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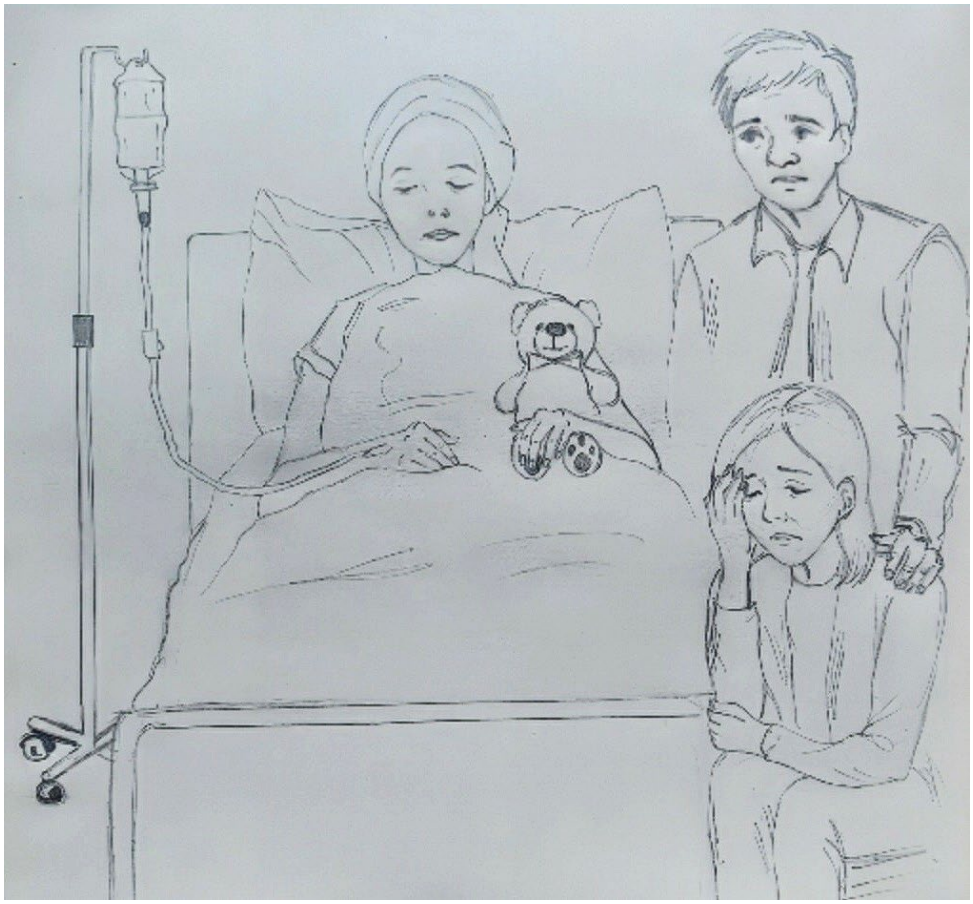

ASSESSING RADIATION RISK

SCIENTIFIC EVIDENCE FOR THE FAILURE OF THE CURRENT EXPOSURE LIMITS

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European Committee on Radiation Risk

Comité Européen Sur le Risque de l'Irradiation

Summary of the Evidence that the current Radiation Protection legislation is in error by up to 1000-fold and this has caused the deaths of more than 5 million individuals globally since 1950 from cancer. Information for legislators, politicians and anti-nuclear groups.

Information for those engaged in discussing the relaxation of radiation legislation.

European Committee on Radiation Risk (ECRR) 1Feb 2026

Background and Introduction

The radiation risk model currently employed by governments to legislate exposure and contamination levels in USA, UK and Europe is that provided by the International Commission on Radiological Protection, ICRP, whose latest report was published in 2007, more than 15 years ago. In the USA, the model is administered by a number of US Agencies and organisations including the BEIR committee of the National Academy of Sciences. The ICRP is not independent, nor is it democratic, but is self-selected and funded by governments, the nuclear industry and the military. In 2003, the independent European Committee on Radiation Risk (ECRR) provided a new risk model which took issue with the methodology and conclusions of the ICRP model. It was presented in Brussels to the European Parliament. By 2010, when a revised ECRR report was published, it was clear that cancer and congenital effects from the Chernobyl accident, published in the scientific literature strictly falsified the ICRP model. However, despite this and other new evidence, the model was not altered and governments refused to examine the issue, despite it being a legal requirement. For example, in Europe the EU Directive Euratom 2013/59 Art 19(2):

Member States shall consider a review of existing classes or types of practices with regard to their justification whenever there is new and important evidence about their efficacy or potential consequences.

US law doesNo new risk model has appeared from ICRP since 2007. ICRP was moved from Sweden to Canada after its Scientific Secretary Jack Valentin retired following his agreement (in a video debate) that the model was possibly in error by up to 1000-fold. Since 2007 and 2010 significant new evidence has been published in the scientific literature that demonstrates conclusively that the use of the ICRP risk model was arbitrarily and dishonestly constructed and maintained to support the nuclear military complex. The errors built into it through methodological choices, unsafe mechanistic arguments, and erroneous epidemiology have resulted in the largest public health disaster in human history.

With the push to revive nuclear energy, through the manufacture and siting of small modular reactors, the development of Uranium industry processing factories and, most important, the attempts to relax the exposure limit laws, it is necessary to push back, and remind the public, the legislators and the decision-makers, that the risk model is already massively unsafe. Its historic backup for the development of nuclear weapons and their testing, together with the releases under licence of fission-product radionuclides and the Uranium processing contaminants has resulted in more than 500 million premature deaths from cancer alone. This report, shared with the new International Committee on Radiation Risk (ICRR) based in the USA is intended to supply scientific and peer-reviewed evidence which proves this and that can be employed by those opposing the nuclear renaissance

The forthcoming ECRR 2025 report which is the basis for this, and the ICRR review, refers to the following published evidence that the current radiation risk model (ICRP 2007, BEIR VII 2007) is unsafe.

1. There were significant increases in infant leukemia (age 0-1y) in the immediate post Chernobyl period birth cohort reported by 5 different research groups analysing data from Scotland, Wales, Greece, Germany and Belarus. Since there can be no other cause than *in utero* exposures to the Chernobyl contamination at doses which were mostly less than 1mSv this represents an error in the radiation risk model of more than 1000-fold. This finding led to the CERRIE committee which was shut down in 2004 before it finished its epidemiological work. The UK Minister of the Environment (Michael Meacher) that set it up was dismissed. Refs: 1-6.

2. Data made available to the UK Committee Examining Radiation Riusk from Internal Emitters (CERRIE) in 2002 gave childhood leukemia data which showed a sharp and significant peak in child leukemia 0-4y rates in the 3 years following the contamination in Scotland and Wales, in regions where Chernobyl fallout was detected and measured. That is an error in the radiation risk model of upwards of 500-fold. Fig 1 below. Ref: 7

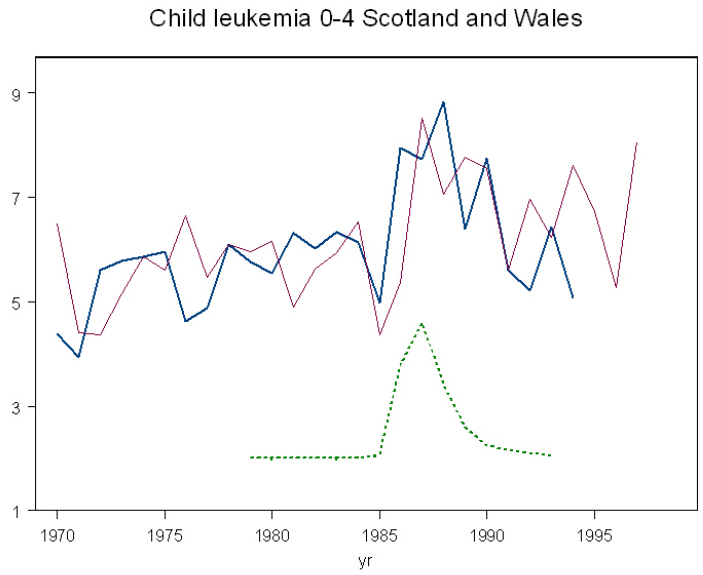
3. A paper published in 2016 reviewed birth defect data in many countries of Europe following Chernobyl and showed a doubling dose of less than 10mSv. This represents an error in the current radiation risk model for birth defects following exposure of more than 500-fold. Ref: 8, 9

4. The basis of the current radiation risk model, and the legal exposure limits, is the Life Span Study (LSS) of the Hiroshima and Nagasaki victims. This study was dishonestly manipulated in 1973 when the not-in-city (NIC) zero dose control group was removed from the study and the results were re-assessed on the basis of assuming a linear relation between cancer rates and assessed dose. This removal of the control group makes the study worthless as a basis for radiation protection. Ref: 10

5. The principal cause of cancer in the Japanese Lifespan Study was exposure to the Uranium-234 and Uranium-235 particles in the black rain which fell after the explosion turned the bomb casing and fuel into a plasma, which washed down as rain and contaminated the ruined city. The Japanese government lost a court case in 2023 where those individuals exposed to the black rain and who developed cancer were compensated for their cancer as if they had been exposed to the gamma radiation from the bomb, despite the fact that they were too far from the detonation to have received any gamma radiation. Ref: 11,12, 13

6. A Japanese epidemiological study of Hiroshima was carried out that used a true unexposed group from a nearby prefecture, and that this showed that the low and medium dose groups in the Lifespan Study had significantly high levels of cancer which could only be explained by exposure to the Black rain, which contained large quantities of U-234.This result shows that internal exposures to Uranium result in cancer risks of more than 1000 times those predicted by the current model. Ref: 12, 14, 15

Fig 1. Childhood leukemia (0-4) in Wales and Scotland after Chernobyl. Data supplied by the Childhood Cancer Research Group to the UK Committee Examining Radiation Risk from Internal Emitters showed a peak following the contamination of those countries by radioactivity in 1986 [7]. Blue (by year of birth). Red (by year of exposure). Green (whole body Cs-137 monitoring results).

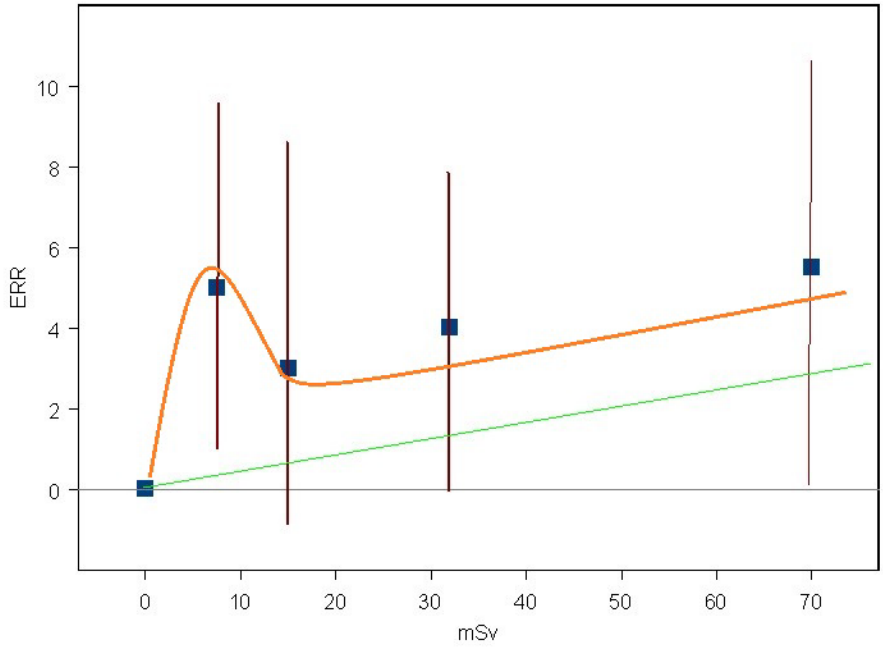


7. The observation of childhood leukemia risks near nuclear sites and radioactivity-contaminated coasts feeds though to an error in the radiation risk model of upwards from 1000-fold. Radioactive particles are blown ashore by sea-to-land transfer and inhaled.

8. The Linear No Threshold (LNT) radiation risk response for cancer is wrong. Radiation studies of nuclear workers where cancer risk is plotted against dose show that there is a sharp peak at low doses superimposed on a shallow relation with overall doses up to high doses? This is seen in nuclear worker cancer studies since 2007 and particularly in the latest INWORKS study. It is therefore a real finding of high risks at low doses. It is also present in the Hiroshima Lifespan Study results. This defines two ranges of cancer risk, low dose range and a high dose range. See Fig 2. The result defines an error in the current radiation risk model coefficients upwards of 50-fold. Refs: 16, 17

9. Analysis of official US navy cancer data for sailors serving on nuclear powered ships shows an excess risk of cancer of 9-fold due to neutron activation radioactivity leaked into the closed environment by the nuclear propulsion reactors, likely Carbon-14 and Tritium. Freedom of Information requests revealed an excess internal exposure of UK submarine crews by Cobalt-60, a neutron activation isotope. Ref: 18

Fig 2. Cancer % Excess Relative Risk in 2023 INWORKS nuclear worker study in the low dose region.

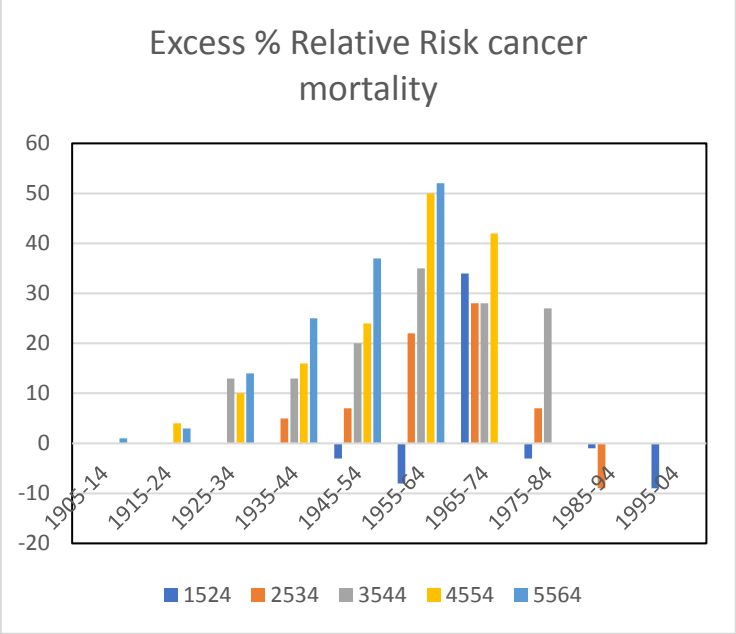


10. Increased levels of thyroid cancer found in exposed populations of young people after both Fukushima and Chernobyl represent errors in the current radiation risk model of more than 200-fold. Refs: 19

11. Two studies published in 2023 and 2024 analysed cancer rates in high nuclear test fallout States of the USA and found statistically significant excess cancer risks of those individuals born at the peak of the fallout, 1955-1965? This shows the principal origin of the cancer epidemic that began in 1988 and continues today. This means that the fallout has caused more than 500 million deaths globally to date from cancer and the error of the risk model associated with this is upwards of 1000-fold. Refs: 20. Fig 3 shows the excess Relative risk of cancer in high weapons test fallout States of the USA relative to low fallout States.

13. Very recently, a Harvard University team studied cancer mortality showed that the risk significantly increased in Massachusetts Zip codes with proximity to the nuclear sites. At 2km women showed from RR of 1.52 for ages 55-64, with RR increasing to 2.53 at age 75+. For men the RR was 1.57 to 1.63. The ICRP excess Relative Risk is around 50% per Sievert Since any estimated cumulative dose to these populations are not more than 0.2mSv as calculated by the ICRP model a doubling of risk (RR=2) would indicate an error in the risk coefficient of more than 5000-fold. Ref 22.

Fig 3 Birth cohort effect in R (as a percentage), the ratio of cancer deaths in high fallout and low fallout States (Table 1) of the USA by 10-year age group and birth year period. Zero on the graph shows parity. For example, the graph shows that those aged 55 to 64 (light blue bar) born in 1955 to 1964 during the weapons tests fallout and thus exposed at birth had a 52% excess cancer mortality in high fallout high rainfall States compared with low-fallout low-rainfall States.



The above is by no means all the evidence that the current radiation risk model is worthless and must be urgently replaced. But there is enough evidence listed to persuade legislators and politicians that there is a case to be answered. See Ref [21] for more arguments. For a fuller discussion of the issue and the way in which radiation health effects can be predicted or explained see the 2010 Report of the European Committee on Radiation Risk [23].

The new ECRR 2025 will be published shortly. It will give cancer and non-cancer effect risk coefficients updated on the basis of the new evidence that has emerged since 2010.

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Note: The above paper is still under peer review in 2025 having been rejected and reviewed more than 10 times. It is clear from the graph in the paper that the effect is clear but the journal reviewers refuse to recommend acceptance. A child could see the effect.

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The Japanese Lifespan Study (LSS) of the A-Bomb survivors is the principal basis of the current legal radiological framework. Evidence provided for the first time here shows that internal exposure to radiologically significant quantities of Uranium-234 contained in sub-micron particle rainout from the un-fissioned weapon warhead, the Black Rain, is a missing exposure in the LSS analysis. It is argued that this is responsible for a background excess cancer risk in all the LSS dose groups. This, together with epidemiological evidence based on unexposed controls falsifies the LSS cancer vs. dose regression coefficients for internal exposure.

13. Japan Times 2021 27th July: Hiroshima Hibakushas have won their black rain lawsuit. https://www.japantimes.co.jp/news/2021/07/27/national/hibakusha-black-rain-ruling-precedent/

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Recent advances in epidemiological analysis of the effects of radioactive contamination have raised questions over the security of current radiation risk models. One outstanding question relates to the effects of atmospheric nuclear weapons tests and the fallout which peaked in 1959-63. Effects on cancer, a late genetic disease, are investigated here by employing a metric R which divides the rate in high fallout and low fallout States of the USA. An allocation of the two groups is based on rainfall and supported by measurements of Strontium-90 in baby teeth. Results from comparing cancer mortality in Whites for High fallout States AR/KY/LA/MS and TN with low fallout States AZ/CA/ NM reveals a highly significant fallout cohort effect peaking in those born in 1955-1964 in all 10-year birth cohort age groups. The ratio was calculated for 10-year groups for deaths in 1969, 1979, 1989, 1999, 2009 and 2019. Cancer mortality ratio effects increased with age. In the oldest 10-year group studied, 55-64, in 2019 the Excess Risk for those born in 1955-64 was 52% greater in the high fallout regions ERR =1.52; 95% CI 1.48, 1.57; p <0.00000000. For the 45-54 group in 2019 ERR = 1.42; 95% CI 1.35, 1.50; p < 0.00000000. For the 34-45 ERR = 1.27; 95% CI 1.15, 1.40; p<0.000001. Arguably the results identify the main cause of the cancer epidemic which began in the 1980s.

21. Christopher Busby (2022) Ionizing radiation and cancer—the failure of the risk model. Cancer Treatment and Research Communications (invited review). Vol 31 (2022) 100565. DOI https://doi.org/10.1016/j.ctarc.2022.100565

This review presents evidence that the methodology that supports the current radiation risk model for cancer is insecure. As a consequence, the legal limits on internal exposures to certain common radionuclides are incorrect by several orders of magnitude. Because of this, hundreds of millions of people will have developed cancer due to internal exposures from atmospheric testing fallout, nuclear accidents, Depleted Uranium and releases from nuclear sites. There are fatal errors in both the mechanistic and epidemiological bases of the Linear No Threshold (LNT) Absorbed Dose model. The review discusses the history of the model and refers to published studies that clearly demonstrate these errors. It argues that the ways in which the models were constructed were arbitrary, capricious and unscientific.

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Comments and questions—contact: Prof. Dr. Christopher Busby, Scientific Secretary

euradcom@proton.me