

SARI Scientists for Accurate Radiation Information <https://radiationeffects.org/>
XLNT XLNT Foundation <https://www.x-lnt.org/>

Position Statement of SARI and XLNT Regarding Health Effects of Ionizing Radiation April 7, 2020

Preamble: Anything taken in excess can be harmful; aspirin is a good example. Thus, the adverse health effects of high doses of ionizing radiation at high dose rates do not predict possible harmful effects from low doses or low dose rates of (ionizing) radiation. Repeated studies have tried and failed to detect harmful effects caused by low doses or low dose rates of radiation. On the contrary, studies have found beneficial health effects. By ignoring such studies and extrapolating the effects of high doses of radiation at high dose rates, advisory bodies have concluded that low dose rates and low doses of radiation increase the risk of cancer. They are wrong.

Statement: We, the members of SARI and XLNT are communicating this Position Statement to counter the misinformation about the health effects of radiation. Our declaration:

1. Exposure to a high dose of (ionizing) radiation over a short time, i.e., at high dose rates, as occurred to the atomic bomb survivors closest to ground zero, increases the risk of cancer. However, as explained above, this information is irrelevant to estimating the cancer risk from the exposure to low doses and low dose rates of radiation.
2. Based on the published evidence, a radiation dose under 100 mGy¹⁾ received over a short time (seconds or hours) is completely safe. This exposure corresponds to 10 typical CT scans and will not contribute to the risk of cancer. A radiation dose of 1000 mGy, delivered within a few minutes, i.e., a high dose rate, may, however, contribute to increasing that risk.
3. Many studies of long-term exposure to radiation at low dose rates with a cumulative dose up to a few hundred mGy have, in fact, shown a decrease in cancer risk. In addition, a cancer therapeutic effect, rather than a carcinogenic effect, has been observed following whole-body radiation dose of 100 mGy given 15 times over 5 weeks, for a total dose of 1500 mGy. Based on such data, a radiation dose of a few hundred mGy, e.g., 200 or 300 mGy, distributed over a year would be completely safe, and would, in fact, reduce the risk of cancer.
4. In view of such evidence, there is no reason for anyone to be concerned about a greater risk of cancer induction if an event occurs that exposes a population to an increased, but still low dose rate, of radiation over an extended period of time. In the case of the 2011 Great East Japan Earthquake, the residents of Fukushima should not have been evacuated because the radiation they would have received is low dose-rate radiation.
5. We challenge the recommendations of advisory bodies, such as the ICRP and NCRP, that call for maintaining radiation doses as low as reasonably achievable (ALARA), which they base on the present LNT²⁾ paradigm they have adopted. We also challenge their 1 mSv annual dose limit for the public and the 20 mSv annual dose limit for radiation workers. Such policies are not based on science; they are illogical, unwise, unhealthy, and irresponsible.

Recommendation: Substantial scientific evidence supports these statements. If the public, professionals, advisory bodies, governments, and the media understand and act on the above information, there would be considerable, beneficial impacts on public health and prosperity.

¹⁾ We use the physically measurable absorbed dose in units of gray (Gy), rather than the LNT-based²⁾ and ICRP-defined effective dose, in Sieverts (Sv). For radiation consisting mainly of gamma-rays, 1 mSv = 1 mGy.

²⁾ LNT - Linear No-Threshold

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