

United States Human Radiation Experiments

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Uncovering Radiation Experiments

In November of 1993, the United States was hit with a big shock when records of human radiation experiments from 1944 to 1974 were suddenly released. The energy secretary at the time, Hazel R. O'Leary (fig. 1), pronounced that she was appalled at the work that her predecessors had sanctioned, and launched a full scale investigation into the records of what had happened in order to uncover the atrocities committed by the United States government. [1] Additionally, president Bill Clinton formed an advisory committee that held hearings over the course of 18 months on the human radiation experiments conducted. [2] The department of Energy's predecessors, the Manhattan Project, the Atomic Energy Commission, and the Energy Research and Development Administration, had each conducted or authorized a series radiation experiments on humans, evidently to benefit the United States during the Cold War. [3] At the time, though the United States was making incredible advances in nuclear energy, they knew little about the consequences of the radiation that these new energy resources emitted. [3] The Cuban Missile Crisis and other Cold War tensions had increased fears of nuclear war, and the military was demanding answers about radiation's effects on soldiers and astronauts. [4]



Fig. 1: A Portrait of Hazel O'Leary, the seventh United States energy secretary. (Courtesy of the [U.S. Department of Energy](#))

Investigation into the Experiments

The investigation lead by Secretary O'Leary found that unethical experiments had been carried out by government doctors, scientists, and military officials on as many as 20,000 people between 1944 and 1974. [2] The President's committee found that over 40,000 experiments had been conducted. [2] The experiments conducted were far reaching across the country, and often targeted individuals that either did not know the potential dangers of being involved, or did not volunteer to be involved at all. [3] Some prominent examples include 800 pregnant women being administered radioactive iron in the late 1940s at Vanderbilt university, 200 cancer patients exposed to extremely high levels of radiation in Oak Ridge, Tennessee, 18 persons injected with plutonium at the University of Chicago, 11 terminally ill cancer patients injected with radioactive calcium in New York City in the late 1950s, and 19 mentally disabled teenage boys who were unknowingly exposed to radioactive ingredients in food during so called nutritional studies. [2,3,5] Some of the most famous examples include two rival experiments done on prisoners in the Washington State Prison and the Oregon State Prison respectively, to determine the dosage of radiation to male testicles to produce sterility. [3,4]

Ethics and Case Study: Washington State and Oregon State Prisons

The two examples of the prison experiments bring to light some of the ethical dilemmas that experimenters faced as they tackled the unknown consequences of radiation. While many of the other human radiation experiments that went on were clearly unethical, as the patients had no idea they were participating in harmful studies. [3] the Washington State and Oregon State radiation experiments fell into more of a grey area. The prison experiments in Washington, led by Dr. C. Alvin Paulsen, and again in Oregon, used prisoners as the ideal patients because the outcomes of the radiation could be tracked long term: in other words, they weren't going anywhere. [4] While the prisoners were volunteers and paid a very small amount, the consent forms were "sketchy", and many ethicists argued that research on prisoners violates the standard of noncoercion because of the inherent vulnerability of a captive. [4] For example, they may have believed that cooperation would lessen their sentence or that they might have been punished had they not participated. [3] Nevertheless, in 1993 when Secretary O'Leary demanded the names of the patients from the prison experiments, Dr. Paulsen still defended his work, saying, "I think it has led to some valuable information. But you could also argue, as many do, that the end doesn't justify the means." [4] These statements beg the question: what is an ethical experiment?

Standards of Conduct in Context

In 1945, when many of the radiation experiments began, there were no clear standards of informed consent. [3] The Nuremberg code of 1949 was the first set of standards to dictate research ethics for human experimentation after the atrocities of the Nazis in World War II. [3] This code outlines 10 principles that need to be followed, one of which is informed consent. [6] Consent dictates that the person is not coerced in any way, and that they have full and complete understanding of any potential consequences that the study might bring about. [6] Experimenting on prisoners does not fall into consent. Though it's important to remember that the experiments were a product of their time, as they were conducted before there was definitive legal standards, they were still unethical as Secretary O'Leary pointed out while she conducted her investigation.

Settlements and Aftermath

Finally, in 1996, the Federal Government settled for many of the experiments, for example, agreeing to pay \$4.8 million as compensation for injecting 12 people with radioactive materials in one instance. [2] The release of the previously classified documents by Secretary O'Leary and the Clinton Administration was monumental as people realized the horror of some of the experimentation. Nevertheless, the documents and following dialogue was important in renewing the focus on ethics in any experimentation setting.

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- [5] Z. Hussain, "[MIT to Pay Victims \\$1.85 Million in Fernald Radiation Settlement](#)," *The Tech* **117**, No. 65, 7 Jan 98.

[6] [*Trials of War Criminals Before the Nuremberg Military Tribunals, Vol II*](#) (U.S. Government Printing Office, 1949).