

From: Jerry Cuttler [personal information redacted]

Date: June 15, 2019 at 2:48:46 AM EDT

To: "Brian Torrie" <Brian.Torrie@canada.ca>

Subject: FW: Invitation to comment on proposed amendments to the Radiation Protection Regulations / Invitation à formuler des commentaires sur les modifications proposées au Règlement sur la radioprotection

Dear Brian Torrie

Thanks for your message below and the invitation to comment on proposed amendments to Canada's radiation protection regulations.

I appreciate the desire to align with the latest international standards. However, based on my 25 years of study on the health effects of ionizing radiation, I believe that the international standards for radiation protection and the Canadian regulations are too restrictive. The dose limits and dose-rate limits for humans should be increased; they should be based on the known thresholds for the onset of harmful effects. The health of radiation workers and the health of residents are equally important, so the radiation exposure limits should be the same for both. Inappropriate regulations have an adverse effect on medical practice and the utilization of nuclear energy for the benefit of Canadians.

The risk of cancer mortality has been linked to radiation using the linear no-threshold (LNT) dose-response model, and risk has been estimated based on data from the life span study of the atomic bomb survivors. This procedure is not valid. Most DNA mutations are caused by the oxidative damage inflicted by our aerobic metabolism. Damage events are prevented, repaired and removed by our innate protection systems. The incidence of cancer increases as our protection systems weaken with advancing age. The risk of cancer is strongly affected by the efficacy of the immune system. There is more than 120 years of experience and evidence in the use of radiation. The experience and evidence confirm that the immune system and other protection systems are stimulated by a low dose of ionizing radiation. A high radiation dose inhibits the relevant protections system. Therefore, the effect of radiation-induced cancer should be modeled using the hormetic (biphasic) dose-response model, not the LNT one.

I am an author or coauthor of more than 40 articles on health effects of radiation, most of which have been published in peer-reviewed journals. Below is a list of 7 of my recent articles that are relevant to our radiation protection regulations.

Please contact me, if you wish further input.

Sincerely

Dr. Jerry M. Cuttler, D.Sc.

Kojima S, Cuttler JM, Inoguchi K, Yorozu K, Horii T, Shimura N, Koga H, Murata A. Radon therapy is very promising as a primary or an adjuvant treatment for different types of cancers: 4 case reports. Dose-Response. 2019; 17(2):1-9. <https://journals.sagepub.com/doi/full/10.1177/1559325819853163>

Kojima S, Cuttler JM, Shimura N, Koga H, Murata A, Kawashima A. Radon therapy for autoimmune diseases pemphigus and diabetes: 2 case reports. Dose-Response. 2019; 17(2):1-8.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6537674/>

Cuttler JM. Evidence of a dose threshold for radiation-induced leukemia: absorbed dose and uncertainty. Dose-Response. 2019;17(1):1-2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6327330/>

Cuttler JM, Feinendegen LE, Socol Y. Evidence of a dose-rate threshold for lifespan reduction of dogs exposed lifelong to γ -radiation. Dose-Response. 2018;16(4):1-5.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6311660/>

Cuttler JM. Evidence of a dose threshold for radiation-induced leukemia. Dose-Response. 2018; 16(4):1-5. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6247492/>

Cuttler JM. Intervenor report to CNSC's June 25-29, 2018 Public Hearing on OPG's request for renewal of its operating licence for Pickering NGS. CNSC CMD: 18-H6-35, May 07, 2018.
<http://www.nuclearsafety.gc.ca/eng/the-commission/hearings/cmd/index.cfm#cmdhearing>

Kojima S, Thukimoto M, Cuttler JM, Inoguchi K, Ootaki T, Tsukimoto M, Shimura N, Koga H, Murata A. Recovery from rheumatoid arthritis following 15 months of therapy with low doses of ionizing radiation: A case report. Dose-Response. 2018; 16(2):1-7.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6043934/>