

April 28, 2017

Ruth Lunn, DrPH
Director of the Office of Report on Carcinogens
National Institute for Environmental Health Sciences
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Re: Report on Carcinogens—inclusion of “Meat-Related Exposures”

Dear Dr. Lunn:

I am writing as a physician with professional training, qualifications experience and understanding of the principles of cancer causation and disease prevention from **controllable sources** to **support the proposed listing of “red meat and processed meat” as carcinogenic to humans.**

I have practiced occupational and environmental medicine, a **preventive medicine specialty**, for 23+ years as both a clinician and as a public health consultant, advisor, investigator and instructor to employers in hazardous industries, government agencies, insurers, and academic institutions. My expertise is diagnosing, treating, and preventing diseases and injuries caused by exposure to hazardous chemicals, biological, and physical agents in the workplace, residential, and other environments. Included in my expertise is the evaluation of cancer causation in individuals and populations related to occupational or environmental hazardous exposures, both “known” (e.g., arsenic, nickel, asbestos) and “suspected.” My training includes a bachelor of arts degree (BA) in chemistry from Princeton University; Doctorate of Medicine (MD) from Harvard Medical School; residencies and board-certification in Internal Medicine (Rhode Island Hospital/Brown University School of Medicine) and Occupational and Environmental Medicine (UMDNJ/Rutgers Medical School, funded by NIEHS); and a Master of Public Health (MPH) from Rutgers University. The latter included graduate-level training in toxicology, epidemiology, biostatistics, and industrial hygiene. My master’s degree thesis, “Food: Its quality and role as a pathway of exposure,” was published as a textbook chapter in *Environmental Medicine* (Brooks SM, *et al*, Mosby Publishers, 1994). This chapter addressed sources of disease-related contaminants in the food supply that included animal products.

An extensive amount of epidemiological research has consistently identified the role of meat—particularly “red meat” and especially processed meats—in the causation or promotion of many forms of cancer. This collective, coherent, biologically plausible human research evidence accumulated over decades formed the basis for the [IARC/ World Health Organization’s \(WHO\) decision in 2015 to label](#)

[processed meat as a Group 1 “probable carcinogen” and red meat as “probably carcinogenic to humans.”](#) See [Lancet Oncology](#) (10/25/2015) which summarizes the basis for these IARC/WHO designations by 22 scientists from 10 countries.

The **US rate of almost every kind of meat consumption remains among the highest in the world**, according to the most recently published [Organization for Economic Cooperation and Development \(OECD\) data](#). The majority of Americans currently consume over 50 pounds of red meat every year (and more than double that quantity in poultry meat). A large proportion of Americans consume these foods on a daily basis.

Extensive research evidence consistently shows that these animal food products, pound for pound, provide humans with the **lowest nutritional density** in comparison to plant-based foods. Industry arguments to justify meat as an “important source” of nutrients such as protein, minerals and vitamins are scientifically flawed and debunked. These same meat products are not only associated with increased risk for various forms of cancer, but are also directly associated with many other preventable, lifestyle-related diseases including but not limited to obesity, adult-onset diabetes mellitus and metabolic syndrome, coronary artery disease, stroke, hypertension, and gout.

The most common forms of diet-related cancer are commensurately increasing and developing faster as the US population consumes larger quantities of red meat and processed meats, as well as other unhealthy foods. For example, as recently as February 2017, the National Cancer Institute reported that colorectal cancer rates are increasing for young people, citing Surveillance, Epidemiology, and End Results (SEER) Program epidemiological studies of individuals between 20 and 39 years of age whose [cancer rates have increased as much as 2.4 percent each year since the 1980s](#).

The carcinogenicity and related disease risk from human consumption of various forms of red and processed meat is not only a public health concern; **it is also a vital economic, environmental and societal problem**. Diseases associated with diet and other lifestyle-associated choices collectively consume hundreds of billions of dollars annually in medical care in the US, representing close to 25% of gross domestic product (GDP). **A massive, unsustainable amount of financial, medical and governmental resources in the US and the rest of the developed world are now dedicated to the treatment of preventable forms of cancer**. As the [Food and Agricultural Organization \(FAO\) of the United Nations has concluded](#), the production of meat consumes vastly more natural resources (water, energy, nutrients) and contributes substantially to environmental degradation and destruction (waste, runoff into water supplies, deforestation, and global warming). Meat production is a brutal process that entails the inhumane breeding, confinement, fattening, and slaughter of more than 4 billion animals each year in the United States. Rates of occupational injuries in livestock processing and abattoirs are among the highest of any industry.

From a public health perspective, the most common forms of cancer—such as lung, skin, colon, breast, prostate, stomach, and pancreas—are already recognized as largely preventable. Despite widespread,

costly, and often marginally or dubiously effective forms of secondary prevention (i.e., screening and early detection) and advances in treatment, the incidence, morbidity, and in many cases, mortality rates of these cancers continue to rise. **Primary prevention, in contrast, offers the most effective means of substantially reducing the population-attributable risk and burden of disease, both in terms of resources and human suffering.**

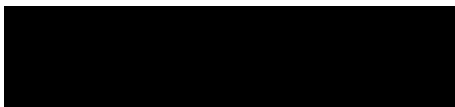
As a preventive medicine specialist, I am deeply concerned that the majority of Americans seem to be unaware of or underestimate the risks they take every day as a result of their consumption of meat.

To the extent that the public is informed of the risks in making individual and collective decisions about what foods they knowingly purchase and put into their bodies, the Report on Carcinogens must continue to reflect the best scientific knowledge in the interest of public health—not the financial interests of the industries that make, sell and distribute the products. The long, specious history of the pseudo-debate by the tobacco industry over the causal association between cigarette smoke and lung cancer is directly analogous to the specious arguments presented by the various meat industry trade associations and their lobbyists against the listing of red meat as a carcinogen. The premise of their misleading thesis is a “lack of conclusive evidence” of causation and disease mechanism by which cancer occurs at a biomolecular level.

As a doctor of public health, you understand that effective prevention of cancer or other complex diseases does not require ‘complete’ or ‘perfect’ evidence in the form of scientific “proof” of causation. In the words of the high respected epidemiologist, Dr. Charles Hennekens, “acting on the judgment of proof beyond a reasonable doubt in a cause-effect relationship may well precede by years a complete understanding of the disease or its biologic mechanism.” (*Epidemiology in Medicine*, 1987, p. 50). That is why public health and other governmental regulatory agencies such as IARC and WHO relied upon unbiased expert judgment and applied the [precautionary principle](#) in interpreting epidemiological and other human scientific evidence of carcinogenicity to promote rational prevent public policy. Just as an incomplete and imperfect understanding of the biochemical role and action of the **hundreds of known and suspected carcinogenic agents in tobacco smoke** did not preclude the enormous advances made by the US Government from informing the public of the risk of lung cancer, emphysema and other smoking-related diseases and letting people decide whether or not to choose to smoke, so too is the NIEHS justified and responsible for acting based on the available evidence to list red and processed meats as carcinogens.

Thank you for the opportunity to comment and for your efforts to inform the American public.

Sincerely,

A solid black rectangular box used to redact the signature of James Craner.

James Craner, MD, MPH, FACOEM, FACP