annually turn out 20–25 standard criteria documents upon which permanent standards are based (this year, 1971, they may produce 10). Even where the NIOSH process is shortened, the OSHA administrative procedures for promulgation can conceivably take over a year. Although these are maximum time constraints and many 6(b) standards will no doubt be promulgated in shorter time periods, the entire process is time consuming and must be considered in light of the fact that NIOSH's incomplete list of toxic substances now numbers some 9,000. But, under the present procedure and budgets, it will be some time before even those few hundred substances for which there are TLVs receive permanent status.[30]

ENVIRONMENTAL HEALTH STANDARDS

The IMA, through its journal, spoke out dismissively against regulation and enforcement as a means of addressing environmental as well as occupational health issues. In 1973, Harold H. Golz, of the American Petroleum Institute, wrote a scathing critique of the

EPA's Position on the Health Effects of Airborne Lead. He listed no affiliation for himself, giving only a K Street address in Washington, D.C. Golz asserted that,

> Indeed, slanted statements that appear with disturbing frequency throughout the document make it anything but an objective evaluation of the "latest scientific knowledge"; it is rather a paper of advocacy better suited to adversary proceedings. Public health officials, pediatricians, and lead experts everywhere accept 40 μg/100 g as the upper limit of the normal range of blood lead. Levels above this limit are generally considered to be evidence of a degree of exposure which might, if continued, result in adverse effects. Levels below this limit are considered to be evidence that hazardous exposures have not occurred. The 40 μg standard itself has a substantial built-in safety factor, having been chosen to protect children. Lead poisoning in adults does not occur at blood lead levels of less than 80 μg/100 g and most cases of lead poisoning in children are usually associated with much higher blood lead levels. It may therefore reasonably be concluded that 10 μg/100 g to 40 μg/100 g is the range of normal for humans, children as well as adults, newborn as well as pregnant women.[31]

Irving R. Tabershaw, Editor of JOM, enthusiastically supported the Golz critique of the EPA. He wrote that,

> The evaluation by Dr. Golz of the EPA position paper brings to the fore the potential for irreparable damage that can be done by an irresponsible or unethical determination of a hygienic value which affects our whole society. Its impact is not only economic but involves more important matters such as anxiety, fear, and even hysteria regarding possible exposures and adverse health effects. The professed intent of the document is informing the lay public as well as the scientific community. This makes it more incumbent on the government agency to be careful in its implications and statements—a scientist will find the flaw—the layman has no such critical facility.[32]

Whereas virtually true at that time the implication of this statement written in the early 1970s and held by elite industry scientists then and now was that the health and safety arms of the government should not intrude into, impinge upon, or otherwise disrupt the usual practices of industry, which were not considerate of workers. Irving Tabershaw's involvement with the Chemical Manufacturers' Association (CMA) began in 1973, at the time he lauded the publication by Golz. Many ACOEM officers and directors, including Golz, also served on the CMA Occupational Health Committee.

A few JOM readers could see that the journal was publishing API propaganda. Golz had stated that, "Removing the lead from gasoline will require higher aromatic content of gasoline and/or the use of other anti-knock compounds of potential toxicity and probably higher combustion temperatures with an increased level of NOx in the exhaust."[31] Ephraim Kahn and John Goldsmith, public health physicians with the State of California, responded, "This is a complex deception because leading petroleum industry officials and control officials have made statements which take an opposite position and so has the Department of Commerce."[33] Early warnings were ignored by industry, and as leaded gasoline became more profitable, scientists willing to support industry were financed as guardians of the scientific criteria for lead's health impacts. In efforts to protect their profits, industry executives falsely claimed there was no alternative to leaded gasoline. Fifty years passed before scientific, court, and regulatory challenges had any influence. When independent research finally emerged, the results were damning enough to support an international phase-out of leaded gasoline.[34,35]

The role of the lead industry and especially the Ethyl Corporation in lead research is presented in detail in William Graebner's chapter in *Dying for Work*. Graebner states that although industry "engineered the development, dissemination, and perception of knowledge concerning the lead hazard through the Kettering Laboratory, seemingly independent organizations like the American Public Health Association and the American Medical Association digested that science and attested to its worthiness."[36]

CRITERIA DOCUMENTS

The OSHAct placed on the Department of Labor the responsibility to promulgate health standards and on NIOSH the responsibility to develop the criteria on which these standards were to be based. Criteria documents produced by NIOSH on specific chemical and physical agents were published in subsequent issues of JOM to keep readers informed about new health standards. IMA President Thomas Ely, of Eastman Kodak, felt that IMA members should review and critique all draft criteria documents. He proposed a list of IMA members with expertise in the subject areas, "so that when drafts are received, no time will be lost in determining to whom they should be sent."[37] A disturbing pattern emerged where IMA members who were corporate medical directors employed by the industries that would be most affected by health standards wrote the opinions that were published in the journal.

Criteria documents were developed and published by a consulting firm in California owned by JOM Editor Irving R. Tabershaw and W. Clark Cooper. Both men commented typically favorably on the scientific value of the criteria documents as developed and published in JOM by their employee, Michael D. Utidjian, who also served as JOM Department Editor. During this period,

and subsequently after Tabershaw–Cooper Associates was acquired by Equitable Environmental Health, part of the liability insurance giant, the company was a contractor to the Chemical Manufacturers' Association (now the American Chemistry Council) and derived substantial income from activities related to industry efforts to counter the development of benzene, vinyl chloride, titanium dioxide, and other chemical health and safety standards.[38,39] Companies that funded the work by Tabershaw–Cooper included American Cyanamid, AMOCO, ARCO, Bethlehem Steel, Dow Chemical, DuPont Chemical, Ethyl Corporation, EXXON, Firestone, General Tire and Rubber, BF Goodrich, Goodyear, WR Grace, Great American Chemical, Gulf Oil, Gulf & Western, Hooker Chemical, Kerr-McGee, Mobil, and Monsanto. There is neither discussion nor mention of this conflict of interest in JOM or in its publication of the many criteria documents developed by its journal editor and staff. Later, Michael Utidjian became Corporate Medical Director of American Cyanamid.

The NIOSH Criteria Document for a Recommended Standard for Occupational Exposure to Inorganic Lead faced extensive industry criticism from Ralph Smith and Kenneth Nelson of the American Smelting and Refining Company (ASARCO).[40,41] The Criteria Document for Coke Oven Emissions was critiqued by Robert Halen of the Jones Laughlin Steel Corporation.[42] The Standard for Toluene was reviewed by Neill Weaver of the American Petroleum Institute.[43] The Standards for Xylene and for Benzene were reviewed by Robert Eckardt of Exxon.[44,45] The Standard for Toluene Diisocyanate was critiqued by Utidjian and Tabershaw.[46] Tabershaw's partner, Clark Cooper, critiqued the Standard for Chromic Acid.[47] In each case, the Director of NIOSH dutifully thanked the IMA for "valuable and constructive comments."[48]

Tabershaw was in a position to publish in JOM the studies conducted by his firm, with full control of the peer-review process. The studies of vinyl chloride led to a disclosure of their questionable science in a chapter entitled "Damn Liars" in the book by Gerald Markowitz and David Rosner, titled *Deceit and Denial: The Deadly Politics of Industrial Pollution*.[49] The timeline of vinyl chloride cancer studies reveals the extent to which Tabershaw–Cooper colluded with industry to serve the purposes of the vinyl chloride manufacturers. NIOSH would eventually challenge the research methods devised and results obtained by Tabershaw–Cooper and the CMA. Through it all, JOM continued to develop its reputation as the "journal of negative studies," or, as others put it, the "journal of industry propaganda." In 1980, Irving Selikoff and others introduced the *American Journal of Industrial Medicine*, which broke the virtual corporate monopoly on journals in occupational medicine and rapidly became the most respected American journal in its field.

The criteria documents were intended to be a major function of NIOSH. In this set of documents, orchestrated by ACOEM and JOM, NIOSH provided an evaluation of the literature, proposed control measures, and recommended upper limits for exposures, recommended exposure limits (RELs). By the early 1980s, few of these documents were being produced, making the entire exercise nearly meaningless. The process was largely subverted from the very start, and ACOEM and JOM played pivotal roles in the subversion.

WORKERS' COMPENSATION REFORM

During the period leading up to the passage of the OSHAct, there was considerable concern in the insurance industry that the Federal government was moving toward a takeover of the workers' compensation system. The IMA Report on the National Commission on State Workmen's Compensation Laws, authorized by Section 27 of OSHA, expressed the optimistic view that,

> There is substantial belief among interest groups and congressional committee staffs that the eventual report of this commission will not call for any significant shift in Federal role in state Workmen's Compensation programs, either in prescribing benefit levels or performance standards for state Agencies. The Senate Labor Committee, at whose behest the Commission was authorized in the Act, appears to accept this likelihood.[50]

The IMA Report gave extensive reporting of the insurance industry moves to adjust some of the deficiencies of the workers' compensation system. The IMA Report overtly opposed the recommendations of the National Commission, and stated that,

> If the commission recommends Federal legislation establishing minimum standards, then it will have to wrestle with problems of implementation and appropriate standards. Such a recommendation would be opposed by the insurance business, state and possibly medical interests (IMA Report No. 4, 1971).[50]

The AMA Council on Industrial Health agreed with IMA to oppose the federalization of the workmen's compensation system, and instead of reform, suggested that,

> State workmen's compensation laws which are now under an evaluation study by the president's National Commission are being viewed with the intent of some reform. This presents the united medical profession with an unusual opportunity to use its resources in advocating uniform administrative medical criteria. In addition, as a neutral group, a united medical profession is also in an exceptional position to recommend knowledgeable physicians as independent, non-partisan expert witnesses before the bar as panel members or consultants to the medical advisory department. These and other recom-

> mendations would help reduce the number of false claims; improve the medical aspects of adjudication, quality of medical care and rehabilitation; encourage the prompt return of the injured worker; and advocate a healthier industrial environment.[51]

Organized medicine got what it pressed to achieve. After failing to act on threats to nationalize worker's compensation, the National Commission disbanded and never met again.[52]

FROM CRITIQUE TO OBSTRUCTION

The IMA was renamed the American Occupational Medical Association (AOMA) and, by 1977, was widely recognized as an opponent of governmental efforts to regulate occupational health and safety. The next and second Director of NIOSH, John Finklea, had written to the AOMA requesting that occupational diseases be reported to NIOSH. The organization referred his letter to the AOMA Occupational Medical Practice Committee. The committee reported that it, "favors the reporting of incidents or cases, but its preference is to report to the AOMA and/or to the Journal of Occupational Medicine. The AOMA Board adopted the position recommended by the Occupational Medical Practice Committee."[53] This presumptuous position would allow the AOMA to select and slant what they would or would not make known in JOM and disregarded state laws requiring reporting of occupational diseases to health departments..

In 1977, OSHA set off a firestorm of industry opposition by proposing a generic approach to streamline the regulation of carcinogens. The AOMA Position Statement on OSHA's Generic Approach to Carcinogen Rulemaking was prepared by Robert Eckardt, Director of Research and Environmental Health for Exxon Corporation, and former IMA President. Although unanimously endorsed by the Board of Directors of AOMA, the Statement is written in the first person singular, and was delivered to an OSHA hearing by Dr. Eckardt. He began his testimony with the comments,

> The OSHA proposal "Identification, Classification and Regulation of Toxic Substances Posing a Potential Occupational Carcinogenic Risk," is a useful concept in rulemaking. However, in establishing this three-category approach, OSHA has made a number of simplifying assumptions which affect the scientific or technical validity of the proposal and hence its suitability.[54]

Eckardt went on to deliver a lecture to the OSHA hearing on carcinogenesis, suggesting that OSHA and NIOSH lacked the necessary staff to accomplish carcinogen rulemaking.

> OSHA should make provision for the availability of an expert scientific advisory committee. The function of this committee would be to review all of the available data both animal experimental and human epidemiological and render a judgment as to whether a particular compound constitutes a risk to man, and if so what the degree of that risk is.[54]

In summing up his testimony, Eckardt opined,

> Although I am sympathetic to what OSHA is trying to accomplish with their proposal, I think they have grossly oversimplified the extremely complex question of occupational carcinogenesis. I would urge, therefore, that OSHA seriously reconsider their proposal in the light of the comments that have been made in this presentation. I would urge that modification be made in their proposal which more accurately reflect the present state of our scientific knowledge concerning carcinogenic mechanisms and the risks of cancer development in the workplace as a result of occupational exposures. Provision should also be made to take cognizance of scientific advances which will be made in the future. Finally, required medical monitoring of employees potentially exposed to carcinogens should remain optional until the nature of the carcinogen response to be monitored has been carefully defined.[54,55]

Later, Eckardt accused OSHA of using "obfuscation, smear tactics, and straw men," as tactics applied to anyone who opposed OSHA's proposal.[56] Industry created an entirely new trade organization to fight the generic carcinogens rule, the American Industrial Health Council, which lasted until 2000.

The delay tactics were certainly not new to industry obfuscation. Industry was very successful, for example, in delaying new health and safety rules on benzene exposures when the Supreme Court rendered their opinion in 1980 that OSHA had failed to consider or recognize the benefits of their risk calculations. This changed and caused significant delays in regulating and promulgating safety standards of chemicals thereafter.[57,58]

Paul Kotin, of Johns–Manville Corporation, with controversy rising in the all-time peak year of asbestos sales in the United States, joined many others of the IMA in attacks on government regulators. Delivering the Sappington Lecture at the IMA annual meeting in 1973, Kotin said,

> Survival of the free enterprise system as we know it will depend in a very large measure on a successful resolution of the differences between government and the private sector in the new areas of regulation involving health, safety, consumer protection and environmental quality. The stark reality is that the legislative mandate to OSHA demands that standards be set and enforced now, despite inadequate knowledge and experience in this area. As a result of this mandate, the processes involved in the setting of standards and in establishing mechanisms for their enforcement have reflected both the stresses and

> strains typical of crises and the zealousness characteristic of crusades.[59]

Robert Eckardt was the Editor of JOM when the Kotin speech was published.

The AOMA was now involved in legislation at many levels. Attorney Dennis J. Barbour was retained in 1978 on a part-time basis to represent AOMA in Washington. He asked the Association to place priorities on areas of major concern for his guidance in monitoring the activities of congressional and regulatory groups.[60] What he would hear was a constant refrain from the members who represented major corporations. While the interests of major corporations were being served by the association, the officers sought to present an entirely different image. In testimony presented at an informal public hearing conducted by OSHA, AOMA President Alan A. McLean, of IBM, and President-Elect Robert S. Hockwald, of Pacific Telephone, stated that, "We do not represent 'big business.' We are aware of physicians who are now or have been employed by industry who appear to place the interest of their employer ahead of those of their employee–patients. This, too, is abhorrent."[60]

Speaking to the AOMA meeting, Bruce Karrh, Corporate Medical Director of E. I. du Pont de Nemours & Company, offered that,

> OSHA has used its rule-making power to intrude into matters traditionally reserved to the collective bargaining provisions of the National Labor Relations Act. This has resulted in an undermining of the role of the occupational health professional. During the past decade and especially in recent years, OSHA has developed standards without considering all the scientific data or the costs to industry. The agency has interpreted its mandate as meaning that all risks in the workplace must be eliminated at any cost. Consequently, many standards have been issued that either carry extremely high price tags due to their detailed requirements or lack price tags altogether because cost analyses were never conducted. No dollar value should ever be assigned to an individual's life or limbs. But since precious occupational safety and health resources are finite, it is important that we determine which are the more serious problems and what is the least expensive way of reaching a specific level of protection.[61]

Despite the rhetoric about no dollar value on a human life, the motive, to stall regulatory processes reducing exposures of workers to hazardous and life threatening chemicals and dangerous practices, is clear. Karrh's statement that OSHA did not consider cost in promulgating standards, and his use of the omission as a defense against government regulatory efforts, were not correct. The Act states that OSHA standards must be feasible from the standpoint of technology as well as economics. Therefore, OSHA must show that any standard it promulgates is economically feasible to all sectors of industry. An economic analysis was required and was done for every standard promulgated since the beginning of the OSHA Act.

In 1978, the AOMA Board endorsed an Open Letter to OSHA expressing its concern about the quality, and therefore, the credibility of government sponsored health research performed by NIOSH and OSHA:

> The image of NIOSH as an objectively honest, scientifically competent agency dedicated to the protection of the worker is essential to ensure the national confidence and support necessary to bring about that objective. Incompetent or biased studies which lead ultimately to confusion, controversy and erosion of credibility within the scientific community, do irreparable harm to that image. The human and animal studies cited by NIOSH and OSHA in the recently concluded beryllium hearings are shocking examples of the shoddy scholarship and questionable objectivity utilized in making important national regulatory decision.[62,63]

THE BERYLLIUM EXAMPLE

The failure of government to protect workers from beryllium exposure through appropriate regulation serves as an instructive and real example. The influence AOMA, now ACOEM, had on the government's action on beryllium exposure had long-term repercussions. During the 1970s, because of the pressure put on NIOSH by the beryllium industry, the OSHA Beryllium Standard was never completed. Expert witnesses representing Brush Wellman, Inc., for the beryllium industry testified at the OSHA hearings in 1977, then met at the Cosmos Club in Washington and drafted a letter to then DHEW Secretary Joseph Califano asserting that there had been "shoddy NIOSH research."[62] Then Brush Wellman complained to the Secretary of Energy that a new beryllium standard would force it out of business and reduce the availability of beryllium needed for national defense. In turn, the Secretary of Energy under President Jimmy Carter, James Schlesinger, wrote to the Secretary of Labor, Raymond Marshall, stating that, "our national defense could not afford a new beryllium standard."[64]

Under continuing pressure from the beryllium industry, the government convened the "CDC Beryllium Review Committee," and subsequently an "HEW Beryllium Review Committee" to evaluate the results of the epidemiologic study related to beryllium exposure and lung cancer that Joe Wagoner, Peter Infante, and others had conducted while at NIOSH.[65–67] "This whole episode was set up in part as a kangaroo court in an attempt to impugn the integrity of Joseph Wagoner as a scientist because he was so outspoken about industrial carcinogens." The controversy continued to 1980–1981, two to three years after Wagoner was forced out of NIOSH and Infante left in frustration. "If you can't

win on the data, impugn the integrity of the investigator has been the history of industry's dealing with government scientists that it cannot control."[68] Infante contends that, "NIOSH has never recovered to date in that it has never since been as outspoken about occupational carcinogens and the lack of concern by industry about the health of its workers."[68]

In 1981, HHS Secretary Califano made a decision that OSHA had adequate documentation on the carcinogenicity of beryllium for it to complete the rule making.[69] In 1993, IARC concluded that beryllium is a human carcinogen, based on its ability to cause lung cancer in exposed workers. In 1997, The Beryllium Industry Scientific Advisory Committee published in JOM an article entitled, Is Beryllium Carcinogenic in Humans? The corresponding author of the article was David C. Deubner, Medical Director of Brush Wellman, Inc., joined by Paul Kotin and other ACOEM members. The article concluded that the empirical evidence for possible carcinogenicity in humans of beryllium and beryllium compounds is contained in studies that merely show that, "the SMR for lung cancer is elevated by 12%—an elevation that is not statistically significant."[70] The members of the scientific advisory committee proceeded to criticize the IARC and various investigators for missing the fact that, "Sulfuric acid mist and vapors are established lung carcinogens in humans. The apparent effect of 'beryllium and beryllium compounds' was the result of exposure to sulfuric acid mist and vapors that acted as typical confounding variables." The authors then pointed out that,

> Distinguishing causality from subtle confounding influences represents the essence of epidemiology. The history of the discipline is replete with revisions and reconsiderations brought about by the recognition of previously unsuspected confounders. Failure to recognize subtle confounding is unavoidable in epidemiology, but failure to act upon its recognition is inappropriate.[70]

Interestingly, Kotin was an industry representative who lobbied unsuccessfully at the IARC February 1993 meeting that declared beryllium a human carcinogen. Infante attended as the official representative of OSHA. IARC responded in an editorial pointing out the bias in the industry committee's point of view, and explained how carcinogenicity studies in animals provided powerful support for the biologic plausibility of a causal association in humans between exposure to beryllium and beryllium compounds and the subsequent development of cancer. IARC also found the two most recent cohort studies especially convincing as evidence for an increased risk of lung cancer.[71]

To date, a new beryllium standard (including a new exposure limit) has not been completed because of the pressure from the beryllium industry. Newman and colleagues in 1999 and Public Citizen Health Research Group in 2001 petitioned OSHA for an Emergency Temporary Standard for Beryllium on the basis of workers developing chronic beryllium disease (CBD) as a result of exposure levels below the current OSHA standard. In response to the petition by Newman and colleagues, OSHA indicated that it would publish a proposed Beryllium Standard by December 2001. In the Federal Register Notice, OSHA acknowledged that 5–15% of beryllium workers are sensitized and will develop CBD.[72] We now know that workers exposed to a cumulative amount of beryllium allowed by one day of exposure to the current permissible exposure limit (PEL) of 2 $\mu g/m^3$ have developed CBD, an often fatal disease. In a commentary published in Lancet, Infante and Newman issued a plea for OSHA to promulgate a new beryllium standard.[73] Because of the influence of Brush Wellman on the Bush Administration, nothing has been done by OSHA to issue a new beryllium standard to protect workers from developing both CBD and lung cancer.

John L. Henshaw, Assistant Secretary of OSHA under President George W. Bush, and formerly with Monsanto Company, spoke at the ACOEM annual meeting in 2003. The members sat quietly as Henshaw stated that, "OSHA developed general guidance information for employers on beryllium in 1999 and more specific information related to dental labs in 2001. Last fall the agency requested comments on whether it should update the standard."[74] But the reality is that Brush Wellman has too much influence over OSHA, and ACOEM is pleased and not at all concerned that industry exercises this level of influence over government agencies. Brush Wellman, the world's leading producer and supplier of beryllium products, has systematically hidden cases of beryllium disease that occurred below the threshold limit value (TLV) and lied about the efficacy of the TLV in published papers, lectures, reports to government agencies, and instructional materials prepared for customers and workers. Such corporate malfeasance is perpetuated by the current market system, which is controlled by an organized oligopoly that creates an incentive for the neglect of worker health and safety in favor of externalizing costs to victimized workers, their families, and society at large.[75]

Infante takes the position that,

> It is absurd for the Assistant Secretary of OSHA to state that "we're considering" whether or not to develop a new standard in light of all of the scientific information about the inadequacy of the current 2 $\mu g/m^3$ limit in relation to exposure amounts documented to cause chronic beryllium disease (CBD). His comments are a sad statement about the state of affairs at OSHA in protecting beryllium-exposed workers, and all workers in general.[76]

Secretary Henshaw went on to say that, "Today, I want to focus particularly on cooperative programs and our

efforts with your organization. The new head of our Office of Occupational Medicine is a board-certified occupational physician active with ACOEM. So, OSHA clearly values the relationship with ACOEM."[74,77] Industry has been particularly successful in delaying lower beryllium standards for worker protection since the still-permissible exposure level for beryllium is 2 $\mu m/m^3$ air for an eight-hour period. That limit was adopted by OSHA in 1971 and was based on a 1949 standard set by the Atomic Energy Commission. OSHA began work on setting a new standard in 1975, but it was never completed.[78]

Central to the perverse relationships of ACOEM to industry and government is the practice of legislative advocacy. ACOEM's government relations activities maintain a strong presence in Washington, DC, to ensure that its members' interests are represented in key decisions affecting occupational and environmental medicine, particularly workplace standard setting.[79] The ACOEM made direct payments of $175,621 to Kent and O'Connor in 2004, and $136,550 in 2005. Relatively few ACOEM members are even aware of the legislative lobbying activities of the organization. The activities are approved and reported to the Executive Committee and the Executive Director, and the corporate physicians who actively pursue such positions. Some private practice and academic occupational physicians may hold office in ACOEM, but not until they prove that they are reliable enablers of the corporate medicine agenda. The actual history of ACOEM legislative activities remains a carefully guarded secret.

WORKERS' COMPENSATION MEDICINE

ACOEM is the principal organization of occupational physicians in the United States.[80] As such, ACOEM is central to one of the country's worst failures in public health history. A majority of occupational injuries and fatalities are not reported by physicians to workers' compensation and the victims fail to receive the benefits required by law.[81–85] The U.S. Department of Labor estimated in 1980 that "only five percent of those severely disabled from an occupational disease receive workers' compensation benefits."[86] A number of studies since that time show that no substantial change has occurred in the rate of reporting of occupational diseases.[82,85,87] ACOEM has failed to address the problems of workers' compensation and the under-reporting of occupational illnesses and diseases. Any change in workers' compensation will have an immediate and lasting effect on the earnings of ACOEM members, and proposed changes will continue to cause the organization to mobilize its resources to prevent any legislative efforts adverse to the interests of its corporate clients and employers.

Although occupational and environmental diseases are "often viewed as isolated and unique failures of medical science, the government, or industry to protect the public, they are in fact an outcome of a pervasive system of corporate priority setting, decision making, and influence."[21] The costs associated with occupational medicine have traditionally been paid for by employers, and that has provided strong incentives for physicians and other providers to cooperate with industry in keeping these costs at a minimum. Occupational medicine today is an ill-defined practice of medicine that is largely subversive to worker health and subservient to business interests. Political and economic pressures from employers, insurers, and business organizations have made the workers' compensation system dysfunctional, and have corrupted the practice of occupational medicine.[88,89]

Practice Guidelines

ACOEM's answer to the serious deficiencies of workers' compensation medicine is to sponsor the development of a formulaic practice of medicine that is acceptable to the insurance industry.[90] The book *Occupational Medicine Practice Guidelines* is touted as the "gold standard" in effective occupational medical practice,

> Presenting essential consensus and evidence-based information, it provides step-by-step guidelines and practical aids to help busy practitioners manage growing caseloads. The book is intended to improve: 1) the efficiency with which the diagnostic process is conducted; 2) the specificity of each diagnostic test performed; and 3) the effectiveness of each treatment in relieving symptoms and achieving a cure. This edition represents the current, collective voice of health care professionals who treat work-related injuries and occupational diseases.[91]

In 2004, the State of California required that its utilization review in workers' compensation cases be "consistent with" the ACOEM's Practice Guidelines. ACOEM is pleased with the adoption by California workers' compensation of the Guidelines—which, "has given the specialty a far more visible role in quality of care issues."[92] The Rand Corporation performed a rigorous review of the ACOEM Practice Guidelines and concluded that, "the evidence base for treatment recommendations for non-surgical conditions were of uncertain validity and comprehensiveness." The majority of the experts conducting the Rand study felt that, "California could do a lot better by starting from scratch." Nonetheless, in March 2004, the ACOEM Practice Guidelines were implemented in California on an interim basis. Since that time, Rand reports that payers appear to be interpreting and applying the ACOEM guidelines inconsistently, suggesting that this allows cost savings, not quality of care, to be the primary result of its adoption.[93]

Physicians who have been excluded from workers' compensation by competitors who also serve as

enforcers of the ACOEM Practice Guidelines are considering legal action. Many actions by professional associations, including those that tend to have the effect of excluding competitors or groups of competitors, are subject to antitrust scrutiny. As a general proposition, an association may be liable under Section 1 of the Sherman Act, 15 U.S.C. § 1, for engaging in exclusionary conduct intended to harm providers of products or services that pose a potential competitive threat to its members. Indeed, courts have found professional associations or societies liable for unreasonable exclusionary behavior, including behavior growing out of the adoption of standards, practice guidelines, and the like.[94,95]

OCCUPATIONAL CANCER

NIOSH estimates that well over 20,000 cancer deaths and 40,000 new cases of cancer each year in the United States are attributable to occupation.[96] These numbers are underestimates, given that cancers most often manifest after workers, retirement and follow-up is less than complete or consistent. Ex-workers dying of "old age" are rarely autopsied for other underlying or concomitant reasons for death. Some insist that within the dwindling blue-collar workforce as many as 25% of workers exposed to carcinogens will get cancer directly from their workplace exposures. Although occupational cancers are totally preventable, workers continue to be exposed to carcinogens, possibly because few cases are reported, are awarded benefits, or are successful in litigation, so employers escape their workers' compensation obligation.[97–99] Lorenzo Tomatis, former Director of the International Agency for Research on Cancer in Lyon, France, has published extensively on chemical carcinogenesis. Many of these articles are in the public health area of primary prevention, where ACOEM should be active.[100–102] With the exception of cancers caused by exposures to asbestos, less than 1% of occupational cancer cases ever receive workers' compensation benefits from employers.[89] These tens of thousands of deaths every year are not inevitable. They could be avoided, sometimes quite easily, if employers agreed to replace carcinogens with nontoxic or less toxic substances or if they conducted appropriate training and enforced elementary prevention measures. Often simple engineering changes geared toward reducing exposures to industrial carcinogens can lead quickly to less hazardous levels.

If ever there was an area of concern in occupational health that ACOEM could address with authority, it is occupational cancer. As many as 15,000 of the 100,000 commonly used industrial chemicals are carcinogenic to humans. Millions of U.S. workers are exposed to substances that have been tested and found to be carcinogens in animal studies, yet less than 2% of chemicals in commerce have been adequately tested for carcinogenicity.[96] This appalling fact goes largely ignored by ACOEM and its members, and by governmental health and regulatory agencies.

IARC lists 101 known humans carcinogens, of which 19 are present in poorly defined exposure circumstances—typically work situations such as aluminum production, coke production, iron/steel founding, and the rubber industry—with many of the remaining 66 human carcinogens being industrial chemicals or metals such as 4-aminobiphenyl, benzene, benzidine, beryllium, 1,3-butadiene, cadmium, chromium, formaldehyde, 2-naphthylamine, nickel, and vinyl chloride. Moreover, and often ignored, IARC lists 69 additional agents as being carcinogenic to humans. Six are present in industrial exposure circumstances, including art glass, glass containers, and pressed ware manufacture, carbon electrode manufacture, and petroleum refining. Chemical exposures include acrylamide, benzidine dyes, chlorinated toluenes, 4-chloro-ortho-toluidine and ortho-toluidine, diethyl and dimethyl sulfate, epichlorohydrin, ethylene dibromide, glycidol, lead compounds, styrene-7,8-oxide, tetrachloroethylene, trichloroethylene, vinyl bromide, and vinyl fluoride. In their next category of chemicals considered "probable carcinogenic to humans" are listed 245 agents. Thus IARC considers 167 agents (18%) out of the 932 evaluated as carcinogenic to humans. One must remember that IARC evaluates chemicals/agents only if there are published human or animal cancer data, or both.

On Labor Day, 2006, ACOEM published a checklist on "Controlling Cancer in the Workplace." ACOEM's checklist was developed in conjunction with the CEO Roundtable on Cancer, an industry group which developed the CEO Cancer Gold Standard™, a series of recommendations for employers to fight cancer, comprised of 13 accredited companies with 16 others, mostly pharmaceutical companies. The current FDA Commissioner, Andrew von Eschenbach, is a Roundtable Member.[103] The first three pillars of the CEO Cancer Gold Standard, Tobacco Use, Diet & Nutrition, and Physical Activity, address risk reduction. The fourth pillar, Screening & Early Detection, sets guidelines for detecting cancer at the early stages, and finally, the fifth pillar, Access to Quality Treatment and Clinical Trials, ensures that employees and their family members have access to the best available cancer treatment. All laudable goals, to be sure, but preventing and eliminating exposures to known and suspected carcinogens or chemicals in general are nowhere to be found.

In the introduction to the ACOEM checklist, the ACOEM President stated that,

> The identification of occupational cancers and the reduction of occupational cancer rates in the United States due to uncontrolled exposures has been a major public health success and how to do it is well known, but more remains to be done. Cancer remains a leading cause of lost productive and otherwise vital years, including among younger work-

> ers. We know that many cancers are not recognized as arising out of work because they occur years after exposure, often after retirement. We need to recommit ourselves to prevent cancer and to make work as safe as it can be, and this year's Checklist is a first step.[103]

Obviously, to say if cancer occurs years after exposure or in retirement then the cancer can not be work-related is simply false and malicious, and a tactic to circumvent legitimate compensation for work-caused/associated illnesses.

The ACOEM checklist purports to deal with cancer in the workplace. Only one thing is missing: reducing exposures to workplace carcinogens and to those mounting numbers of untested chemicals and nonspecific exposure circumstances. Also missing from the "Resources" page is any mention of OSHA, NIOSH, or EPA. However, members of the CEO include those from DHHS, NCI, FDA, CDC, and DOD. Instead of devoting their time and resources to telling people they smoke too much and don't eat well, occupational physicians, organized by ACOEM, should use this opportunity to direct more needed attention to carcinogenic exposures in the workplace. For a workplace health organization such as ACOEM to just melt into the throngs and choose lifestyle factors such as smoking and diet as the main focus of their anti-cancer campaign is, as one occupational physician put it two years ago, "an embarrassment to occupational medicine."[104]

CONFLICTS OF INTEREST

Occupational health professionals are subject to many conflicting pressures. Most of these pressures arise from the fact that employers and insurance companies fund occupational health services, and these two entities have overlapping, yet distinct, vested interests.[105–107] Industry money and influence pervade every aspect of occupational medicine. In this financially charged environment, it is difficult to find an occupational physician with the temerity to speak out on behalf of workers. Examples of intellectual and moral independence in occupational and environmental medicine are rare.

Many physicians, toxicologists, and epidemiologists employed by industry and as consultants serve as expert witnesses for the defense of industry against lawsuits initiated by injured workers and citizen victims of environmental pollution. Very few are willing to appear on behalf of workers or community citizens in claims and lawsuits brought against industry.[98,108,109] For every occupational physician willing to take a position on a controversial issue, there are many more that are eager to accept corporate payment to debate the issue, to appear in court as expert witnesses on behalf of employers, to conduct self-serving scientific investigations and the publication of industry-friendly papers, or to make biased interpretations of the findings of other investigators. Some of the most lucrative opportunities for these "expert witnesses" are in environmental lawsuits where the experts appear on behalf of companies with long histories of environmental violations.[52,110] Several recent decisions by the U.S. Supreme Court have strengthened the gatekeeper role of federal courts to consider and exclude medical testimony regarding injuries associated with exposures to toxic substances. Judges are expected to examine the basis of all expert testimony before it is introduced at trial to ensure that it meets the same standards of intellectual rigor that professionals use outside the courtroom. However, courts have been inconsistent in measuring this testimony against the standards of medical practice, especially when courts consider testimony that is not supported by clinical trials or epidemiologic studies.[111]

ACOEM provides a façade of legitimacy for these activities of its members by publishing a Code of Ethical Conduct in Occupational and Environmental Medicine.[112,113] The Code is vague and unenforceable, and although criticized by a few ACOEM members, never substantially amended or corrected.[114–116] In fact, important provisions in the Code relating to avoidance of conflicts of interest and unethical behavior were removed in 1993.[117] There is no provision for "transparency" in the Code, thus allowing ACOEM to conduct its legislative activities in total secrecy. A transparency policy has been suggested for all organizations, but is uniformly ignored.[118] Moreover, ACOEM has not required its members to sign a Declaration of Conflict of Interest when participating in the organization.

ACOEM tries to establish its relevance by issuing "guidelines for worker protection." When the U.S. Centers for Disease Control and Prevention (CDC) issued Guidelines for Preventing the Transmission of Tuberculosis in Health Care Workers, ACOEM published a mirror image document entitled, "ACOEM Guidelines for Protecting Health Care Workers against Tuberculosis."[119] Long after control measures for environmental tobacco smoke were instituted in major states and industries, ACOEM published a position statement that belatedly reviewed the scientific basis for such an action.[120] Despite the availability of many reliable literature surveys and management recommendations, ACOEM published the ACOEM Reproductive Hazard Management Guidelines, a conservative summary of reproductive risks in the workplace, and outlined how industry might address or avoid them.[121]

JOEM

The ACOEM takes industry positions on virtually all issues, and its official journal, the *Journal of Occupational and Environmental Medicine* (JOEM), is decidedly pro-industry in its editorial policy and publications.[122–124] All ACOEM members subscribe to JOEM as

part of their memberships. Any journal of occupational and environmental health should eschew corporate interests, but JOEM journalistic policy since its inception demonstrates the journal's lack of scientific objectivity. No one knows the level to which medical and scientific literature has been influenced by deliberately biased publication.[125]

Industry Favoritism

Recently, David Egilman, of Brown University, submitted a letter to JOEM that criticized a Dow-sponsored study. Egilman claimed the study had obfuscated the occupational origin of mesotheliomas that had occurred at a Dow facility, and that Dow had not informed the union of the study results. Dow investigators claimed that the mesotheliomas found among Dow workers "do not suggest an occupational etiology."[126] The study was conducted in a plant that not only had thousands of feet of pipes covered in asbestos insulation, but also used thousands of tons of asbestos in the manufacture of cells for chlorine production. Given these facts, most scientists would conclude that mesotheliomas within the worker population provided persuasive evidence of occupational etiology.[127] Egilman paid to have the letter published as an advertisement. The current JOEM Editor, Paul Brandt-Rauf, stated that the JOEM should not have published this information. Brandt-Rauf invited Dow scientists to publish a response to Egilman, but failed to publish a letter from the union president that supported Egilman's contention. He refused to consider any response by Egilman. The Dow response defended a study on worker mortality Egilman had criticized in his letter.[128]

By granting Dow scientists access to the circulation of its journal while denying the same access to Egilman and others, JOEM contributed to the cover-up of information harmful to Dow, a favoritism it shows to many corporate sponsors of research. Corporate scientists often work behind a wall of secrecy erected to protect corporate sponsors. As Egilman noted,

> This wall of secrecy is the antithesis of what science should be: an ongoing open process in which theses and data are open to examination, critique and re-examination. A reputable journal has a responsibility to eschew corporate interests and work to uncover science hidden by interests that do not prioritize the pursuit of truth.[128]

Egilman further points out that JOEM's bias not only consists of failure to publish important material, it includes the publication of studies that promote corporate interests but do not meet well-established peer-review criteria. Jennifer Sass exposed such a case wherein the toxic anti-thyroidic chemical perchlorate, used in rocket fuel, leached from military dumpsites into public drinking water sources, contaminating the water at dangerous levels in many states. The Department of Defense and its contractor Lockheed Martin used obfuscation to wage a campaign to slow or block EPA regulatory measures that might cost defense contractors billions of dollars in cleanup and liability.[129]

Marginal Peer Review Policies

A faculty member from the University of California School of Public Health in Berkeley, together with a scientist from Exponent, a consulting firm that works under contract with government and industry, published a study titled "Primary Congenital Hypothyroidism, Newborn Thyroid Function and Environmental Perchlorate Exposure among Residents of a Southern California Community" in JOEM in 2003. Lockheed, a major user of perchlorate, funded the study, which reported that "residence in a community with potential perchlorate exposure has not impacted primary congenital hypothyroidism rates or newborn thyroid function."[130] JOEM sent an e-mail to the authors rejecting the article following peer review. But after the author from UC Berkeley, a member of the journal's editorial board, contacted the Editor, he told her to ignore the rejection, that JOEM would publish the study.[128] Decisions such as this can be made in the interest of friendship, collegiality, and loyalty to industry sponsors, and often are.[125] But the goal of any scientific journal is to publish objective science, not to protect scientists from the loss of corporate consulting fees. The peer review policies at JOEM appear to be minimal, and dominated by industry-oriented scientists and clinicians.

There are only a few other journals in occupational and environmental health that have garnered the criticism leveled at JOEM. Another industry-friendly journal with little or no hesitancy in publishing pro-industry papers is *Regulatory Toxicology and Pharmacology*, edited currently by Gio Gori. It often does not identify conflicts of interest of authors.[131] Divulging industry affiliations and funding in papers and correspondences are necessary for transparency.[132–134] Even national and international governmental organizations have been slow to adopt and enforce conflict-of-interest principles and rules of conduct,[135–142] although these are being evaluated or already instituted.[143]

Scientific Fraud

One recent event is considered by many scientists and clinicians to be nothing less than scientific fraud on the part of JOEM and its editorial staff. JOEM recently published a retraction of a 1997 article authored by two Chinese scientists, Jian Dong Zhang and Shu Kun Li.[144]

The article appeared to be a reversal of an earlier study by Zhang that found a significant association between chromium pollution of drinking water and higher rates of cancer in China. After its publication, the fraudulent article influenced a number of state and federal regulatory decisions on chromium.

An investigation by the *Wall Street Journal* found that Zhang and Li were not the actual authors of the article published in JOEM.[145] The article was actually the work of ChemRisk, a San Francisco–based consulting firm whose clients include corporations responsible for chromium pollution. In this case, ChemRisk was working for Pacific Gas & Electric (PG&E), a San Francisco–based utility whose dumping of the industrial chemical chromium(VI) had contaminated the drinking water of the small town of Hinkley, California. Hinkley residents' lawsuit against the company, the subject of a popular movie, cost PG&E more than $300 million to settle.[123]

The retraction published by JOEM stated that,

> It has been brought to our attention that an article published in JOEM in the April 1997 issue by Zhang and Li failed to meet the journal's published editorial policy in effect at that time. Specifically, financial and intellectual input to the paper by outside parties was not disclosed.[145]

JOEM's retraction statement deliberately avoided the many accusations of scientific fraud. The *Wall Street Journal* article stated that, "In a black eye for scientific publishing, the medical journal that published an influential study exonerating chromium-contaminated water from causing high rates of cancer is planning to retract the article." [145] The fallibility of JOEM, and of its sponsor, ACOEM, as servants of industry is corroborated by these and many other examples.

SCIENTIFIC ADVISORY BOARDS

Corporations and industries use various tactics to obscure the fact that their products are dangerous or deadly. Their aim is to secure the least restrictive possible regulatory environment and avert legal liability for deaths or injuries in order to maximize profit. They work with attorneys and public relations professionals, using scientists, science advisory boards; front groups, industry organizations, think tanks, and the media to influence scientific and popular opinion of the risks of their products or processes. The strategy, which depends on corrupt science, profits corporations at the expense of public health.[109,146]

In 2001, the California Department of Health Services (CDHS) withdrew its chromium(VI) water-quality standard of 2.5 ppb. The standard, established in 1999, had represented a significant decrease from the prior state-legislated 50 ppb level. The State withdrew the more protective standard just three months after the publication of a report written by a "blue-ribbon panel."[147] The panel had been established in part to review findings of risk of exposure to chromium (VI). The panel's report asserted that chromium(VI) is not carcinogenic when ingested orally.[123] However, the findings of the report and the subsequent withdrawal by the CDHS of its 1999 standard were not based on valid science, but were rather the cumulative result of industrial scientific corruption by PG&E and ChemRisk.[148] In May 2007, the NTP reported the first evidence that Cr VI in drinking water caused cancers in rats and mice.[149]

Industry engages law and public relations firms to implement its protective strategy. But it becomes even more ethically serious when scientists are willing to bend scientific processes to achieve the doubt needed to forestall public health interventions. Corporate domination of the chromium(VI) toxicity "blue-ribbon panel" is emblematic of the corporate influence on science. PG&E, through a consultant scientist, managed to seed the literature with one high-profile study engineered solely to cast doubt on the toxicity of chromium (VI). In 1996, the consultant's firm, ChemRisk, advised the coalition of chrome industries of the need to create peer-reviewed pro-industry research. By midyear, the firm had no less than eight industry-supported research articles under review. Later in 2001, with an epidemiologic review based almost completely on work conducted by industry consultants, the "blue-ribbon panel," not surprisingly, concluded that,

> Taken together the epidemiological data on chromium(VI) exposure from environmental sources (as opposed to generally much higher occupational exposures) provide no support for a causal association for exposure of chromium(VI) and site-specific or overall cancer mortality for the general public.[147]

The similarity in word and intent to industry-funded documents was no accident. Industry influence drove the actions and conclusions of the panel.[150]

ACOEM members often participate on scientific advisory boards such as the PG&E panel. All too often, scientific advisory boards are not truly independent advisors, but rather groups of scientists who publish favorable research, speak for industry interests at regulatory hearings and in the press, and testify as expert witnesses in tort-litigation lawsuits. For example, the tobacco companies established the Center for Tobacco Research Scientific Advisory Board, the beryllium companies established the Beryllium Industry Scientific Advisory Committee, and the Semiconductor Industry Association established a scientific advisory board to help steer it through its defense of a widespread use of carcinogens. Likewise, industry formed a Phthalates Institute and a Formaldehyde Institute to overturn or obviate significant cancer findings in animal studies, and, for the latter, convincing evidence in humans. A

scientific advisory board can pose as an impartial, authorized scientific body while in fact furthering industry goals of generating favorable science, influencing public opinion, and avoiding liability.[109] Moreover, the experts who participate in the working groups that develop industrial health and safety standards are largely industry-supported. As an example, corporate representatives—rather than independent scientists—were given primary responsibility for developing threshold limit values (TLVs) for more than 100 substances, including at least 36 carcinogens.[26]

Another problem comes from governmental agencies' outsourcing of work to the private sector for doing research or writing evaluative reports. An example concerns the NTP that was in the process of evaluating potential reproductive hazards of exposures to the animal carcinogen bisphenol A (BPA), used primarily to make polycarbonate plastic and epoxy resins. The group chosen by the NTP to write its reproductive-risk documents, Sciences International, was discovered to have considerable contracts with industry, and was actually writing documents for industry regarding the same BPA.[151,152] The government canceled this contract in April 2007, the third year of a multiyear contract to investigate Sciences International's performance on documents on BPA and 20 other chemicals. A similar issue may exist with the NTP Report on Carcinogens, whereby background documents on chemical carcinogens are likewise prepared by a contractor.

RESEARCH

The extent of corporate-funded science is troubling because, as Egilman and Bohme have pointed out, industry funding is accompanied by a "substantial tradition of manipulation of evidence, data, and analysis, ultimately designed to maintain favorable conditions for industry, at both the material and ideological levels."[21] There is a growing loss of faith in the science of occupational and environmental medicine, toxicology, and epidemiology because so much of it is funded and manipulated by industry sponsors and published in journals that do not require disclosures of conflicts of interest.[58,153–155] The integrity of industry-funded research cannot be ensured by the current system of oversight.[125,156] When industry funds a study, even one conducted by government, research questions can be posed in such a way that the outcome is certain, or an investigation can be put in the hands of someone known to conduct studies and interpret results in certain ways.[77,157] Only recently have scientific journals begun to publish ad hominem accounts of the lucrative consultative efforts of experts, often from academic institutions, in service to various industries.[21,58,97,122,146,155] The problem is not so much that industry scientists publish skewed findings to benefit their employers, we already know this; the difficulty comes when university scientists beholden to industry publish slanted findings, and keep hidden their industry funding source connections.

One way to obtain a reliably negative result is to design a study that by limited statistical power has little likelihood of demonstrating an effect.[157] This appears to be the method of choice to obfuscate health and safety issues in the semiconductor industry.[158] It has been repeatedly used to advantage to dismiss concerns about reproductive and cancer risks. Industry-supported studies fail to show a risk when they report on mortality in the entire workforce only—managers, secretaries, sales staff, all of them – which gravely dilutes any possible health effects on the workers most likely to have high exposure levels.[159]

ERGONOMIC STANDARD

In 1992, OSHA noted that the most frequently reported disorders were associated with repeated trauma, and that many were caused by ergonomic situations. In response, OSHA began rule making for a standard to control ergonomic exposures. OSHA circulated drafts of a proposed Ergonomics Program Standard beginning in 1994.[160] Under the Standard, employers would be required to develop multifaceted programs to include prevention, education, and treatment. Early advocates pointed out that progress in preventing musculoskeletal injuries and illness would depend on the cooperation and availability of trained safety and health professionals. The design effort should be multidisciplinary, with inputs from medical personnel, engineers, ergonomists, and workers.[161]

Initially, ACOEM supported the proposed OSHA Ergonomics Standard. The final standard was published in the *Federal Register* on November 15, 2000. On the very next day, ACOEM issued a press release announcing its opposition to the final ergonomics standard. ACOEM became the only major medical association previously supporting the standard to withdraw its support. ACOEM had previously submitted several recommendations which would have established a firm medical basis for the diagnosis and treatment of musculoskeletal disorders. The ACOEM press release stated,

> Fundamental to an effective standard is a process to verify the diagnosis of a musculoskeletal disorder and to determine that the injury or disorder is directly related to workplace duties. Throughout the past two years of the rulemaking process, ACOEM has consistently urged OSHA to limit implementation of the standard only to work-related disorders for which credible scientific evidence exists. Yet, the final standard appears to require neither a medical diagnosis nor a causal assessment.[162]

JOEM published an editorial that was nothing short of a denunciatory attack on the proposed standard. The author challenged the assumption that

> OSHA-recordable musculoskeletal disorders are valid indicators of the existence of a causal biomechanical hazard. That is the basis for their charge to the employer to identify the biomechanical hazard and institute "commonsense" measures to effect a "material reduction" in "biomechanical exposure" as remedy. This is not a logical conclusion. Furthermore, it is a remedy that has disappointed for nearly 50 years and remains unproven to this day.[163]

Despite compelling evidence to the contrary, and thus for the need for an ergonomic standard, Congress subsequently overturned the regulation, folding under intense industry and industry-lobbying efforts. [164,165] ACOEM protected the stakes of its clinician members unhappy with the proposed standard by publishing the opinions of the academics among them who supported their position.

The ACOEM position is another "paralysis by analysis" action to delay standards and regulations. It is the main dodge used by industry to prevent any regulation. What standards were there by which to identify "scientifically" which injuries were occupationally caused? There is a considerable body of evidence to identify workplace ergonomic issues on a scientific basis, but ACOEM did not cite them when it reversed its position. Keyserling and Chaffin presented several analytical methods for measuring and evaluating physical stress in the workplace prior to the OSHA Ergonomics Standard. "In almost all instances in which it is found to be excessive, stress can be reduced to acceptable levels by applying ergonomic principles to the design of facilities, processes, equipment, tools, and work methods."[161] Chaffin continues to present the need to improve existing digital human models so they are better able to serve as effective ergonomics analysis and design tools.[165] Instead, the vast majority of ergonomic injuries go unrecognized and unreported.[166–169]

DRUG AND ALCOHOL TESTING

ACOEM is an enthusiastic supporter of drug and alcohol testing in the workplace. It established what it called ethical guidelines for drug screening in the workplace in 1986, and since that time has included the training of its members in testing-program management courses.[170] The ACOEM contends that, "If carefully designed and carried out, programs for the screening of employees and applicants for drugs, including alcohol, serve to protect and improve employee health and safety in an ethically acceptable manner."[171] ACOEM courses offer current and aspiring medical review officers (MROs) an opportunity to increase and update their knowledge and familiarity with changes in substance-abuse testing and federal regulations affecting the role of MROs. The courses provide an opportunity to comply with the mandatory Department of Transportation requirements of MRO training and certification.

Part of the reason drug and alcohol testing is so popular is that it is profitable to ACOEM members. Many physicians oppose the requirement that physicians do the drug and alcohol testing. In areas where testing is vital, they contend that safety personnel would be more appropriate to the task. Even some ACOEM members see the problem with this form of police medicine. Lippin asserts that, "The MRO movement and industry will be recorded in the history of our profession as an ethical low ground. Because of the failure of U.S. drug policy, a large number of occupational physicians were drawn away from therapeutics into all but exclusively policing and punitive roles."[172] Draper observes that, "some doctors protest that corporate drug testing undermines whatever credibility and employee trust they may have been able to cultivate, but that concern deserves more attention."[173] It is a matter of widespread concern that this practice of police medicine may lead companies in the future to genetic screening of workers, and other controversial tasks that are made to look acceptable because physicians are involved.

AFFILIATED ORGANIZATIONS

Many of the academic occupational and environmental medical clinics are located at teaching hospitals, where faculty members often serve as consultants to industry.[21,122,123,129] Academic occupational physicians network with other consultants in the private sector by attending the annual ACOEM meeting.[174] There, they conduct a meeting of the OEM Residency Directors, who also frequently augment their incomes by consulting with industry, acting as expert witnesses in litigation cases, and in conducting research sponsored by industry.[21,58,135] Moreover, many NIOSH and OSHA personnel participate in these ACOEM activities and meetings, and many agency employees and retirees become consultants to industry and serve as expert witnesses in litigation. This complex web of interdependencies provides collegiality and professional stature to the activity, but often masks the underlying reality that occupational and environmental health are not being well served.

Some academic occupational and environmental medical clinics are in the Association of Occupational and Environmental Clinics (AOEC).[175] In recent years, ACOEM has cultivated an affiliation with AOEC that may ultimately damage the integrity of the clinics. Many of the officers and members of the two organizations are now the same individuals, with the same conflicts of interest. The Agency for Toxic Substances and Disease Registry (ATSDR) provides more than $1 million in funding to AOEC each year to assist in research and development of initiatives.[176] AOEC is charged with developing curriculum materials for occupational and environmental health education and providing continuing education programs for primary care practitioners and other health care providers.[177] ACOEM

and AOEC often work jointly, and advance policy recommendations that go into government proposals and health directives.[112,115,177]

Because of concern about conflicts of interests, AOEC sought to develop a position on ethical conduct. It is a disappointment that AOEC turned to the International Commission on Occupational Health (ICOH) for a code of ethics to emulate. The AOEC board of directors in 1996 recommended that the organization adopt the ICOH International Code of Ethics, one noted for its entirely voluntary and unenforceable provisions.[115,118] Goodman had warned that, "A bad or shallow code is worse than none at all."[114] Goodman's warning went unheeded. Many of the same people who met on behalf of AOEC later met again, this time representing ACOEM, and followed the ICOH precedent since it had served their purposes before.[112] The ICOH is widely recognized for its support of industry.[153,178] ICOH committees have advanced the interests of asbestos mining and manufacture, chemicals, and pesticides.[179–182] The ICOH membership and activities are similar to those of ACOEM, only conducted on a global scale. ACOEM and ICOH conduct joint meetings and share common philosophies and practices.[183]

STATEMENT ON MOLD

The ACOEM Statement on Mold was introduced in 2002 as an evidence-based statement and published in JOEM.[184] The policy statement by ACOEM is that mold exposure in an indoor environment could not plausibly reach a level of exposure to cause toxic health effects. Reported to be a review of scientific literature on the subject of illnesses caused by molds and the toxins they may produce, ACOEM concluded that,

> Levels of exposure in the indoor environment, dose–response data in animals, and dose-rate considerations suggest that delivery by the inhalation route of a toxic dose of mycotoxins in the indoor environment is highly unlikely at best, even for the hypothetically most vulnerable subpopulations.

However, none of the references cited in the JOEM paper and in the ACOEM Statement on Mold arrive at this conclusion.[185,186] To form this conclusion, the authors made their own calculations from a single rodent study conducted by other investigators.

The matter of ACOEM conflicts of interest was detailed in a front page *Wall Street Journal* article, January 9, 2007, "Court of Opinion Amid Suits Over Mold, Experts Wear Two Hats: Authors of Science Paper Often Cited by Defense Also Help in Litigation."[187] The result of a six-month investigation, the *Wall Street Journal* article outlined how three authors who frequently testified in mold lawsuits as experts for the defense were specifically selected by ACOEM to write the ACOEM position statement on mold. One of the three, Bryan Hardin, had recently retired from NIOSH. The *Wall Street Journal* quoted a senior toxicologist for the Washington State Department of Health, "They [the ACOEM authors] took hypothetical exposure and hypothetical toxicity and jumped to the conclusion there is nothing there." ACOEM predictably defended its message and the authors, stating that it was not alone in its interpretation of the evidence.[188]

The issue that ACOEM refused to address was that the ACOEM Statement on Mold was written with no apparent effort to determine the conflicts of interest among the authors. One of the authors had published a review article on mold in 2000 stating that there were no health effects.[189] The authors had extensive experience as consultants to many industries and as defense witnesses in court cases. Authorship of the ACOEM Statement on Mold advanced the interests of industry and advanced the reputations with industry of the authors, who went on to aid the industry in defending against claims.

Jonathan Borak, in charge of the peer review of the ACOEM Statement on Mold, reported to the ACOEM officers and executive director in 2002,

> I am having quite a challenge in finding an acceptable path for the proposed position paper on mold. Even though a great deal of work has gone into it, it seems difficult to satisfy a sufficient spectrum of the College, or at least those concerned enough to voice their views. I have received several sets of comments that find the current version, much revised, to still be a defense argument. On the other hand, Bryan Hardin and his colleagues are not willing to further dilute the paper. They have done a lot, and I am concerned that we will soon have to either endorse it or let it go. I do not want to go to the Board of Directors and then be rejected. That would be an important violation of Bryan. I have assured him that if we do not use it he can freely make whatever other uses he might want to make. If we "officially" reject it, then we turn his efforts into garbage.[190]

In the spring of 2003, Veritox, a risk-management company that provides defense testimony in mold litigation, and of which two of the authors of the JOEM article are principals, was paid $40,000 by the Manhattan Institute to convert the ACOEM Statement on Mold into a "lay translation" to be shared through the United States Chamber of Commerce with stakeholder industries—real estate, mortgage, construction, and insurance. The authors unfairly presented the essence of the mold controversy as, "Thus the notion that 'toxic mold' is an insidious secret 'killer' as so many media reports and trial lawyers would claim is 'junk science' unsupported by actual scientific study." The Chamber of Commerce presents the benign Veritox interpretation of mold as,

> Hardin and his team of scientists provide a detailed primer on mold in A Scientific View of the Health

> Effects of Mold. Fungi, they point out, play an "essential role in the cycle of life as the principal decomposers of organic matter, converting dead organic material into simpler chemical forms that can in turn be used by plants for their growth and nutritional needs. Without fungi performing this essential function, plant and animal debris would simply accumulate." Mold is everywhere.[191]

The authors and many other ACOEM members have cited the JOEM paper and the ACOEM Statement on Mold before the courts in an effort to deny illness claims when testifying as experts on behalf of those with financial stakes in the building and finance industries.[192] Although the defense testimony has been deemed to be an unscientific nonsequitur by the Institute of Medicine[186] and by the courts,[193] ACOEM continues to deny that there is any basis in fact to dispute its position statement.[188]

To make matters worse, ACOEM and AOEC together mocked the mold victims who gave interviews to the *Wall Street Journal* in an Internet message that they falsely attributed to the *FDA News* as an April Fool's joke. Government symbols appeared on the ACOEM-AOEC message, and the contact information was a legitimate FDA phone number.[194] Principals in both organizations later sent a note of apology to the mold victims, saying that they were the sole authors, but the note of apology was not sent to the international distribution of the phony *FDA News* that was received by thousands of occupational and environmental physicians around the world, who would not be expected to notice the potential significance of an April 1 date on official FDA letterhead.[195]

As a result of the organizational biases, the close affiliations with industry, funding and contracts from government agencies, and the perverse influence over the practice of medicine and the appearances in court of company-sponsored experts, the ACOEM Statement on Mold has exerted far too much influence.[196–198] The ACOEM Statement on Mold brings into serious question the objectivity of those formulating position papers; and of equal concern, the ethics of those who profit from the position taken by ACOEM and AOEC.[199]

REFORM

The workers' compensation model of occupational and environmental medicine should be converted to a public health model. Occupational and environmental medicine, as a part of the public health infrastructure, could play a much more substantive part in bringing about a national program to deal with occupational and environmental health. Abolishing workers' compensation would remove the perverse incentives that currently undermine the practice of occupational medicine.[89] If occupational physicians were not protected from litigation by workers' compensation law, there would be much less attention paid to the interests of employers, and a lot more concern for the wellbeing of workers. It is also likely that there would be far fewer health and safety professionals working for companies. The vacuum could be filled by health and safety professionals with public health training working in settings that are much less likely to respond to the influence of corporations and insurers. Medical care for workers should be provided without question or clearance criteria by health care professionals who are not subject to influence by employers or insurers. ACOEM has supported, "changes in regulatory and procedural areas that have made recovery from injuries unnecessarily complicated in the workers' compensation system," but has not supported fundamental change to the system itself.[200]

In the area of professional competence, ACOEM publishes lofty recommendations for competencies, but is woefully short on ideas of how to provide them to its members.[201] The primary purpose of the sketchy training offered by ACOEM is to increase membership in a failing organization. The short courses and introductory sessions conducted by ACOEM at its annual gatherings are wholly insufficient, and merely provide the pretence of training and background that assures the membership of new physicians to replace the losses of recent years.

BACK TO THE FUTURE

In 1977, Irving R. Tabershaw gave an address entitled "The Health of the Enterprise" to the ACOEM annual meeting. He noted that occupational medicine had come under public scrutiny with the passage of the OSHAct. The public, according to Tabershaw, wondered whether the occupational physician was the agent of the employer or the employee. His answer became a historic defense of industry-supported medicine, and initiated the stunning growth in industry consultants in the years that followed that continues to the present.

> It is evident that the basic ethical and moral responsibility of all physicians, including occupational physicians, is to safeguard the health of the individual—the worker. There is, however, another consideration—'the health of the enterprise'—in which the employee earns his livelihood and which retains and pays for the services of the occupational physician.[1]

Although mindful of the difficulty in doing so, Tabershaw defended the practice of occupational medicine, and if anything, called for a major expansion of its breadth and scope. He referred to, "our responsibility for the total health of the enterprise, be it a corporation, a conglomerate, a multinational, a nonprofit institute, an educational institution, or a privately owned company." This clever sleight of hand drew

physicians from many settings into the same overtly conflicted role as the company doctor, even many of the academics such as himself. By his careful choice of words, he set many physicians on a road to consulting with industry, a gold mine of opportunity for hundreds of occupational physicians that is seldom mentioned with candor in occupational and environmental health circles, even to this day. [202] The ACOEM provides a professional association to the growing number of industry consultants whose work is almost never seen by the public or understood by other health care providers.

Tabershaw was an interesting choice to deliver an address on the ethics of occupational medicine practice. He had accumulated great personal wealth by consulting with many industries. His address, although dwelling on the issues that face practicing occupational physicians, managed never to mention the ethical and moral issues faced by those of his colleagues who provided advice and forensic services to companies for which they worked or consulted. The speech was about to end when he really announced his topic.

> But this lecture would not be complete if I omitted the most glaring deficiency in our ability to exercise this responsibility. While the issues of our loyalties are debated, our major failure is not what our social critics accuse us of, it is not our ethics, our moral fiber, or our conscience. But our failure, in many instances, is the lack of competence to assist management and labor to make judgments on health matters of concern to the entire enterprise.[1]

An innocent-sounding statement to be sure, yet one that sets the agenda for continued compromise of worker health for the financial benefit of "management" in the name of "the entire enterprise."

Tabershaw today would address the annual meeting of ACOEM probably saying largely the same thing, but there would be fewer company doctors in the audience, and many more occupational physicians who serve as industry consultants. The company doctor is a dying institution, viewed with ambivalence by the rest of medicine.[89,203] Public perception of company doctors as "poorly qualified and in the back pocket of management" is not without merit.[203] Each year at the ACOEM annual meeting, the company doctors confer the Corporate Health Achievement Award on one of their group, perpetuating the notion that they serve some important purpose working for companies.

Petrochemical company doctors in ACOEM recently blocked attempts to have the organization take a stand on global warming. ACOEM President Tee Guidotti observed that,

> A significant but small subset are anthropogenic global warming skeptics and blocked an effort for ACOEM to take a position on this issue. A few others oppose ACOEM taking a strong advocacy position on environmental topics, such as particulate air pollution, and blocked that. However, the membership of ACOEM is highly diverse. There are members who are motivated by values, others who do it because it comes with job. As President, I thought that it would be a better strategy in this case to lay out a values-neutral case for occupational medicine to be involved in environmental medicine. This also has the advantage of encouraging members of all persuasions to learn more about the issues and as they do, their understanding will increase. Coming at it from a strictly values orientation would provoke too much pushback at this time. Greening takes an incremental approach.[204]

ACOEM members have pointed out that the organization's Code for Ethical Conduct does not adequately address the public health orientation of occupational and environmental medicine, the need for primary prevention, medical surveillance, and worker training and protection, but to no avail.[112] ACOEM has begun to use the term "public health" when referring to the activities of its members, asserting that, "Occupational physicians are public health professionals for the employed population."[205] It is encouraging that ACOEM sees a future for occupational physicians in public health, but first it must address the issue of who pays for their services and controls their behavior. The fact is that members of ACOEM are paid by companies and by the insurance industry.

The conflict of interests inherent in the practice of occupational and environmental medicine is not resolved by the ineffectual efforts of the ACOEM to establish a code of conduct. Occupational health and safety should be placed over and above financial gain and not remain ensconced as a continuing fantasized and patronizing propaganda cover for these organizations. The specialty of occupational and environmental medicine has the opportunity to join the public health movement. If it does, ACOEM will have no further purpose, and specialists in occupational and environmental medicine will meet with and be represented by public health associations for the exclusive purpose of workers' health and safety.

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The ACOEM was approached for access to materials that exist in archives at their headquarters. The letter request was sent to the President and brought to the attention of the Executive Committee and the Executive Director. The ACOEM replied that "such access to ACOEM archives is not practical at this time."

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