

Mixed data on child cancer rates near French nuclear sites

January 11 2012, by Marlowe Hood

An "excess number of cases" of childhood leukaemia around 19 French nuclear plants occurred between 2003 and 2007, a researcher said Wednesday.

That excess cancer rate disappeared, however, when the data was extended to cover a longer period, Jacqueline Clavel of France's Centre for Research in Epidemiology and [Population Health](#) said.

French scientists led by Clavel found 14 cases of leukaemia in children living within five kilometres (three miles) of the [nuclear power](#) facilities during the shorter six-year span.

This was nearly double the national rates for the same type of cancer in the relevant age group.

"But when we looked at the period from 1990 to 2007, this excess risk did not persist," Clavel said in an interview with AFP, commenting on their study, published last week in the [International Journal of Cancer](#).

"The link with the very weak ionising radiation emitted by these [nuclear plants](#) -- when they are functioning normally -- cannot be established."

Still, the apparent surfeit of more recent cases cannot be ignored, she added.

"This increased incidence is limited to the zone five kilometres around

the facilities, and was not at all observed beyond that," she said by phone.

"Nor was it specific to one nuclear plant or one type of plant."

In the study, Clavel and colleagues assessed [cancer risk](#) in relation to two factors: proximity to a nuclear power source, and an estimate of exposure to radiation.

The very low doses of radiation, combined with the fact that risk did not seem to diminish gradually over distance, "does not argue in favour of radiation as a causal factor for the excess cancer cases," she added, calling for further study.

One possible explanation gaining currency among epidemiologists -- who study the patterns of disease in society -- has to do with the unusually high turnover of residents around nuclear plants.

The constant influx of people brings with it new [viruses and bacteria](#), meaning that the local population is constantly exposed to pathogens to which they have not built up immunity.

That such "population mixing" could underlie higher rates of childhood leukaemia has been postulated for similarly anomalous excesses near two nuclear power facilities in Britain, and one in Germany.

The assumption in this scenario is that leukaemia at an early age is more likely in the presence of certain -- as yet unknown -- viral infections.

"[Childhood leukaemia](#) could belong to that large category of illnesses which are rare responses to some more common infection," Leo Kinlen, a researcher at the Cancer Epidemiology Unit at the University of Oxford, noted in a recent study.

"However, such is the emotive power of radiation that it had effectively pushed infection out of mind."

Radiation was immediately suspected as a culprit in the early 1980s when researchers found nine cases of leukaemia and the related non-Hodgkin's lymphoma -- nearly 10 times the expected rate -- near the Sellafield nuclear processing plant in Cumbria, northwest England.

Subsequent studies, however, could not establish a firm link.

More recently, a 2008 government-backed study showed, as in the French probe, a doubling of leukaemia in children under five within five kilometres of 16 nuclear power plants in Germany, but over a longer time period (1980 to 2003).

How to interpret these results remains controversial, with some experts suggesting that the "population mixing" theory fits less well in Germany.

Statistically, the small number of cases involved make it difficult for researchers to pin down a clear cause-and-effect relationship.

"We really need to work on an international scale to have a greater number of cases," said Clavel, citing rapid population turnover is a "potential factor."

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