Commentary

Abstracts from the Collegium Ramazzini

Vested interests, whose primary goal is to protect markets for products which frequently have hazardous potentials, are increasingly combined with distortion of science applied in legislation, policy-making, standard-setting and legal proceedings. The Collegium Ramazzini held a panel entitled "Corporate Influence Threatens the Public's Health" on November 1, 2018 at the Annual Ramazzini Days in Carpi, Italy, which drew attention to these hazardous malfeasances. Strategies to meet the related ongoing challenges by promoting and protecting the integrity of research, the welfare of patients and society, and the quality of medical/health education, were debated. The following conference abstracts as well as a related commentary (see this issue) were originally published in the European Journal of Oncology Vol. 23, No. 3, pp. 121-127, 2018. The authors and editor of the European Journal of Oncology have agreed to re-publish their abstracts in the first issue of the Journal of Scientific Practice and Integrity. The original publication is available from: https://mattioli1885journals.com/index.php/Europeanjournalofoncology.

Corporate influence threatens the Public's Health

Xaver Baur[1] and Colin Soskolne[2]

Health and prosperity are based on independent scientific investigation and discovery. The ability of scientists to research and share information is paramount if the public interest is to be protected. This is best done without interference or censorship by any powerful entity with a vested interest in maintaining the status quo and/or the serving of special interests that are not congruent with the public interest; the latter demean the public policy process and our democratic institutions.

Scientific research in occupational and environmental health provides input to governmental decision-making and regulatory processes. Without access to the best available science, those in the regulatory domain will be unable to make informed decisions based on evidence, thus placing our health, safety, and environment at risk. As public health researchers we advocate with credibility. As trusted professionals, we can reach out to elected officials and local health journalists to educate them about the importance of independent science to both health and safety.

The panel "Corporate Influence Threatens the Public's Health" drew attention to the undermining of scientific integrity by the myriad effects of corporate influence. These effects include the corrosive contamination of editorial boards of peer-reviewed (and therefore presumed credible) scientific journals with the consequent publication of poorly-designed research studies that produce biased results that mislead readers; interference with the independent activities of WHO/IARC; constructing roadblocks for much-needed government regulation of carcinogenic and immunotoxic agents widely present in the workplace and the environment, agents such as pesticides and polyfluoroalkyl substances (PFAS); and the promulgation of "causation" criteria that lack foundation and effectively block workers' access to legal remedies for occupational illness and disease.

A joint commitment is necessary to effectively deal with this expanding threat. The panel debated effective and sustainable steps that can be taken.

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Insights into PFAS toxicity from recent research and from previously undisclosed documents

Philippe Grandjean[1,2]

Background. Perfluorinated alkyl substances (PFAS) have been in use for over sixty years. These highly stable substances were at first thought to be virtually inert and of low toxicity. From the late 1970s, PFAS were detected in blood samples from exposed workers, in the general population, in wildlife, and later also in community water supplies that now seems to affect millions of people in the U.S. Toxicity information slowly emerged on perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Industry-commissioned studies in monkeys showed immunotoxicity and systemic toxicity already in 1978, although not released to the U.S.EPA until 2000; other evidence came to light in connection with law suits.

Methods/Approach. Prospective cohort studies were used to identify immunotoxicity and endocrine disruption risks at background exposures. Carcinogenicity and hepatotoxicity also appear to be relevant risks at prevalent exposure levels. These recent findings were compared with documentation used by regulatory agencies and newly revealed information from PFAS producing industries.

Results. Crucial information discovered in recent years was already known by industry before 2000, as shown by documents released at court trials. Existing U.S. drinking water limits are based on animal tests, without taking into account industry data, and they remain much too high to protect consumers, as revealed by recent research findings.

Conclusions. As risk evaluations assume that untested effects do not require regulatory attention, the greatly underestimated health risks from PFAS exposures illustrate the public health implications of assuming safety of incompletely tested industrial chemicals, or chemicals for which publicly accessible toxicity information is not available.

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Toxic substances environmental regulation in the US. proposed by industry scientists and widely adopted by regulators

Jennifer Sass[1]

Background. The expanded chemical product defense strategy now includes US Congressional Republicans, the White House, and federal agency political appointees. Pending voting by Congress, it includes:

- Attempts to discredit and defund chemical assessment programs like IARC (FY19 Appropriations, Sec 229)
- Re-classification of government-funded scientists as having financial conflicts, blocking them from service on federal advisory committees while permitting industry representatives (the EPA SAB Reform Act of 2017);
- Excluding peer-reviewed studies from regulatory consideration because complete datasets are not made public or they fail to follow the new industry definition of 'best available science' (ACC, March 2017), while favoring industry-sponsored guideline studies (the 2018 Science Transparency Act and TSCA Systematic Review).

Methods/Approach. The scientific community – including many Collegium Fellows – have voiced opposition to these regressive policies. As environmental health experts that include clinicians, epidemiologists, animal toxicologists, and others, we must advocate for chemical assessments that use all available information, evaluated with a systematic review framework that meets globally established best practices, such as the NIEHS NTP-OHAT method, the UCSF Navigational Guide, and SYRINA for endocrine disrupting chemicals.

Results/Conclusions. There is some recent good news from the U.S., as state officials, judges and juries step in to protect public health from corporate influence. Courts delivered a $289 million jury verdict against Monsanto for failure to warn the public of glyphosate cancer risks (based on the 2015 IARC listing). California courts dismissed Monsanto's attempt to discredit IARC, and instead upheld the state's proposal to add glyphosate to the list of substances that cause cancer, which triggers public notification (also based on the IARC listing). Also, the U.S. 9th Circuit Court of Appeals ordered US EPA to implement the ban on chlorpyrifos pesticides that was proposed under President Obama. But, with the move towards more corporate-leaning courts, this may not last long.

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Experiences with glyphosate regulations worldwide: Pressures from industry versus human health

Christopher Portier[1,2,3]

Background. Glyphosate is a broad spectrum herbicide, registered in over 130 countries as of 2010. Since the introduction of genetically-modified crops engineered to be glyphosate-tolerant, the global use of glyphosate has increased over 15-fold making it the most widely used pesticide worldwide.

Methods/Approach. In 2015, IARC formed a Working Group to evaluate the carcinogenicity of glyphosate. The Working Group concluded that glyphosate "is probably carcinogenic to humans (Group 2A)". Prior to the IARC review, regulatory agencies had found no indication that glyphosate was carcinogenic. In fact, both the European Food Safety Agency (EFSA) and the US Environmental Protection Agency (EPA) concluded that glyphosate is unlikely to be a human carcinogen. Why is there a difference between these reviews?

Results. The evidence considered differs between the various regulatory agencies and between them and IARC. These differences do not explain the different interpretations. Scientific flaws in the assessments done by the regulatory authorities drive the difference between them and IARC. EFSA and EPA failed to follow their own guidelines on how to evaluate the available data, especially for the animal carcinogenicity studies. They used historical controls incorrectly, trusted weak industry analyses, incorrectly interpreted trend tests, incorrectly interpreted responses between male and female animals, made no attempt to consider formulations, regarded peer-reviewed studies as inferior to regulatory studies, and made no attempt to objectively evaluate findings in multiple animal studies of the same sex, species and strain.

Conclusions. There is clear evidence to suggest that interactions between regulatory authorities and the regulated community may have influenced the final outcome of these glyphosate reviews. In addition, the scientific flaws in the assessments are partially the result of industry influence that weaken our ability identify carcinogens. This presentation will focus on some of this evidence.

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Corporate assault on public health campaigners in India

T.K. Joshi[1]

Background. Asbestos and silica are the two major agents that have been used for almost a century in India with little consideration for environment and worker health and safety. The big corporate interests owning the businesses have used unscientific information and strong-arm tactics to suppress the truth of serious cancer risk which mining and users of these minerals carry. The Indian Council of Medical Research (ICMR) estimates that some 3 million workers are at risk of silicosis. The asbestos industry claims that asbestos business provides direct and indirect employment to 300,000 workers. The total asbestos use in India in 2016-2017 was 310,570 metric tonnes, nearly all imported. There is no record of the non-malignant and malignant disorders following exposure to these minerals.

Methods/Approach. In 2001, the author as chair of the scientific committee of the Indian Association of Occupational Health (IAOH), held a session in the Annual Scientific Meeting of the association on an Asbestos Ban. Two of the Collegium fellows, Arthur Frank and Barry Castleman flew to India as key speakers to make Indian physicians appreciate the hazards of asbestos. To their surprise the physicians were not only reluctant to accept their view point but also made some contrary comments.

Results. Incensed by the meeting, the Indian asbestos industry launched a massive disinformation campaign to declare that a 'Controlled Use' ensures the safety of workers. At the same time, intimidation and threats were used to silence the scientists and activists who opposed the continued use of asbestos.

Conclusions. The public health campaigners still feel the lack of support from the government for not doing enough to contain the impending public health disaster; however, the long and arduous campaign has put the rogue businesses on the defensive and there is a better appreciation of the hazards and risks of these minerals among the community.

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Conflicts of interest and evidence-based practices in environmental health and toxicology

Daniele Mandrioli[1]

Background. Financial conflicts of interest (COI) have been proven to introduce a bias at all levels of research and the publication process (e.g., author financial ties, study sponsorship and journal funding). Such conflicts affect the outcome of studies and reviews and serve to undermine the quality and transparency of public health evaluations that are reliant on these reviews. Even when other sources of bias are considered, the bias introduced by financial interests cannot be explained by other biases present in the studies and cannot be prevented through the peer review process. Systematic reviews and evidence-based practices in toxicology and environmental health introduce more rigorous and transparent practices to assess and evaluate the bias derived from COI. Different approaches have been developed by the Navigation Guide, the NTP-OHAT, the WHO-ILO and GRADE for transparently addressing and evaluating conflicts of interest in systematic reviews.

Methods/Approach. In this presentation, differences and commonalities among several evidence-based methodologies currently in use in environmental and occupational health will be addressed.

Results/Conclusions. Transparent and thorough evaluation of conflicts of interest is a necessary part of systematic review methodology that requires rigorous author disclosure policies and inclusion of study conflicts of interest as a risk of bias domain for evidence-based evaluation.

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Hidden and not so hidden bias in research

Lisa Bero[1]

Background. Bias in research is a problem that concerns researchers, consumers, policy makers and other users of evidence.

Approach. A variety of methods have been used to identify "bias" – the systematic error or deviation from the true results or inferences of a study – in research. Analyses ranging from meta-analysis to qualitative analyses of corporate documents were used.

Results. Bias related to funding sources or investigator conflicts of interest can be introduced throughout the entire research process (questions asked, design, conduct or publication). Corporate interests have also attempted to influence science policy and the standards by which science is evaluated. Although global transparency initiatives have enabled the detection of previously hidden financial ties between researchers and pharmaceutical companies, many financial ties remain hidden.

Conclusions. Evidence establishes the influence of corporate sponsorship and investigator financial ties on the design, conduct, dissemination and standards of research. I will also share some tips for detecting industry attempts to influence science policy and discuss a number of ongoing efforts aimed at identifying and reducing bias in research.

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