



## NATURE | NEWS

# Fukushima's doses tallied

Studies indicate minimal health risks from radiation in the aftermath of Japan's nuclear disaster.

**Geoff Brumfiel**

23 May 2012



Around 170 of Fukushima's workers have a slightly elevated risk of cancer due to their radiation exposure.

YOSHIKAZU TSUNO/EPA/CORBIS

Few people will develop cancer as a consequence of being exposed to the radioactive material that spewed from Japan's Fukushima Daiichi nuclear power plant last year — and those who do will never know for sure what caused their disease. These conclusions are based on two comprehensive, independent assessments of the radiation doses received by Japanese citizens, as well as by the thousands of workers who battled to bring the shattered nuclear reactors under control.

The first report, seen exclusively by *Nature*, was produced by a subcommittee of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) in Vienna, and covers a wide swathe of issues related to all aspects of the accident. The second, a draft of which has been seen by *Nature*, comes from the World Health Organization (WHO) in Geneva, Switzerland, and estimates doses received by the general public in the first year after the accident. Both reports will be discussed at UNSCEAR's annual meeting in Vienna this week.

The UNSCEAR committee's analyses show that 167 workers at the plant received radiation doses that slightly raise their risk of developing cancer. The general public was largely protected by being promptly evacuated, although the WHO report does find that some civilians' exposure exceeded the government's guidelines. "If there's a health risk, it's with the highly exposed workers," says Wolfgang Weiss, the chair of UNSCEAR. Even for these workers, future cancers may never be directly tied to the accident, owing to the small number of people involved and the high background rates of cancer in developed countries such as Japan.

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to do an epidemiological study that will see an increased risk." Still, it may be valuable to conduct studies to reassure the population that they are not being misled, he adds.

A far greater health risk may come from the psychological stress created by the earthquake, tsunami and nuclear disaster. After Chernobyl, evacuees were more likely to experience post-traumatic stress disorder (PTSD) than the population as a whole, according to Evelyn Bromet, a psychiatric epidemiologist at the State University of New York, Stony Brook. The risk may be even greater at Fukushima. "I've never seen PTSD questionnaires like this," she says of a survey being conducted by Fukushima Medical University. People are "utterly fearful and deeply angry. There's nobody that they trust any more for information."

Overall, the reports do lend credibility to the Japanese government's actions immediately after the accident. Shunichi Yamashita, a researcher at Fukushima Medical University who is heading one local health survey, hopes that the findings will help to reduce stress among victims of the accident. But they may not be enough to rebuild trust between the government and local residents. Tatsuhiko Kodama, head of the radioisotope centre at the University of Tokyo and an outspoken critic of the government, questions the reports' value. "I think international organizations should stop making hasty reports based on very short visits to Japan that don't allow them to see what is happening locally," he says.

UNSCEAR's working committee of roughly 70 scientists still has much to do before the final report is completed. Committee members will continue to independently validate sources of data from the accident and work on models of the flow of radioisotopes from the reactors into the environment. For the workers, "individual medical follow-up is more important than the statistical follow-up", Weiss says. "People want to know whether what we say is true."

*Nature* **485**, 423–424 (24 May 2012) | doi:10.1038/485423a

Additional reporting by Rina Nozawa.

See Editorial [page 415](#)

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Jackson Mary · 2013-03-09 06:02 PM

I have trouble believing WHO said that, or Time reported it. Both organizations are reliably alarmist and irrationally negative about nuclear power. edit: and even those numbers are based on the discredited LNT model. More people died because the government shut down all nuclear power plants in the country after Fukushima, than will ever die because of &#8211; or even get sick because of &#8211; radiation from Fukushima.



More Info · 2013-01-31 04:47 PM

I think that if we want to read another Fukushima feel-better story or pro-nuclear energy advertisement, we can go to the NEI's (Nuclear Energy

Institute's) web page and have our fill 'till there's no tomorrow.

Jamie BC-RN



Jonny Martinez · 2012-11-06 06:08 AM

If there is a [health risk](#), it is the workers who are exposed to - [health](#) workers should still be noticed since it will affect the quality of the resulting

Regards,

VooHealth - [Health News](#)



Edward Greisch · 2012-06-18 04:15 AM

Michael Frank & Geoffrey Small: Please look up "Natural Background Radiation" or just "Background Radiation."

The natural background comes from 2 places:

1. All rocks contain trace amounts of uranium. The decay products of uranium include the radioactive gas radon.
2. Supernovas [exploding stars] thousands of light years away are the source of cosmic rays.

We date Egyptian mummies with the radioactive carbon they ate thousands of years ago. The natural background in the US is higher than the sum of the natural background in Fukushima plus the leak in the reactor at Fukushima for all but a few Tepco employees.

"milli" means ".001"

350 milli rem/year means 0.350 rem/year

1 rem = 10 millisievert

573 certified deaths were due to evacuation-related stress at Fukushima. Zero due to radiation. February 4, 2012  
<http://www.beyondnuclear.org/home/2012/2/4/japanese-authorities-recognize-573-deaths-related-to-fukushi.html>

Here are some natural background readings from "Power to Save the World; The Truth About Nuclear Energy" by Gwyneth Cravens, 2007:

Guarapari, Brazil: 3700 millirem/year

Tamil Nadu, India: 5300 millirem/year

Ramsar, Iran: 8900 to 13200 millirem/year

Denver, Colorado 1000 millirem/year

A not entirely natural reading:

Chernobyl: 490 millirem/year

Some background reading:

[http://en.wikipedia.org/wiki/Background\\_radiation](http://en.wikipedia.org/wiki/Background_radiation)

[http://www.unscear.org/unscear/en/publications/2000\\_1.html](http://www.unscear.org/unscear/en/publications/2000_1.html)

62% of Japan's electricity comes from coal fired power plants. Coal contains so much uranium and thorium that we could get all of the uranium we need from coal cinders and ash. Coal fired power plants put all of it either up the stack or into the solids that are hauled away.

<http://www.ornl.gov/info/ornlreview/rev26-34/text/colmain.html>

Calculate your annual radiation dose:

<http://www.ans.org/pi/resources/dosechart/>



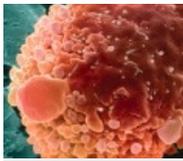
Geoffrey Small · 2012-06-04 10:04 PM

It should be noted that there is a mountain of controversy over anything UNSCEAR and the WHO claims regarding the effects and risks to human health arising from major nuclear accidents, beginning with its known subordinate position relative to the IAEA under the 1959 WHA 12-40 Agreement within the UN on any position that could risk harming the interests of the IAEA to control and promote the ongoing continuation of civilian use nuclear energy in the world today. The history of the massive and intense disagreements between scientists working in the field from the Soviet bloc, Ukraine and Belarus over UNSCEAR's and the WHO's claims regarding the number of deaths and health victims directly resulting





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*Nature* ISSN 0028-0836 EISSN 1476-4687

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