

## CHILDREN'S ENVIRONMENTAL HEALTH CENTER OF THE HUDSON VALLEY

### PROTECTING CHILDREN AGAINST ENVIRONMENTAL THREATS

[www.ChildrensEnvironment.org](http://www.ChildrensEnvironment.org)

**MAY 13, 2011 - CHILDREN'S HEALTH ADVISORY**

**RADIATION RISK AFTER JAPAN EARTHQUAKE ON MARCH 11, 2011**

**MAY 13, 2011:** After a 9.0 magnitude earthquake and 33 foot tsunami hit Japan on March 11, 2011, the Fukushima Nuclear Power Plant, which houses 6 nuclear reactors, was under extreme duress. Since the disaster occurred, the plant has been leaking small amounts of radiation (i.e. through the ground, air, etc). Now that two months have passed, the concern has faded considerably, though in the early days trace amounts of radiation were found within the US. In the first month, a few of our EPA monitors had detected low levels of radioactive material (iodine-131) as well as other isotopes that had likely originated from the Fukushima Plant. Due to these trace amounts the US government increased testing of air, precipitation, soil and water. On April 12, 2011, the threat level was raised to a 7, the same number given to Chernobyl. This was due to the high levels of Iodine 131 and Cesium 137 into the air in Japan. Although this is considered to be one of the worst nuclear disasters in history, the reactors have now been stabilized and the amount of radiation released has declined dramatically. On May 3, 2011, since the levels have been so low, the EPA decreased its radiation testing to normal pre-earthquake sampling programs.

#### **How is radiation measured?**

There are various ways to measure radiation/radioactive material. There are ground surveys as well as aerial measurements to monitor the effects on the ground. Measurements of the air as well as radiochemical tests to examine the soil, ground (i.e. crops and vegetation) are also used. At the EPA's website you will find the latest information on the quality of our air, drinking water, soil, etc.

#### **How safe is our drinking water?**

Below is a statement from the EPA regarding the latest study (April 4, 2011) on the status of the drinking water. This statement can be found on the EPA's website ([www.epa.gov](http://www.epa.gov)).

Drinking water samples from two locations, Boise, Idaho and Richland, Washington, showed trace amounts of Iodine-131 – about 0.2 picocuries per liter in each case. Even an infant would have to drink almost 7,000 liters of this water to receive a radiation dose equivalent to a day's worth of the natural background radiation exposure we experience continuously from natural sources of radioactivity in our environment.

It is also important to point out that radioactive material must travel thousands of miles before it could possibly reach US soil and air. The distance needed to travel has dispersed the contaminants to a level that is currently considered safe.

**Is radiation exposure normal?**

Yes. You are exposed to radiation on a daily/yearly basis (see chart below). From the CDC's website, 1Sievert (Sv) or 100 rem will be a biological risk which would result in health effects. The potential radiation exposure of children in the United States from the disaster at the Fukushima Plant thus far is well below that level.

Source of exposure	Dose in rem	Dose in sievert (Sv)
Exposure to cosmic rays during a roundtrip airplane flight from New York to Los Angeles		3 mrem or 0.03 mSv
One dental x-ray		4–15 mrem or 0.04–0.15 mSv
One chest x-ray		10 mrem or 0.1 mSv
One mammogram		70 mrem or 0.7 mSv
One year of exposure to natural radiation (from soil, cosmic rays, etc.)		300 mrem or 3 mSv

**Where to go from here?**

If you are concerned about any radiation risk to your children, talk to your pediatrician. There are many sources of radiation and parents should work towards minimizing that risk if at all possible. A much bigger concern than this one disaster for many parents is the potential risk from medical x-rays that your child's physicians may deem necessary. This is too big of a topic for this health advisory. Parents should be armed with sufficient information to be able to properly weight the risks and benefits of any medical procedure recommended for your child, including but not limited to tests that require radiation. But of course, remember that medical x-rays are one of the most important advances in healthcare and the risk of radiation should not paralyze us if a test is truly needed. We plan to add additional specific information and guidance about medical radiation exposure to our website in the near future.

**More Website Information:**

The best sites for the most recent information on the radiation risk / exposure are:

- [www.epa.gov](http://www.epa.gov) - up to date with the Earthquake / radiation exposure ([www.epa.gov/radiation/index2.html](http://www.epa.gov/radiation/index2.html))
- [www.airnow.gov](http://www.airnow.gov) - air quality and information
- [www.cdc.gov](http://www.cdc.gov) - radiation exposure and risks

These are not the only sites available however, these are three sites that are being monitored by their respective government agencies and can give you the most up to date and correct information.

**References:**

1. *EPA statement: update on ongoing monitoring.* (2011, April 4). Retrieved from <http://yosemite.epa.gov/opa/admpress.nsf/0/F118F3B38EC3748D852578690002003>
2. *Japanese nuclear emergency: EPA's radiation monitoring.* (2011, April 11). Retrieved from <http://www.epa.gov/radiation/index.html>
3. *Radiation Emergencies.* (2003 December 2003). Retrieved from <http://www.emergency.cdc.gov/radiation/pdf/measurement.pdf>
4. *Radiation protection.* (2011, March 30). Retrieved from <http://www.cdc.gov/nceh/radiation/default.htm>
5. *Radiation protection.* (2011, March 24). Retrieved from <http://www.epa.gov/radiation/understand/perspective.html>
6. *Sources of radiation exposure.* (2011, March 24). Retrieved from <http://www.epa.gov/radiation/sources/index.html>

**How can I get more information?**

In addition to TV, radio, and newspapers, there is a tremendous amount of information on the web, but web content is not always reliable. Information about the EPA's proposed study of the issue can be found on their website: <http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf>.

With office locations conveniently located in Westchester County and several other sites in the Hudson Valley, the [Children's Environmental Health Center of the Hudson Valley](#) provides clinical consultations for children and their families by appointment.

Visit [www.ChildrensEnvironment.org](http://www.ChildrensEnvironment.org) or call (914) 493-7585 for more information.