The Social Responsibility of Nuclear Energy
by Steven B. Krivit

Helen Caldicott's article in the New York Times, "Unsafe at Any Dose," which appeared on April 30, contained significant misrepresentations and omissions as well as one major inconsistency.

Nuclear energy technology is complex, and its capacity for harm, if the technology is not properly implemented, is immense. Because most people have limited understanding of nuclear technology, the fear of nuclear energy, even among doctors like Caldicott, is reasonable.

Caldicott says that she knew what the "prognosis" of the Fukushima Daiichi plant would be "if any of the containment vessels or fuel pools exploded." Because they didn't explode, and she does not provide any scenario under which they could explode, her terrifying prediction of new cancers is moot.

She also misrepresented the mortality rate from the 1986 Chernobyl nuclear accident. In 2006, the Chernobyl Forum, an organization comprising the International Atomic Energy Agency, the World Health Organization, the World Bank and five United Nations organizations working in the areas of food, agriculture, environment, humanitarian affairs and radiation effects, published an authoritative analysis of the effects of Chernobyl.

The Forum did not, as Caldicott wrote, predict "only about 4,000 deaths from cancer" from the Chernobyl accident. The Forum's text says that the data "might eventually represent up to four thousand fatal cancers." As the Forum explained, reliably assessing the precise numbers of fatalities from radiation exposure was impossible. The best the organization could do was estimate an upper limit for the number of fatal cancers. The text also says that small differences in assumptions could lead to large differences in predictions.

The Forum said that, by 2002, 16 years after Chernobyl, 15 deaths had been reported among 4,000 people exposed to radiation and diagnosed with thyroid cancer. Add those 15 to the 31 fatalities among Chernobyl emergency workers, and the confirmed mortality rate for Chernobyl becomes not 1 million, not 4,000, but 46.

To counter this, Caldicott presents a book written by Alexey V. Yablokov, Vassily B. Nesterenko and Alexey V. Nesterenko. The book says that it is an "initiative of Greenpeace International." The preface also explains that Greenpeace "collected hundreds of Chernobyl publications and doctoral theses, [and] these materials were added to the Chernobyl literature collected over the years" by the book's lead author. The authors admit that they "discuss data that were acquired in the absence of strict scientific protocols."

Whereas the Chernobyl Forum's report "represents a consensus view of ... eight organizations of the U.N. family ... and of the three affected countries," the Yablokov book was written by three independent researchers, edited by a physician-activist and produced with major assistance from Greenpeace. But it was published by the New York Academy of Sciences.

Several weeks ago, journalist George Monbiot asked the academy about its involvement with the book. The academy gave him this statement: "In no sense did ... the New York Academy of Sciences commission this work; nor by its publication do we intend to independently validate the claims made in the translation or in the original publications cited in the work. The translated volume has not been peer-reviewed by the New York Academy of Sciences or by anyone else."

Ted Rockwell, a member of the academy, wrote to its board of governors on April 21 with his concerns. Rockwell saw the irony: "In effect, [the academy] turned editing of the report over to Greenpeace, and now, Greenpeace cites [the academy] as validating the scientific basis for its political agenda."

Caldicott's advocacy for the end of nuclear power because "doctors know that there is no such thing as a safe dose of radiation and that radiation is cumulative" sends an inconsistent message. Doctors routinely tell us that the doses of radiation we receive from their profession are safe enough for diagnostics and for curing cancer. Her statement also conflicts with the fact that low levels of radiation are part of nature, emitted from the cosmos, bricks and bananas. Her message may cause needless anxiety.

Caldicott makes broad statements that compare nuclear energy's benefits and risks with other energy technologies, but she fails to back those claims with real solutions and scientific facts.

Nuclear technology can lead to nuclear weapons. But fertilizer can lead to chemical weapons, and tractors can lead to tanks. Banning fertilizer and tractors would be counterproductive and impractical.

According to data from the International Energy Agency and the United Nations Development Programme, the consumption of electricity is closely linked to lifespan and improved standards of living. Anti-nuclear activists too often ignore the larger picture. The stability and quality of life in developed nations are fundamentally supported by availability of inexpensive fossil fuels. These fuels were created 300 million years, yet we will consume most of them in the course of 300 years. Through the use of advanced fuel cycles and reprocessing, nuclear fission can provide energy for thousands of years.

This is the part that should concern all readers, with good reason: We have no viable non-fossil-fuel replacement for on-demand electricity that will meet the public's needs day or night, wind or no wind.

We need both responsible physicians and responsible physicists to promote reliable energy technologies for our children and to prevent a catastrophic future that would pale in comparison to any fictional nightmare depicted by Hollywood or Caldicott.

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