Unethical human experimentation in the United States

This article is about U.S. medical experiments that are alleged to be unethical, non-consensual, or illegal. For the consensual, ethical, and legal use of human beings in medical research, see Human subject research.

Particularly in the 20th century, there have been numerous experiments performed on human test subjects in the United States that have been considered unethical, and were often performed illegally, without the knowledge, consent, or informed consent of the test subjects.

The experiments include: the deliberate infection of people with deadly or debilitating diseases, exposure of people to biological and chemical weapons, human radiation experiments, injection of people with toxic and radioactive chemicals, surgical experiments, interrogation and torture experiments, tests involving mind-altering substances, and a wide variety of others. Many of these tests were performed on children, the sick, and mentally disabled individuals, often under the guise of “medical treatment”. In many of the studies, a large portion of the subjects were poor, racial minorities or prisoners.

Funding for many of the experiments was provided by United States government, especially the United States military, Central Intelligence Agency, or private corporations involved with military activities. The human research programs were usually highly secretive, and in many cases information about them was not released until many years after the studies had been performed.

The ethical, professional, and legal implications of this in the United States medical and scientific community were quite significant, and led to many institutions and policies that attempted to ensure that future human subject research in the United States would be ethical and legal. Public outrage in the late 20th century over the discovery of government experiments on human subjects led to numerous congressional investigations and hearings, including the Church Committee and Rockefeller Commission, both of 1975 and the 1994 Advisory Committee on Human Radiation Experiments, among others.

1 Surgical experiments

Throughout the 1840s, J. Marion Sims, who is often referred to as “the father of gynecology”, performed surgical experiments on enslaved African women, without anaesthesia. The women—one of whom was operated on 30 times—regularly died from infections resulting from the experiments.[2] In order to test one of his theories about the causes of trismus in infants, Sims performed experiments where he used a shoemaker’s awl to move around the skull bones of the babies of enslaved women.[3][4] He also addicted the women in his surgical experiments to morphia, only providing the drugs after surgery was already complete, in order to make them more compliant.[5]

In 1874, Mary Rafferty, an Irish servant woman, came to Dr. Roberts Bartholow of the Good Samaritan Hospital in Cincinnati for treatment of her cancer. Seeing a research opportunity, he cut open her head, and inserted needle electrodes into her exposed brain matter.[6] He described the experiment as follows:

When the needle entered the brain substance, she complained of acute pain in the neck. In order to develop more decided reactions, the strength of the current was increased ... her countenance exhibited great distress, and she began to cry. Very soon, the left hand was extended as if in the act of taking hold of some object in front of her; the arm presently was agitated with clonic spasm; her eyes became fixed, with pupils widely dilated; lips were blue, and she frothed at the mouth; her breathing became stertorous; she lost consciousness and was violently convulsed on the left side. The convulsion lasted five minutes, and was succeeded by a coma. She returned to consciousness in twenty minutes from the beginning of the attack, and complained of some weakness and vertigo.

—Dr. Bartholow’s research report[6]

In 1896, Dr. Arthur Wentworth performed spinal taps on 29 young children, without the knowledge or consent of their parents, at the Children’s Hospital in Boston, Massachusetts to discover whether doing so would be harmful.[7]

From 1913 to 1951, Dr. Leo Stanley, chief surgeon at the San Quentin Prison, performed a wide variety of experiments on hundreds of prisoners at San Quentin. Many of the experiments involved testicular implants, where Stanley would take the testicles out of executed prisoners and
surgically implant them into living prisoners. In other experiments, he attempted to implant the testicles of rams, goats, and boars into living prisoners. Stanley also performed various eugenics experiments, and forced sterilizations on San Quentin prisoners. Stanley believed that his experiments would rejuvenate old men, control crime (which he believed had biological causes), and prevent the “unfit” from reproducing.

2 Pathogens, disease, and biological warfare agents

2.1 Late 19th century

In the 1880s, in Hawaii, a California physician working at a hospital for lepers injected six girls under the age of 12 with syphilis.

In 1895, New York City pediatrician Henry Heiman intentionally infected two mentally disabled boys—one four-year-old and one sixteen-year old—with gonorrhea as part of a medical experiment. A review of the medical literature of the late 19th and early 20th centuries found more than 40 reports of experimental infections with gonorrhoeal culture, including some where gonorrhoeal organisms were applied to the eyes of sick children.

U.S Army doctors in the Philippines infected five prisoners with bubonic plague and induced beriberi in 29 prisoners; four of the test subjects died as a result. In 1906, Professor Richard Strong of Harvard University intentionally infected 24 Filipino prisoners with cholera, which had somehow become contaminated with plague. He did this without the consent of the patients, and without informing them of what he was doing. All of the subjects became sick and 13 died.

2.2 Early 20th century

In 1908, three Philadelphia researchers infected dozens of children with tuberculosis at the St. Vincent’s House orphanage in Philadelphia, causing permanent blindness in some of the children and painful lesions and inflammation of the eyes in many of the others. In the study they refer to the children as “material used”.

In 1909, F. C. Knowles released a study describing how he had deliberately infected two children in an orphanage with Molluscum contagiosum after an outbreak in the orphanage, in order to study the disease.

In 1911, Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research injected 146 hospital patients (some of whom were children) with syphilis. He was later sued by the parents of some of the child subjects, who allegedly contracted syphilis as a result of his experiments.

The Tuskegee syphilis experiment was a clinical study conducted between 1932 and 1972 in Tuskegee, Alabama, by the U.S. Public Health Service. In the experiment, 400 impoverished black males who had syphilis were offered “treatment” by the researchers, who did not tell the test subjects that they had syphilis and did not give them treatment for the disease, but rather just studied them to chart the progress of the disease. By 1947, penicillin became available as treatment, but those running the study prevented study participants from receiving treatment elsewhere, lying to them about their true condition, so that they could observe the effects of syphilis on the human body. By the end of the study in 1972, only 74 of the test subjects were alive. 28 of the original 399 men had died of syphilis, 100 were dead of related complications, 40 of their wives had been infected, and 19 of their children were born with congenital syphilis. The study was not shut down until 1972, when its existence was leaked to the press, forcing the researchers to stop in the face of a public outcry.

2.3 1940s

In 1941, at the University of Michigan, virologists Thomas Francis, Jonas Salk and other researchers deliberately infected patients at several Michigan mental institutions with the influenza virus by spraying the virus into their nasal passages. Francis Payton Rous, based at the Rockefeller Institute and editor of the Journal of Experimental Medicine, wrote the following to Francis regarding the experiments:

“It may save you much trouble if you publish your paper... elsewhere than in the Journal of Experimental Medicine. The Journal is under constant scrutiny by the anti-vivisectionists who would not hesitate to play up the fact that you used for your tests human beings of a state
Rous closely monitored the articles he published since the 1930s, when revival of the anti-vivisectionist movement raised pressure against certain human experimentation.\[21\]

In 1941 Dr. William C. Black inoculated with herpes a twelve-month-old baby “offered as a volunteer”. He submitted his research to The Journal of Experimental Medicine and it was rejected on ethical grounds. The editor of the Journal of Experimental Medicine, Francis Payton Rous, called the experiment “an abuse of power, an infringement of the rights of an individual, and not excusable because the illness which followed had implications for science.”\[22\]\[23\]\[24\] The study was later published in the Journal of Pediatrics.\[25\]

The Stateville Penitentiary was the site of a controlled study of the effects of malaria on the prisoners of Stateville Penitentiary near Joliet, Illinois beginning in the 1940s. The study was conducted by the Department of Medicine at the University of Chicago in conjunction with the United States Army and the State Department. At the Nuremberg trials, Nazi doctors cited the precedent of the malaria experiments as part of their defense.\[26\]\[27\] The study continued at Stateville Penitentiary for 29 years. In related studies from 1944 to 1946, Dr. Alf Alving, a professor at the University of Chicago Medical School, purposely infected psychiatric patients at the Illinois State Hospital with malaria, so that he could test experimental treatments on them.\[28\]

In a 1946 to 1948 study in Guatemala, U.S. researchers used prostitutes to infect prison inmates, insane asylum patients, and Guatemalan soldiers with syphilis and other sexually transmitted diseases, in order to test the effectiveness of penicillin in treating the STDs. They later tried infecting people with “direct inoculations made from syphilis bacteria poured into the men’s penises and on forearms and faces that were slightly abraded . . . or in a few cases through spinal punctures”. Approximately 700 people were infected as part of the study (including orphan children). The study was sponsored by the Public Health Service, the National Institutes of Health and the Pan American Health Sanitary Bureau (now the World Health Organization’s Pan American Health Organization) and the Guatemalan government. The team was led by John Charles Cutler, who later participated in the Tuskegee syphilis experiments. Cutler chose to do the study in Guatemala because he would not have been permitted to do it in the United States. In 2010 when the research was revealed, the US officially apologized to Guatemala for the studies.\[29\]\[30\]\[31\]\[32\]

2.4 1950s

In 1950, in order to conduct a simulation of a biological warfare attack, the U.S. Navy used airplanes to spray large quantities of the bacteria Serratia marcescens – considered harmless at this time – over the city of San Francisco. Numerous citizens contracted pneumonialike illnesses, and at least one person died as a result.\[33\]\[34\]\[35\]\[36\]\[37\]\[38\] The family of the man who died sued the government for gross negligence, but a federal judge ruled in favor of the government in 1981.\[39\] Serratia tests were continued until at least 1969.\[40\]

Also in 1950, Dr. Joseph Stokes of the University of Pennsylvania deliberately infected 200 female prisoners with viral hepatitis.\[41\]

From the 1950s to 1972, mentally disabled children at the Willowbrook State School in Staten Island, New York were intentionally infected with viral hepatitis, for research whose purpose was to help discover a vaccine.\[42\]

From 1963 to 1966, Saul Krugman of New York University promised the parents of mentally disabled children that their children would be enrolled into Willowbrook in exchange for signing a consent form for procedures that he claimed were “vaccinations.” In reality, the procedures involved deliberately infecting children with viral hepatitis by feeding them an extract made from the feces of patients infected with the disease.\[43\]\[44\]

In 1952, Chester M. Southam, a Sloan-Kettering Institute researcher, injected live cancer cells into prisoners at the Ohio State Prison. Also at Sloan-Kettering, 300 healthy women were injected with live cancer cells without being told. The doctors stated that they knew at the time that it might cause cancer.\[45\]

In 1955, the CIA allegedly conducted a biological warfare experiment where they released whooping cough bacteria from boats outside of Tampa Bay, Florida, causing a whooping cough epidemic in the city, and killing at least 12 people.\[46\]\[47\]\[48\] However, some have expressed improbability and lack of evidence for this claim.\[49\]

During the 1950s the United States conducted a series of field tests using entomological weapons. Operation Big Itch, in 1954, was designed to test munitions loaded with uninfected fleas (Xenopsylla cheopis). In May 1955 over 300,000 yellow fever mosquitoes (Aedes aegypti) were dropped over parts of the U.S. state of Georgia to determine if the air-dropped mosquitoes could survive to take meals from humans. The mosquito tests were known as Operation Big Buzz. The U.S. engaged in at least two other EW testing programs, Operation Drop Kick and Operation May Day.

2.5 1960s

In 1963, 22 elderly patients at the Jewish Chronic Disease Hospital in Brooklyn, New York were injected with live
cancer cells by Chester M. Southam, who in 1952 had done the same to prisoners at the Ohio State Prison, in order to “discover the secret of how healthy bodies fight the invasion of malignant cells”. The administration of the hospital attempted to cover the study up, but the New York medical licensing board ultimately placed Southam on probation for one year. Two years later, the American Cancer Society elected him as their Vice President.[50]

From 1963 to 1969 as part of Project Shipboard Hazard and Defense (SHAD), the U.S. Army performed tests which involved spraying several U.S. ships with various biological and chemical warfare agents, while thousands of U.S. military personnel were aboard the ships. The personnel were not notified of the tests, and were not given any protective clothing. Chemicals tested on the U.S. military personnel included the nerve gases VX and Sarin, toxic chemicals such as zinc cadmium sulfide and sulfur dioxide, and a variety of biological agents.[51]

In 1966, the U.S. Army released the harmless Bacillus globigii into the tunnels of the New York City Subway system, as part of a field study called A Study of the Vulnerability of Subway Passengers in New York City to Covert Attack with Biological Agents.[52][53][54][55] The Chicago subway system was also subject to a similar experiment by the Army.[46]

3 Human radiation experiments

Main article: Human radiation experiments

Researchers in the United States have performed thousands of human radiation experiments to determine the effects of atomic radiation and radioactive contamination on the human body, generally on people who were poor, sick, or powerless.[56] Most of these tests were performed, funded, or supervised by the United States military, Atomic Energy Commission, or various other US federal government agencies.

The experiments included a wide array of studies, involving things like feeding radioactive food to mentally disabled children or conscientious objectors, inserting radium rods into the noses of schoolchildren, deliberately releasing radioactive chemicals over U.S. and Canadian cities, measuring the health effects of radioactive fallout from nuclear bomb tests, injecting pregnant women and babies with radioactive chemicals, and irradiating the testicles of prison inmates, amongst other things.

Much information about these programs was classified and kept secret. In 1986 the United States House Committee on Energy and Commerce released a report entitled American Nuclear Guinea Pigs: Three Decades of Radiation Experiments on U.S. Citizens.[57] In the 1990s Eileen Welsome’s reports on radiation testing for The Albuquerque Tribune prompted the creation of the Advisory Committee on Human Radiation Experiments by executive order of president Bill Clinton, to monitor government tests. It published results in 1995. Welsome later wrote a book called The Plutonium Files.

3.1 Radioactive iodine experiments

In a 1949 operation called the "Green Run," the AEC released iodine-131 and xenon-133 to the atmosphere near the Hanford site in Washington, which contaminated a 500,000-acre (2,000 km²) area containing three small towns.[58]

In 1953, the U.S. Atomic Energy Commission (AEC) ran several studies at the University of Iowa on the health effects of radioactive iodine in newborns and pregnant women. In one study, researchers gave pregnant women from 100 to 200 microcuries (3.7 to 7.4 MBq) of iodine-131, in order to study the women’s aborted embryos in an attempt to discover at what stage, and to what extent, radioactive iodine crosses the placental barrier. In another study, they gave 25 newborn babies (who were under 36 hours old and weighed from 5.5 to 8.5 pounds (2.5 to 3.9 kg)) iodine-131, either by oral administration or through an injection, so that they could measure the amount of iodine in their thyroid glands, as iodine would go to that gland.[59]

In another AEC study, researchers at the University of Nebraska College of Medicine fed iodine-131 to 28 healthy infants through a gastric tube to test the concentration of iodine in the infants' thyroid glands.[59]

In 1953, the AEC sponsored a study to discover if radioactive iodine affected premature babies differently from full-term babies. In the experiment, researchers from Harper Hospital in Detroit orally administered iodine-131 to 65 premature and full-term infants who weighed from 2.1 to 5.5 pounds (0.95 to 2.49 kg).[59]

From 1955 to 1960, Sonoma State Hospital in northern California served as a permanent drop-off location for mentally handicapped children diagnosed with cerebral palsy or lesser disorders. The children subsequently underwent painful experimentation without adult consent. Many were given irradiated milk, some spinal taps “for which they received no direct benefit.” Reporters of 60 Minutes learned that in these five years, the brain of every cerebral palsy child who died at Sonoma State was removed and studied without parental consent. According to the CBS story, over 1,400 patients died at the clinic.[60]

In an experiment in the 1960s, over 100 Alaskan citizens were continually exposed to radioactive iodine.[61]

In 1962, the Hanford site again released I-131, stationing test subjects along its path to record its effect on them. The AEC also recruited Hanford volunteers to ingest milk contaminated with I-131 during this time.[59]
3.2 Uranium experiments

“It is desired that no document be released which refers to experiments with humans and might have adverse effect on public opinion or result in legal suits. Documents covering such work should be classified ‘secret.’”

April 17, 1947 Atomic Energy Commission memo from Colonel O.G. Haywood, Jr. to Dr. Fidler at the Oak Ridge National Laboratory in Tennessee.\(^{[62]}\)

Between 1946 and 1947, researchers at the University of Rochester injected uranium-234 and uranium-235 in dosages ranging from 6.4 to 70.7 micrograms per kilogram of body weight into six people to study how much uranium their kidneys could tolerate before becoming damaged.\(^{[63]}\)

Between 1953 and 1957, at the Massachusetts General Hospital, Dr. William Sweet injected eleven terminally ill, comatose and semi-comatose patients with uranium in an experiment to determine, among other things, its viability as a chemotherapy treatment against brain tumors, which all but one of the patients had (one being a misdiagnosis). Dr. Sweet, who died in 2001, maintained that consent had been obtained from the patients and next of kin.\(^{[64],[65]}\)

3.3 Plutonium experiments

From April 10, 1945 to July 18, 1947, eighteen people were injected with plutonium as part of the Manhattan Project.\(^{[66]}\) Doses administered ranged from 95 to 5,900 nanocuries.\(^{[66]}\)

Albert Stevens, a man misdiagnosed with stomach cancer, received “treatment” for his “cancer” at the U.C. San Francisco Medical Center in 1945. Dr. Joseph Gilbert Hamilton, a Manhattan Project doctor in charge of the human experiments in California\(^{[67]}\) had Stevens injected with Pu-238 and Pu-239 without informed consent. Stevens never had cancer; a surgery to remove cancerous cells was highly successful in removing the benign tumor, and he lived for another 20 years with the injected plutonium.\(^{[68]}\) Since Stevens received the highly radioactive Pu-238, his accumulated dose over his remaining life was higher than anyone has ever received: 64 Sv (6400 rem). Neither Albert Stevens nor any of his relatives were told that he never had cancer; they were led to believe that the experimental “treatment” has worked. His cremated remains were surreptitiously acquired by Argonne National Laboratory Center for Human Radiobiology in 1975 without the consent of surviving relatives. Some of the ashes were transferred to the National Human Radiobiology Tissue Repository at Washington State University,\(^{[68]}\) which keeps the remains of people who died having radioisotopes in their body.

Three patients at Billings Hospital at the University of Chicago were injected with plutonium.\(^{[69]}\) In 1946, six employees of a Chicago metallurgical lab were given water that was contaminated with plutonium-239, so that researchers could study how plutonium is absorbed into the digestive tract.\(^{[63]}\)

An eighteen-year-old woman at an upstate New York hospital, expecting to be treated for a pituitary gland disorder, was injected with plutonium.\(^{[70]}\)

3.4 Experiments involving other radioactive materials

Immediately after World War II, researchers at Vanderbilt University gave 829 pregnant mothers in Tennessee what they were told were “vitamin drinks” that would improve the health of their babies. The mixtures contained radioactive iron and the researchers were determining how fast the radioisotope crossed into the placenta. At least three children are known to have died from the experiments, from cancers and leukemia.\(^{[71],[72]}\) Four of the women’s babies died from cancers as a result of the experiments, and the women experienced rashes, bruises, anemia, hair/tooth loss, and cancer.\(^{[56]}\)

From 1946 to 1953, at the Walter F. Fernald State School in Massachusetts, in an experiment sponsored by the U.S. Atomic Energy Commission and the Quaker Oats corporation, 73 mentally disabled children were fed oatmeal containing radioactive calcium and other radioisotopes, in order to track “how nutrients were digested”. The children were not told that they were being fed radioactive chemicals; they were told by hospital staff and researchers that they were joining a “science club”.\(^{[71],[73],[74],[75]}\)

The University of California Hospital in San Francisco exposed 29 patients, some with rheumatoid arthritis, to total body irradiation (100-300 rad dose) to obtain data for the military.\(^{[76]}\)

In the 1950s, researchers at the Medical College of Virginia performed experiments on severe burn victims, most of them poor and black, without their knowledge or consent, with funding from the Army and in collaboration with the AEC. In the experiments, the subjects were exposed to additional burning, experimental antibiotic treatment, and injections of radioactive isotopes. The amount of radioactive phosphorus-32 injected into some of the patients, 500 microcuries (19 MBq), was 50 times the “acceptable” dose for a healthy individual; for people with severe burns, this likely led to significantly increased death rates.\(^{[77],[78]}\)

Between 1948 and 1954, funded by the federal government, researchers at the Johns Hopkins Hospital inserted radium rods into the noses of 582 Baltimore, Maryland schoolchildren as an alternative to adenoidectomy.\(^{[79],[80],[81]}\) Similar experiments were performed on over 7,000 U.S. Army and Navy personnel during World War II.\(^{[79]}\) Nasal radium irradiation became
a standard medical treatment and was used in over two and a half million Americans.\textsuperscript{[79]}

In 1951 at Johns Hopkins, Henrietta Lacks had been treated with a radium rod in her cervix, and 2 radium plaques placed on her skin, for a cervical tumor.\textsuperscript{[82]}

In another study at the Walter E. Fernald State School, in 1956, researchers gave mentally disabled children radioactive calcium orally and intravenously. They also injected radioactive chemicals into malnourished babies and then pushed needles through their skulls, into their brains, through their necks, and into their spines to collect cerebrospinal fluid for analysis.\textsuperscript{[75][83]}

In 1961 and 1962, ten Utah State Prison inmates had blood samples taken which were mixed with radioactive chemicals and reinjected back into their bodies.\textsuperscript{[84]}

The Atomic Energy Commission funded the Massachusetts Institute of Technology to administer radium-224 and thorium-234 to 20 people between 1961 and 1965. Many were chosen from the Age Center of New England and had volunteered for “research projects on aging”. Doses were 0.2–2.4 microcuries (7.4–88.8 kBq) for radium and 1.2–120 microcuries (44–4,440 kBq) for thorium.\textsuperscript{[57]}

In a 1967 study that was published in the Journal of Clinical Investigation, pregnant women were injected with radioactive cortisol to see if it would cross the placental barrier and affect the fetuses.\textsuperscript{[85]}

3.5 Fallout research

In 1957, atmospheric nuclear explosions in Nevada, which were part of Operation Plumbbob were later determined to have released enough radiation to have caused from 11,000 to 212,000 excess cases of thyroid cancer among U.S. citizens who were exposed to fallout from the explosions, leading to between 1,100 and 21,000 deaths.\textsuperscript{[86]}

Early in the Cold War, in studies known as Project GABRIEL and Project SUNSHINE, researchers in the United States, the United Kingdom, and Australia tried to determine how much nuclear fallout would be required to make the Earth uninhabitable.\textsuperscript{[87][88]} They realized that atmospheric nuclear testing had provided them an opportunity to investigate this. Such tests had dispersed radioactive contamination worldwide, and examination of human bodies could reveal how readily it was taken up and hence how much damage it caused. Of particular interest was strontium–90 in the bones. Infants were the primary focus, as they would have had a full opportunity to absorb the new contaminants.\textsuperscript{[89] [90]} As a result of this conclusion, researchers began a program to collect human bodies and bones from all over the world, with a particular focus on infants. The bones were cremated and the ashes analyzed for radioisotopes. This project was kept secret primarily because it would be a public relations disaster; as a result parents and family were not told what was being done with the body parts of their relatives.\textsuperscript{[91]}

3.6 Irradiation experiments

Between 1960 and 1971, the Department of Defense funded non-consensual whole body radiation experiments on poor, black cancer patients, who were not told what was being done to them. Patients were told that they were receiving a “treatment” that might cure their cancer, but the Pentagon was trying to determine the effects of high levels of radiation on the human body. One of the doctors involved in the experiments, Robert Stone, was worried about litigation by the patients. He referred to them only by their initials on the medical reports. He did this so that, in his words, “there will be no means by which the patients can ever connect themselves up with the report”, in order to prevent “either adverse publicity or litigation”.\textsuperscript{[92]}

From 1960 to 1971, Dr. Eugene Saenger, funded by the Defense Atomic Support Agency, performed whole body radiation experiments on more than 90 poor, black, terminally ill cancer patients with inoperable tumors at the University of Cincinnati Medical Center. He forged consent forms, and did not inform the patients of the risks of irradiation. The patients were given 100 or more rads (1 Gy) of whole-body radiation, which in many caused intense pain and vomiting. Critics have questioned the
medical rationale for this study, and contend that the main purpose of the research was to study the acute effects of radiation exposure.[93][94]

From 1963 to 1973, a leading endocrinologist, Dr. Carl Heller, irradiated the testicles of Oregon and Washington prisoners. In return for their participation, he gave them $5 a month, and $100 when they had to receive a vasectomy upon conclusion of the trial. The surgeon who sterilized the men said that it was necessary to “keep from contaminating the general population with radiation-induced mutants”. Dr. Joseph Hamilton, one of the researchers who had worked with Heller on the experiments, said that the experiments “had a little of the Buchenwald touch”. [95]

In 1963, University of Washington researchers irradiated the testes of 232 prisoners to determine the effects of radiation on testicular function. When these inmates later left prison and had children, at least four of them had offspring born with birth defects. The exact number is unknown because researchers never followed up on the status of the subjects.[96]

### 4 Chemical experiments

From 1942 to 1944, the U.S. Chemical Warfare Service conducted experiments which exposed thousands of U.S. military personnel to mustard gas, in order to test the effectiveness of gas masks and protective clothing.[97][98][99][100]

From 1950 through 1953, the U.S. Army sprayed chemicals over six cities in the United States and Canada, in order to test dispersal patterns of chemical weapons. Army records stated that the chemicals which were sprayed on the city of Winnipeg, Canada, included zinc cadmium sulfide, which was not thought to be harmful.[101] A 1997 study by the US National Research Council found that it was sprayed at levels so low as not be harmful; it said that people were normally exposed to higher levels in urban environments.

To test whether or not sulfuric acid, which is used in making molasses, was harmful as a food additive, the Louisiana State Board of Health commissioned a study to feed “Negro prisoners” nothing but molasses for five weeks. One report stated that prisoners didn’t “object to submitting themselves to the test, because it would not do any good if they did”. [102]

A 1953 article in the medical/scientific journal Clinical Science[102] described a medical experiment in which researchers intentionally blistered the skin on the abdomens of 41 children, who ranged in age from 8 to 14, using cantharide. The study was performed to determine how severely the substance injures/irritates the skin of children. After the studies, the children’s blistered skin was removed with scissors and swabbed with peroxide.[85]

From approximately 1951 to 1974, the Holmesburg Prison in Pennsylvania was the site of extensive dermatological research operations, using prisoners as subjects. Led by Dr. Albert M. Kligman of the University of Pennsylvania, the studies were performed on behalf of Dow Chemical Company, the U.S. Army, and Johnson & Johnson.[103][104][105] In one of the studies, for which Dow Chemical paid Kligman $10,000, Kligman injected dioxin — a highly toxic, carcinogenic compound found in Agent Orange, which Dow was manufacturing for use in Vietnam at the time — into 70 prisoners (most of them black). The prisoners developed severe lesions which went untreated for seven months.[106] Dow Chemical wanted to study the health effects of dioxin and other herbicides, and how they affect human skin, because workers at their chemical plants were developing chloracne. In the study, Kligman applied roughly the same amount of dioxin as that to which Dow employees were being exposed. In 1980 and 1981, some of the people who were used in this study sued Professor Kligman for a variety of health problems, including lupus and psychological damage.[106]

Kligman later continued his dioxin studies, increasing the dosage of dioxin he applied to the skin of 10 prisoners to 7,500 micrograms of dioxin, which is 468 times the dosage that the Dow Chemical official Gerald K. Rowe had authorized him to administer. As a result, the prisoners developed inflammatory pustules and papules.[106] The Holmesburg program paid hundreds of inmates a nominal stipend to test a wide range of cosmetic prod-
ucts and chemical compounds, whose health effects were unknown at the time.\textsuperscript{[107]108} Upon his arrival at Holmesberg, Kligman is claimed to have said, “All I saw before me were acres of skin ... It was like a farmer seeing a fertile field for the first time.”\textsuperscript{[109]} A 1964 issue of \textit{Medical News} reported that 9 out of 10 prisoners at Holmesburg Prison were medical test subjects.\textsuperscript{[110]}

In 1967, the U.S. Army paid Kligman to apply skin-blistering chemicals to the faces and backs of inmates at Holmesburg to, in Kligman’s words, “learn how the skin protects itself against chronic assault from toxic chemicals, the so-called hardening process.”\textsuperscript{[106]}

5 Psychological and torture experiments

5.1 U.S. government research

The United States government funded and performed numerous psychological experiments, especially during the Cold War era. Many of these experiments were performed to help develop more effective torture and interrogation techniques for the U.S. military and intelligence agencies, and to develop techniques for Americans to resist torture at the hands of enemy nations and organizations.

5.1.1 Truth serum

In studies running from 1947 to 1953, which were known as Project Chatter, the U.S. Navy began identifying and testing truth serums, which they hoped could be used during interrogations of Soviet spies. Some of the chemicals tested on human subjects included mescaline and the anticholinergic drug scopolamine.\textsuperscript{[111]}

Shortly thereafter, in 1950, the CIA initiated Project Bluebird, later renamed Project Artichoke, whose stated purpose was to develop “the means to control individuals through special interrogation techniques”, “way[s] to prevent the extraction of information from CIA agents”, and “offensive uses of unconventional techniques, such as hypnosis and drugs”.\textsuperscript{[111][112][113]} The purpose of the project was outlined in a memo dated January 1952 that stated, “Can we get control of an individual to the point where he will do our bidding against his will and even against fundamental laws of nature, such as self preservation?” The project studied the use of hypnosis, forced morphine addiction and subsequent forced withdrawal, and the use of other chemicals, among other methods, to produce amnesia and other vulnerable states in subjects.\textsuperscript{[114][115][116][117][118]} In order to “perfect techniques for the abstraction of information from individuals, whether willing or not”, Project Bluebird researchers experimented with a wide variety of psychoactive substances, including LSD, heroin, marijuana, cocaine, PCP, mescaline, and ether.\textsuperscript{[119]} Project Bluebird researchers dosed over 7,000 U.S. military personnel with LSD, without their knowledge or consent, at the Edgewood Arsenal in Maryland. Years after these experiments, more than 1,000 of these soldiers suffered from several psychiatric illnesses, including depression and epilepsy. Many of them tried to commit suicide.\textsuperscript{[120]}

5.1.2 Drug deaths

In 1952, professional tennis player Harold Blauer died when injected by Dr. James Cattell with a fatal dose of a mescaline derivative at the New York State Psychiatric Institute of Columbia University. The United States Department of Defense, which sponsored the injection, worked in collusion with the Department of Justice and the New York State Attorney General to conceal evidence of its involvement for 23 years. Cattell claimed that he did not know what the army had given him to inject into Blauer, saying: “We didn’t know whether it was dog piss or what we were giving him.”\textsuperscript{[121][122]}

On November 19, 1953 Dr. Frank Olson was without his knowledge or consent given an LSD dosage before his death 9 days later. For 22 years this was covered up until the Project MKUltra revelations.

5.1.3 MKULTRA

Founding In 1953, the CIA placed several of its interrogation and mind-control programs under the direction of a single program, known by the code name MKULTRA, after CIA director Allen Dulles complained about not having enough “human guinea pigs to try these extraordinary techniques”.\textsuperscript{[123]} The MKULTRA project was under the direct command of Dr. Sidney Gottlieb of the Technical Services Division.\textsuperscript{[123]} The project received over $25 million, and involved hundreds of experiments on human subjects at eighty different institutions.

In a memo describing the purpose of one MKULTRA program subprogram, Richard Helms said:

> We intend to investigate the development of a chemical material which causes a reversible, nontoxic aberrant mental state, the specific nature of which can be reasonably well predicted for each individual. This material could potentially aid in discrediting individuals, eliciting information, and implanting suggestions and other forms of mental control.

—Richard Helms, internal CIA memo\textsuperscript{[124]}

In 1954, the CIA’s Project QKHILLTOP was created to study Chinese brainwashing techniques, and to develop effective methods of interrogation. Most of the early studies are believed to have been performed by
the Cornell University Medical School’s human ecology study programs, under the direction of Dr. Harold Wolff,[111][125][126] Wolff requested that the CIA provide him any information they could find regarding “threats, coercion, imprisonment, deprivation, humiliation, torture, ‘brainwashing’, ‘black psychiatry’, and hypnosis, or any combination of these, with or without chemical agents”. According to Wolff, the research team would then:

...assemble, collate, analyze and assimilate this information and will then undertake experimental investigations designed to develop new techniques of offensive/defense intelligence use ... Potentially useful secret drugs (and various brain damaging procedures) will be similarly tested in order to ascertain the fundamental effect upon human brain function and upon the subject’s mood ... Where any of the studies involve potential harm of the subject, we expect the Agency to make available suitable subjects and a proper place for the performance of the necessary experiments.

—Dr. Harold Wolff, Cornell University Medical School[126]

"... it was fun, fun, fun. Where else could a red-blooded American boy lie, kill, cheat, steal, rape and pillage with the sanction and bidding of the All-highest?"

George Hunter White, who oversaw drug experiments for the CIA as part of Operation Midnight Climax[127]

Another of the MKULTRA subprojects, Operation Midnight Climax, consisted of a web of CIA-run safehouses in San Francisco, Marin, and New York which were established in order to study the effects of LSD on unconsenting individuals. Prostitutes on the CIA payroll were instructed to lure clients back to the safehouses, where they were surreptitiously plied with a wide range of substances, including LSD, and monitored behind one-way glass. Several significant operational techniques were developed in this theater, including extensive research into sexual blackmail, surveillance technology, and the possible use of mind-altering drugs in field operations.[127]

In 1957, with funding from a CIA front organization, Dr. Ewan Cameron of the Allan Memorial Institute in Montreal, Canada began MKULTRA Subproject 68.[128] His experiments were designed to first “depattern” individuals, erasing their minds and memories—reducing them to the mental level of an infant—and then to “rebuild” their personality in a manner of his choosing.[129] To achieve this, Cameron placed patients under his “care” into drug-induced comas for up to 88 days, and applied numerous high voltage electric shocks to them over the course of weeks or months, often administering up to 360 shocks per person. He would then perform what he called “psychic driving” experiments on the subjects, where he would repetitively play recorded statements, such as “You are a good wife and mother and people enjoy your company”, through speakers he had implanted into blacked-out football helmets that he bound to the heads of the test subjects (for sensory deprivation purposes). The patients could do nothing but listen to these messages, played for 16–20 hours a day, for weeks at a time. In one case, Cameron forced a person to listen to a message non-stop for 101 days.[129] Using CIA funding, Cameron converted the horse stables behind Allen Memorial into an elaborate isolation and sensory deprivation chamber which he kept patients locked in for weeks at a time.[129] Cameron also induced insulin comas in his subjects by giving them large injections of insulin, twice a day, for up to two months at a time.[111] Several of the children who Cameron experimented on were sexually abused, in at least one case by several men. One of the children was filmed numerous times performing sexual acts with high-ranking federal government officials, in a scheme set up by Cameron and other MKULTRA researchers, to blackmail the officials to ensure further funding for the experiments.[130]

“The frequent screams of the patients that echoed through the hospital did not deter Cameron or most of his associates in their attempts to depattern their subjects completely.”

John D. Marks, The Search for the Manchurian Candidate, Chapter 8[131]

Concerns The CIA leadership had serious concerns about these activities, as evidenced in a 1957 Inspector General Report, which stated:

Precautions must be taken not only to protect operations from exposure to enemy forces but also to conceal these activities from the American public in general. The knowledge that the agency is engaging in unethical and illicit activities would have serious repercussions in political and diplomatic circles ...

—1957 CIA Inspector General Report[132]

In 1963, CIA had synthesized many of the findings from its psychological research into what became known as the KUBARK Counterintelligence Interrogation handbook,[133] which cited the MKULTRA studies and other secret research programs as the scientific basis for their interrogation methods.[129] Cameron regularly traveled around the U.S. teaching military personnel about his techniques (hooding of prisoners for sensory deprivation, prolonged isolation, humiliation, etc.), and how they could be used in interrogations. Latin American paramilitary groups working for the CIA and U.S. military received training in these psychological techniques
5 PSYCHOLOGICAL AND TORTURE EXPERIMENTS

5.1.4 Schizophrenic patient experiments

Dr. Robert Heath of Tulane University performed experiments on schizophrenic patients and prisoners in the Louisiana State Penitentiary. The experiments were funded by the U.S. Army. In the studies, he dosed them with LSD and Bulbocapnine, and implanted electrodes into the septal area of the brain to stimulate it and take EEG readings.

5.1.5 Torture experiments

From 1964 to 1968, the U.S. Army paid $386,486 to professors Albert Kligman and Herbert W. Copelan to perform experiments with mind-altering drugs on 320 inmates of Holmesburg Prison. The goal of the study was to determine the minimum effective dose of each drug needed to disable 50 percent of any given population. Kligman and Copelan initially claimed that they were unaware of any long-term health effects the drugs could have on prisoners; however, documents later revealed that this was not the case.

Medical professionals gathered and collected data on the CIA’s use of torture techniques on detainees during the 21st century war on terror, in order to refine those techniques, and “to provide legal cover for torture, as well as to help justify and shape future procedures and policies”, according to a 2010 report by Physicians for Human Rights. The report stated that: “Research and medical experimentation on detainees was used to measure the effects of large-volume waterboarding and adjust the procedure according to the results.” As a result of the waterboarding experiments, doctors recommended adding saline to the water “to prevent putting detainees in a coma or killing them through over-ingestion of large amounts of plain water.” Sleep deprivation tests were performed on over a dozen prisoners, in 48-, 96- and 180-hour increments. Doctors also collected data intended to help them judge the emotional and physical effects of the techniques so as to “calibrate the level of pain experienced by detainees during interrogation” and to determine if using certain types of techniques would increase a subject’s “susceptibility to severe pain.” In 2010 the CIA denied the allegations, claiming they never performed any experiments, and saying “The report is just wrong”; however, the U.S. government never investigated the claims. The psychologists James Mitchell and Bruce Jessen ran a company that was paid $81 million by the CIA, that, according to the Senate Intelligence Committee report on CIA torture, developed the “enhanced interrogation techniques” used. In November 2014, the American Psychological Association announced that they would hire a lawyer to investigate claims that they were complicit in the development of enhanced interrogation techniques that constituted torture.

In August 2010, the U.S. weapons manufacturer
Raytheon announced that it had partnered with a jail in Castaic, California in order to use prisoners as test subjects for its Active Denial System that "fires an invisible heat beam capable of causing unbearable pain." The device, dubbed "pain ray" by its critics, was rejected for fielding in Iraq due to Pentagon fears that it would be used as an instrument of torture. \[152\]

5.2 Academic research

In 1939, at the Iowa Soldiers' Orphans' Home in Davenport, Iowa, twenty-two children were the subjects of the so-called "monster" experiment. This experiment attempted to use psychological abuse to induce stuttering in children who spoke normally. The experiment was designed by Dr. Wendell Johnson, one of the nation's most prominent speech pathologists, for the purpose of testing one of his theories on the cause of stuttering. \[153\]

In 1961, in response to the Nuremberg Trials, the Yale psychologist Stanley Milgram performed his "Obedience to Authority Study", also known as the Milgram Experiment, in order to determine if it was possible that the Nazi genocide could have resulted from millions of people who were "just following orders". The Milgram Experiment raised questions about the ethics of scientific experimentation because of the extreme emotional stress suffered by the participants, who were told, as part of the experiment, to apply electric shocks to test subjects (who were actors and did not really receive electric shocks).

In 1971, Stanford University psychologist Philip Zimbardo conducted the Stanford prison experiment in which twenty-four male students were randomly assigned roles of prisoners and guards in a mock prison situated in the basement of the Stanford psychology building. The participants adapted to their roles beyond Zimbardo's expectations with prison guards exhibiting authoritarian status and psychologically abusing the prisoners who were passive in their acceptance of the abuse. The experiment was largely controversial with criticisms aimed toward the lack of scientific principles and a control group, and for ethical concerns regarding Zimbardo's lack of intervention in the prisoner abuse.

6 Pharmacological research

At Harvard University, in the late 1940s, researchers began performing experiments in which they tested diethylstilbestrol, a synthetic estrogen, on pregnant women at the Lying-In Hospital of the University of Chicago. The women experienced an abnormally high number of miscarriages and babies with low birth weight (LBW). None of the women were told that they were being experimented on. \[154\]

In 1962, researchers at the Laurel Children's Center in Maryland tested experimental acne medications on children. They continued their tests even after half of the children developed severe liver damage from the medications. \[155\]

In 2004, University of Minnesota research participant Dan Markingson committed suicide while enrolled in an industry-sponsored pharmaceutical trial comparing three FDA-approved atypical antipsychotics: Seroquel (quetiapine), Zyprexa (olanzapine), and Risperdal (risperidone). Writing on the circumstances surrounding Markingson's death, the study, which was designed and funded by Seroquel manufacturer AstraZeneca, University of Minnesota Professor of Bioethics Carl Elliott noted that Markingson was enrolled in the study against the wishes of his mother, Mary Weiss, and that he was forced to choose between enrolling in the study or being involuntarily committed to a state mental institution. \[156\] Further investigation revealed financial ties to AstraZeneca by Markingson's psychiatrist, Dr. Stephen C. Olson, oversights and biases in AstraZeneca’s trial design, and the inadequacy of university Institutional Review Board (IRB) protections for research subjects. \[157\] A 2005 FDA investigation cleared the university. Nonetheless, controversy around the case has continued. Mother Jones resulted in a group of university faculty members sending a public letter to the university Board of Regents urging an external investigation into Markingson’s death. \[158\]

7 Other experiments

The 1846 journals of Dr. Walter F. Jones of Petersburg, Virginia, describe how he poured boiling water onto the backs of naked slaves affected with typhoid pneumonia, at four-hour intervals, because he thought that this might "cure" the disease by "stimulating the capillaries". \[159\][160\]

From early 1940 until 1953, Dr. Lauretta Bender, a highly respected pediatric neuropsychiatrist who practiced at Bellevue Hospital in New York City, performed electroshock experiments on at least 100 children. The children's ages ranged from 3–12 years. Some reports indicate that she may have performed such experiments on more than 200. From 1942 to 1956, electroconvulsive treatment was used on more than 500 children at Bellevue Hospital, including Bender's experiments; from 1956 to 1969, ECT was used at Creedmoor State Hospital Children’s Service. Publicly, Bender claimed that the results of the “therapy” were positive, but in private memos, she expressed frustration over mental health issues caused by the treatments. \[161\] Bender would sometimes shock schizophrenic children (some less than 3 years old) twice per day, for 20 consecutive days. Several of the children became violent and suicidal as a result of the treatments. \[162\]

In 1942, the Harvard University biochemist Edward
Cohn injected 64 Massachusetts prisoners with cow blood, as part of an experiment sponsored by the U.S. Navy.[163][164][165]

In 1950, researchers at the Cleveland City Hospital ran experiments to study changes in cerebral blood flow: they injected people with spinal anesthesia, and inserted needles into their jugular veins and brachial arteries to extract large quantities of blood and, after massive blood loss which caused paralysis and fainting, measured their blood pressure. The experiment was often performed multiple times on the same subject.[85]

In a series of studies which were published in the medical journal Pediatrics, researchers from the University of California Department of Pediatrics performed experiments on 113 newborns ranging in age from 1-hour to 3 days, in which they studied changes in blood pressure and blood flow. In one of the studies, researchers inserted a catheter through the babies’ umbilical arteries and into their aortas, and then submerged their feet in ice water. In another of the studies, they strapped 50 newborn babies to a circumcision board, and turned them upside down so that all of their blood rushed into their heads.[85]

The San Antonio Contraceptive Study was a clinical research study published in 1971 about the side effects of oral contraceptives. Women coming to a clinic in San Antonio to prevent pregnancies were not told they were participating in a research study or receiving placebos. 10 of the women became pregnant while on placebos.[166][167][168]

In the 2000s (decade), artificial blood was transfused into research subjects across the United States without their consent by Northfield Labs.[169] Later studies showed the artificial blood caused a significant increase in the risk of heart attacks and death.[170]

8 Legal, academic and professional policy

Main article: Human subject research legislation in the United States

During the Nuremberg Medical Trials, several of the Nazi doctors and scientists who were being tried for their human experiments cited past unethical studies performed in the United States in their defense, namely the Chicago malaria experiments conducted by Dr. Joseph Goldberger.[12][50] Subsequent investigation led to a report by Andrew Conway Ivy, who testified that the research was “an example of human experiments which were ideal because of their conformity with the highest ethical standards of human experimentation.”[171] The trials contributed to the formation of the Nuremberg Code in an effort to prevent such abuses.[172]

A secret AEC document dated April 17, 1947, titled Medical Experiments in Humans stated: “It is desired that no document be released which refers to experiments with humans that might have an adverse reaction on public opinion or result in legal suits. Documents covering such fieldwork should be classified Secret.”[59]

At the same time, the Public Health Service was instructed to tell citizens downwind from bomb tests that the increases in cancers were due to neurosis, and that women with radiation sickness, hair loss, and burned skin were suffering from “housewife syndrome”. [59]

In 1964, the World Medical Association passed the Declaration of Helsinki, a set of ethical principles for the medical community regarding human experimentation. In 1966, the United States National Institutes of Health (NIH) Office for Protection of Research Subjects (OPRR) was created. It issued its Policies for the Protection of Human Subjects, which recommended establishing independent review bodies to oversee experiments. These were later called institutional review boards.

In 1969, Kentucky Court of Appeals Judge Samuel Strinfeld dissented in Strunk v. Strunk, 445 S.W.2d 145. He made the first judicial suggestion that the Nuremberg Code should be applied to American jurisprudence.

In 1974 the National Research Act established the National Commission for the Protection of Human Subjects. It mandated that the Public Health Service come up with regulations to protect the rights of human research subjects.

Project MK-ULTRA was first brought to wide public attention in 1975 by the U.S. Congress, through investigations by the Church Committee, and by a presidential commission known as the Rockefeller Commission.[173][174]

In 1975, the Department of Health, Education and Welfare (DHEW) created regulations which included the recommendations laid out in the NIH’s 1966 Policies for the Protection of Human Subjects. Title 45 of the Code of Federal Regulations, known as “The Common Rule,” requires the appointment and use of institutional review boards (IRBs) in experiments using human subjects.

On April 18, 1979, prompted by an investigative journalist’s public disclosure of the Tuskegee syphilis experiments, the United States Department of Health, Education, and Welfare (later renamed to Health and Human Services) released a report entitled Ethical Principles and Guidelines for the Protection of Human Subjects of Research, written by Dan Harms. It laid out many modern guidelines for ethical medical research.

In 1987 the United States Supreme Court ruled in United States v. Stanley, 483 U.S. 669, that a U.S. serviceman who was given LSD without his consent, as part of military experiments, could not sue the U.S. Army for damages.

Dissenting the verdict in U.S. v. Stanley, Justice Sandra
Day O’Connor stated:

No judicially crafted rule should insulate from liability the involuntary and unknowing human experimentation alleged to have occurred in this case. Indeed, as Justice Brennan observes, the United States played an instrumental role in the criminal prosecution of Nazi scientists who experimented with human subjects during the Second World War, and the standards that the Nuremberg Military Tribunals developed to judge the behavior of the defendants stated that the ’voluntary consent of the human subject is absolutely essential ... to satisfy moral, ethical, and legal concepts.’ If this principle is violated, the very least that society can do is to see that the victims are compensated, as best they can be, by the perpetrators.

On January 15, 1994, President Bill Clinton formed the Advisory Committee on Human Radiation Experiments (ACHRE). This committee was created to investigate and report the use of human beings as test subjects in experiments involving the effects of ionizing radiation in federally funded research. The committee attempted to determine the causes of the experiments and reasons that the proper oversight did not exist. It made several recommendations to help prevent future occurrences of similar events.[175]

As of 2007, not a single U.S. government researcher had been prosecuted for human experimentation. The preponderance of the victims of U.S. government experiments have not received compensation or, in many cases, acknowledgment of what was done to them.[176]

9 See also

- Belmont Report
- Eugenics in the United States
- Henry Cotton (doctor)
- Human rights in the United States
- Japanese human experimentation
- Nazi human experimentation
- North Korean human experimentation
- Operation Big Buzz
- Operation Crossroads
- Operation Dew
- Operation Drop Kick
- Operation LAC
- Operation May Day
- Project MKUltra
- Poison laboratory of the Soviet secret services
- Research involving prisoners

10 References

10.1 Notes


[16] Reviews and Notes: History of Medicine: Subjected to Science: Human Experimentation in America before the Second World War, Annals of Internal Medicine, American College of Physicians, July 15, 1995 vol. 123 no. 2 159


10 REFERENCES


[23] Brody, 1998: p. 120


[27] Hornblum, 1999: p. 76


[37] Tansey, Bernadette (October 31, 2004). “Serratia has dark history in region: Army test in 1950 may have changed microbial ecology”. San Francisco Chronicle.


[41] Hornblum, 1998: p. 91


[48] Biological Warfare and the National Security State: A Chronology, Tom Burghardt


[53] Cina & Perper, 2010: p. 95


[64] Moreno, 2001: p. 132


[67] , Advisory Committee on Human Radiation Experiments, 1985


[73] Goliszek, 2003: p. 139


[87] ACHRE Report: New Ethical Questions for Medical Researchers

“In 1949, the AEC undertook Project GABRIEL, a secret effort to study the question of whether the tests could threaten the viability of life on earth. In 1953, Gabriel led to Project Sunshine...”


[91] “Dundee University Medical School; PDF” (PDF). Retrieved 2012-12-16.


[96] Goliszek, 2003: Ch. 4


REFERENCES


[100] Cina & Perper, 2010: p. 96


[109] Hornblum, 2007: p. 52


[113] *Church Committee*, p. 390 “MKULTRA was approved by the DCI [Director of Central Intelligence] on April 13, 1953”


[125] APPENDIX C: Documents Referring To Subprojects – 1977 Senate MKULTRA Hearing (Retrieved February 18, 2010)


[131] Marks, John D., Chapter 8, *The Search for the Manchurian Candidate*

[132] Otterman, 2007: p. 27

[133] McCoy, 2006: pp. 50–53


[135] “Final report of the Select Committee to Study Governmental Operations with Respect to Intelligence Activities, United States Senate : together with additional, supplemental, and separate views”. Archive.org. Retrieved 2012-12-16.


[143] Sheldon Richman (June 23, 2010). “Did the CIA Conduct Medical Experiments on Detainees?”. *Counterpunch.*
Experiments in Torture: Human Subject Research and Experimentation in the “Enhanced” Interrogation Program, Physicians for Human Rights, June 2010
See also:
* Related Publications
* Outside Academic Experts Respond to Experiments in Torture
* Complaint to Office of Human Research Protections Regarding Evidence of CIA Violations of Common Rule
* Experiments in Torture (video)

Experiments in Torture: Medical Group Accuses CIA of Carrying Out Illegal Human Experimentation, Democracy Now!, June 8, 2010

Accounting for Torture: Being Faithful to our Values, (video) National Religious Campaign Against Torture (cited by PHR)


United States Senate Select Committee on Intelligence. “The Senate Committee’s Report on the C.I.A.’s Use of Torture” December 9, 2014.


“Theory improved treatment and understanding of stuttering:” Ethics concerns led researchers to conceal the experiment Decades later, the experiment’s victims struggle to make sense of their past, Jim Dyer, San Jose Mercury News, Monday, June 11, 2001 (Retrieved February 17, 2010)

Loue, 2000: p. 30


http://markingson.blogspot.com/


U-of-M-Board-of-Regents-Markingson-Letter


## 11 Further resources

### 11.1 General

• “Human Research Report” - a monthly newsletter on protecting human subjects


• Kalechofsky, Roberta. *Human Experimentation: Before the Nazi Era and After*.


### 11.2 Biological warfare and disease/pathogen experiments

• Bibliography of Chemical and Biological Warfare documents


• Biological Weapons – Federation of American Scientists

• Franz, et al., *The U.S. Biological Warfare and Biological Defense Programs*

• US Army Activities in the US Biological Warfare Program, 1977 Congressional report

11.4 Psychological/torture/interrogation experiments


• http://stlouis.cbslocal.com/2012/09/24/researcher-poor-st-louis-minorities-targeted-for-secret-cold-war-chemical-testing/

11.3 Human radiation experiments

11.3.1 Books


11.3.2 Government documents

• Advisory Committee on Human Radiation Experiments (ACHRE) – National Security Archives

• Exposure of the American population to radioactive fallout from nuclear weapons tests: a review of the CDC-NCI draft report on a feasibility study of the health consequences to the American population from nuclear weapons tests conducted by the United States and other nations, National Research Council (U.S.). Committee to Review the CDC-NCI Feasibility Study of the Health Consequences from Nuclear Weapons Tests, National Academies Press, 2003 ISBN 978-0-309-08713-1

11.3.3 Journals


• Chair’s Perspective on the Work of the Advisory Committee on Human Radiation Experiments by Ruth Faden

11.4 Psychological/torture/interrogation experiments

• Bibliography of U.S. interrogation/torture research

• Truth, torture, and the American way, Jennifer Harlow

• Biderman, A. Social-Psychological Needs and “Involuntary” Behavior as Illustrated by Compliance in Interrogation, Sociometry, Vol. 23, No. 2 (June, 1960), pp. 120–147

• The CIA: Mind-Bending Disclosures – Time Magazine, Monday, August 15, 1977 (Retrieved February 18, 2010)

• Resources on Drug Experimentation and Related Mind Control Experiments by the U.S. Government

• Khatchadourian, Raffi (December 7, 2012) “Operation Delirium”, The New Yorker

11.5 Video

• MKULTRA Victim Testimony A – 1977 MKULTRA Congressional Hearings

• MKULTRA Victim Testimony B – 1977 MKULTRA Congressional Hearings

• MKULTRA Victim Testimony C – 1977 MKULTRA Congressional Hearings

• President Clinton apologizes for Human Radiation Experiments

• Complete transcript of Clinton’s apology for Human Radiation Experiments

• Physicians for Human Rights Accuses CIA of Carrying Out Illegal Human Experimentation – video report by Democracy Now!

• The Dark History of Medical Experimentation from the Nazis to Tuskegee to Puerto Rico – video report by Democracy Now!
12 Text and image sources, contributors, and licenses

12.1 Text

- Unethical human experimentation in the United States  

12.2 Images

- File:Chloracne-in-herbicide-worker.png  
  Source: http://upload.wikimedia.org/wikipedia/commons/5/5a/Chloracne-in-herbicide-worker.png  
  License: Public domain  
  Contributors: OCCUPATIONAL DERMATOSES - CDC/NIOSH  
  Original artist: NIOSH

- File:Flag_of_the_United_States.svg  
  Source: http://upload.wikimedia.org/wikipedia/en/a/a4/Flag_of_the_United_States.svg  
  License: PD  
  Original artist: ?

- File:Project_4.1_final_report_cover.png  
  Source: http://upload.wikimedia.org/wikipedia/commons/0/0b/Project_4.1_final_report_cover.png  
  License: Public domain  
  Original artist: United States Department of Energy

- File:Tuskegee_study.jpg  
  Source: http://upload.wikimedia.org/wikipedia/commons/e/e3/Tuskegee_study.jpg  
  License: Public domain  
  Contributors: This media is available in the holdings of the National Archives and Records Administration, cataloged under the ASC 956104.  
  Original artist: Uploaded by Taco325

12.3 Content license

- Creative Commons Attribution-Share Alike 3.0