Statement of Ira Helfand, MD, Physicians for Social Responsibility USA, on the evacuation of children from areas contaminated by the Fukushima disaster.

Physicians for Social Responsibility has issued a formal statement opposing the changes in allowable radiation exposure following the Fukushima disaster. Specifically we have opposed increasing the permissible dose to 20 mSV.

It is the consensus of the medical and scientific community, summarized in the National Research Council BEIR VII report, that there is no safe level of radiation. Any exposure, including exposure to naturally occurring background radiation, creates an increased risk of cancer. The BEIR report concluded specifically that a 100 mSv dose confers a one in one hundred risk of dying from cancer. The proposed allowable exposure of 20 mSV would confer a one in five hundred risk of dying form cancer. While that risk may be relatively low for one person, if 500 people receive that dose, one of them will die from cancer. And if a million people are exposed to that dose, two thousand of them will die from cancer. There is no way that this can be considered a "safe threshold".

It must be emphasized that these figures are for adults. Children are much more vulnerable to radiation exposure than adults, from 2 to 5 times more vulnerable. The younger the child the greater the vulnerability. For very young children an exposure of 20mSv would convey a one in one hundred risk of dying from a cancer caused by this exposure.

In addition it should be noted that the 20mSV figure is based on external radiation and does not take into account the further doses received from internal emitters. Radiation from internal emitters is very different from external beam radiation. If you are standing near a source of radioactivity like a damaged fuel rod, you are exposed to a given rate of radiation only as long as you are near the fuel rod. But if you inhale or ingest a radioactive particle, that particle will continue to irradiate you for as long as the particle is in your body and remains radioactive. Unfortunately, there are a number of radioactive elements produced in large quantities in a nuclear reactor that are biologically active—they are actively taken up by the body and incorporated into our tissues. Iodine-131 is concentrated in the thyroid gland and causes thyroid cancer. Cesium-137 behaves like potassium. It is absorbed and distributed throughout the body. Cesium-137 has a half life of 30 years, and causes many different types of cancer. Strontium-90 is chemically similar to calcium. It is deposited in bone and, with its 29 year-half life, continues to irradiate bone and bone marrow for decades. It causes bone cancer and leukemia. Plutonium-239 with a half life of 24,200 years, is intensely carcinogenic if inhaled and causes lung cancer in microscopic doses.

For these reasons I feel that the current "allowable" limits of radiation exposure for children are excessive and further steps must be taken to protect children from the radiation released, and being released, by the Fukushima reactors. These steps may include the evacuation of children at least from a larger zone that currently provided for. Thyroid cancer being among the most serious cancer risks faced by survivors of the Fukushima disaster, we need to insist on the right to know total thyroid equivalent dose including both external and internal exposure in order to reach a conclusion about the possible necessity of further evacuations.

Ira Helfand, MD

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