



Science, Public Health Policy & the Law: Convergence

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Abstract

To say some particular conjecture is "scientific knowledge" presumes that the conclusions drawn are based on valid studies via which a chain of evidence has been produced in objectivity, without intentional or unintentional bias. In reality, once data leave the laboratory, the road is often a rocky one. In the case of medical and epidemiological data, studies published in corporate journals are often not reflective of the full body of knowledge due to biased publication policies often bent toward aims that further corporate interests. Similarly, public health policies often fail to accommodate the full scope of scientific knowledge. We introduce this journal to provide a forum in which authors evaluate the goodness of fit between public health policies and medical practices and available scientific studies. It is intended to fill the need for a forum for discussions of epistemological successes and failures to the end of improving public health policies and medical practices.

Keywords

science, public interest, publication, policy, epidemiology

Public health policies and medical practices do not always track the best available science. Science itself progresses through rational criticism – a venture that is not for the thin-skinned nor, it appears, for those whose profit streams derive from enmeshed profitable practices and policies. As difficult as it may be, we must, as a society, reconcile the differences between scientific knowledge of public health policies and medical practices. Ancient Rome stood as a pillar of technological development, with paved roads and aqueducts. While the ancient architect Vitruvius was in favor of terracotta pipes, lead lined pipes were used. Even public baths were lined with lead, and they consumed food from lead platters and plates. The symbol of lead – Pb – comes from the Latin term for lead "plumbum" – from which of course is also derived the English

word "plumber". Yet due to the lack of appropriate application of knowledge that lead was a toxin, they continued to consume water from lead lined pipes. While the acute lead toxicity was likely rare, Romans no doubt suffered from the low-level chronic and cumulative exposure to lead. The sterility and mental deficiency which plagued the Roman elite has been attributed to chronic low dose lead toxicity [1] . For the last 150 years, our society has been transformed by technology – and the chemical industry has played a quiet role behind the scenes driving an ever-increasing diversity of compounds into our daily lives. By products from petroleum production are put into soil, food, and medicines. The resulting complexity of possible synergistic toxicities from these low-dose exposures is bewildering, and cannot be addressed by the compara-

tively simplistic methods used to study exposures. Epidemiology is not clinical science; it is a search for patterns, for associations, and for correlations. As an observational science, it falls short of being able to discern causality, or to assess liability, and yet we rely too heavily on epidemiology hoping for such assessment. Translational research requires focus on mechanisms for plausibility, modeling to explore areas that we cannot hope to address empirically (yet), in combination with carefully executed prediction science to be able to predict- if not fully understand – what will happen due to public health policies and medical practices. It is with this agenda in mind that we create this new journal, to provide a key missing piece of the feedback loop on the question of whether the law, policies and regulations/recommendations, and medical practices sufficiently reflect the full extent of available science, and to identify gaps that need to be filled to provide answers. When billion-dollar practices and industries are based on cherry-picked, biased selections of science, someone is going to get hurt. I therefore invite submissions with 4,000-5,000 words and up to 20 references to focus on singular fulcrum points that need clarification and re-direction. I encourage submissions from individuals or groups from academia, industry, government, and informed laypersons. Not all submissions can be printed; as we progress, we will adopt a robust and objective form of peer review. All submissions should identify a problem in the form of a disconnect between public health policies, dietary recommendations, medical practices, industrial safety regulations, regulated educational practices and published evidence in the form of studies or data from public data sources. All submissions should point to potential and viable solutions. Our aim is to reduce human pain and suffering through knowledge, and so with that in mind, please consider making a submission.

References

- [1] Lewis J. Lead poisoning: A historical perspective. *EPA Journal*, 1985. [EPA.gov](https://www.epa.gov/) .