The risks of nuclear energy are not exaggerated

Most scientists in this field agree that there is danger even in small doses of radiation

- Ian Fairlie
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You reported the view that radiation risks are exaggerated, but left out vital information on radiation protection (Radiation health threat overstated – Oxford professor, 11 January). The article relied upon and extensively cited a retired - professor of particle physics, Wade Allison, who is neither a radiation biologist nor an epidemiologist, and is not in my view an expert in radiation risks. Indeed, the other three scientists quoted in the article pointedly refrained from supporting Allison. His sole contribution to the literature is a self-published book.

An article alongside (Nuclear theory: the current consensus) states that "a single dose below 100 millisieverts (mSv) is usually considered safe", and later gives Allison's claim that "there is a threshold of about 200 mSv, below which the body can repair all DNA damage caused and, therefore, which is safe". But there is no safe dose of radiation: no matter how low it is, a small risk remains.

The linear no-threshold (LNT) theory is used by all the world's radiation authorities – the UN Scientific Committee on the Effects of Atomic Radiation, the International Commission on Radiological Protection, the <a href="http://www.hpa.org.uk/" title="<FEFF>HEALTH Agency? Protection>Health Protection Agency, etc – to estimate risks at low doses. It presumes that risks decline proportionately as you lower the dose all the way down to zero, and that the only dose with no effect is zero mSv.

And, yes, there *is* evidence that exposures to residents near nuclear facilities cause them harm. For example, a recent German government study found large increases in leukaemia (220%) and embryonal cancer (160%) among children living near all German nuclear reactors. Its results are supported by many other worldwide studies into child leukaemias near nuclear reactors.

Current radiation risks are based on an unsatisfactory dataset – the Japanese survivors of the US atomic bombs in 1945. Though relevant for estimating the risks of sudden blasts of powerful types of radiation, this data is irrelevant for slow, long-term exposures or for weaker types of radiation which are more common. And many studies point to the risks being higher than this data suggests.

Then there are the unusual non-targeted effects of radiation. These cause changes in cells temporally and spatially distant from the cells hit by radiation. These effects challenge the present explanation of radiation's effects but are unknown by the public. They are hotly discussed by radiation biologists throughout the world, and are the subject of thousands of scientific articles. The older explanation had given considerable support to current estimates of radiation risks. The new effects strikingly do not do this, as they occur after very low doses of radiation. In other words, these new effects raise serious questions about whether existing dose limits should be tightened.

I do not think current radiation risks are overrated, and neither do most - scientists in this field.