Cheesy Swiss study fails to link ambient radiation and children's cancer

By ACSH Staff — June 8, 2015

While the NIEHS-sponsored journal *Environmental Health Perspectives* (EHP) has always been nothing more than a propaganda arm of the green-precautionary-enviro movement, someone there should have passed grade-school math if not the submitting authors, perhaps the peer-reviewers or the editors.

Apparently, that would be too high a bar, because in the current EHP issue appears this Swiss study [1]: *Background Ionizing Radiation and the Risk of Childhood Cancer: A Census-Based Nationwide Cohort Study*. Clues to the underlying agenda, rather than a focus on evaluating whether there was an actual risk for Swiss children from elevated exposure to ionizing radiation, can be gleaned from the *Methods* section in the abstract:

*Children < 16 years of age in the Swiss National Censuses in 1990 and 2000 were included. The follow-up period lasted until 2008, and incident cancer cases were identified from the Swiss Childhood Cancer Registry. A radiation model was used to predict dose rates from terrestrial and cosmic radiation at locations of residence.*

A radiation model was used to predict dose rates from radiation? Meaning what? Well, meaning this, from the *Discussion* section:
Exposure assessment in our study was based on a geographic model rather than on actual measurements at children's homes. Although the model was based on a dense net of measurements covering the entire country, methods of interpolation and calibration, measurement error, and the neglect of exposure variability due to natural factors such as snow cover or sun activity are likely to have caused some exposure misclassification. Calculated doses were based on outdoor dose rates, although children spend most of their time indoors. Unfortunately we did not have address histories for the entire population and could therefore not fully account for residential mobility in our calculation of cumulative dose.

In other words, if we may translate, or paraphrase: the study’s authors basically took what they considered to be a pretty good guess at the level of the subject children’s radiation (natural gamma or cosmic rays) exposure. This guesswork was based on the children’s location--although some moved, and this was not taken into account--and on outdoor exposure approximations, although children spend most of their time indoors. Oh well--we can just change the computer modelling parameters and fix that, right?

Moreover, the increased incidence of various cancers was minuscule, even with the authors attempts at adjusting for various confounders: 3 percent for any/all cancers; 4 percent for leukemia (but this was of only borderline significance, statistically); 4 percent for brain tumors (again, of questionable statistical significance); and a clearly non-significant increase in lymphoma. In fact, the hazard ratios for none of the specific/individual cancers studied reached statistical significance: only when all cancers we bundled together did some (albeit small) potential relevance occur.

According to ACSH advisor Dr. Jerry Cuttler, a specialist in radiation effects (and co-author of our publication on Nuclear Energy and Health) [2]: The authors claim the results suggest an increased risk of cancer among children exposed to external dose rates of background ionizing radiation of \( \geq 200 \text{ nSv/h} \) [units of radiation absorbed per hour] compared to those exposed to \(< 100 \text{ nSv/h} \); these dose rates correspond to annual exposure levels of approximately 1.8 and 0.9 mSv, respectively. Considering that the average natural background exposure rate in the world is on the order of 2 mSv annually, with regions that range up to as much as 260 mSv, these are very low doses. Importantly, the background exposure rates were not based on actual measurements.
ACSH’s Dr. Gil Ross added this comment: The critique from Dr. Cuttler simply says, the small doses of radiation absorbed as reported in this study, as compared to typical exposures generally, are merely a blip in the overall amount of ionizing radiation absorbed and thus cannot pose a specific health threat. He also pointed out (personal communication) that the authors could not possibly have adjusted for confounders like socioeconomic status, smoking exposure from parental secondhand smoke, among other unmeasured variables. Other than EHPs standard operating procedure i.e., anything in the environment that might be exploited to scare the public and/or lead to increased government regulation is fair game for publication I cannot fathom why these authors or the journal would twist the standards of sound science to get this substandard (my nicest word choice) article published. Do they think Swiss kids should walk around with reflective headgear or lead shields to defray the minuscule or, much more likely, illusory increased risk of cancer?

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