

PUBLIC HEALTH

Leukemia Danger

X-ray treatment of spondylitis makes leukemia rate ten times normal. Breathing of radioactive particles from fallout could produce lung cancers.

► WARNINGS of a new leukemia danger and of a possible lung cancer danger from radiation appear in the British Medical Research Council's report on the hazards of nuclear radiation.

The report, a companion piece to that issued by the U. S. National Academy of Sciences, is now being studied by atomic scientists and medical men in America.

Inhaling radioactive particles in the fallout from atomic explosions or in the vicinity of nuclear reactors could, theoretically, lead to cancer of the lung, the British report points out.

The radioactive particles would not be uniformly distributed in the lungs but would tend to collect in small areas. These areas would then be subjected to a high dose of radiation "with the result that in the long run lung cancers might be produced in some people."

The British scientists point out, however, that this would be "extremely unlikely" to happen as a result of fallout except in conditions of actual warfare. So long as proper safeguards are used, it is not likely to happen in the vicinity of nuclear reactors.

The new leukemia danger is apparently real rather than theoretical, and one which medical men seem to have overlooked. It threatens patients with the joint disease, ankylosing spondylitis. The stiffening of the joints, particularly in the spine, has earned this condition the popular name, "poker spine."

The disease usually starts in early adult life and is about six times more frequent in men than women.

The leukemia danger comes from the X-ray treatment often given and which helps some spondylitis patients, even permanently halting the disease.

Ten Times Normal

Spondylitis patients given this treatment developed leukemia at about 10 times the rate that would be expected if they had not had radiation treatment, the scientists report.

This finding was made in a special study of hospital records of between 13,000 and 14,000 patients, all of whom had gotten X-ray treatment for spondylitis at some time during the period 1935 to 1954. Leukemia developed in 38 of these patients. This seems a small number until compared with national death rates for leukemia over the same period. Calculations based on these figures showed the 10 times increased incidence.

No increased amount of leukemia was

found in patients who had not been treated by X-rays.

The X-ray treatment for ankylosing spondylitis is usually given over the whole spine, so that a large part of the body is exposed directly to the radiation. Some patients have had to have more than one course of treatment. The treatment is so extensive that it "more nearly approaches whole body irradiation than that given for any other non-malignant condition." It was for this reason that the British scientists made a special study of it after finding that leukemia had been reported in two patients given X-ray treatment for the condition.

The possibility that patients suffering from this condition are unusually sensitive to X-rays cannot be ruled out, the report points out.

A theoretical possibility also exists that very small doses could be given spondylitis patients without danger of producing leukemia. This could not be told from the available records.

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CIVIL DEFENSE

Assume Every U. S. City Can Be Attacked

► "IT IS ACCEPTED that the Soviet Union has the capability of striking any target within the United States."

This is the guiding principle these days for all research and planning by the Federal Civil Defense Administration as disclosed in their Fifth Annual Report to the President and the Congress.

Many of the civil defense plans and assumptions remain constant for some years, the FCDA people tell us. Others change.

From reading the report, it appears that if the United States is attacked, it will be with everything but the proverbial kitchen sink.

Spelled out in black and white for this year, these are the assumptions upon which civil defense planning is being made:

Principal Weapons Bombs

1. If the U.S. is attacked, the principal weapons will be atomic or hydrogen bombs of varying sizes delivered by aircraft or submarine. (There is no mention in the planning assumptions of guided missiles or intercontinental ballistics missiles.)

2. Some of these weapons will be detonated in the air and others at ground level. If detonated at or near the ground, radiological contamination in deadly concentrations will be produced in areas far beyond the zones of blast and thermal damage.

3. Incendiary and chemical warfare weapons will also be used.

4. Sabotage will be employed, involving clandestine use of nuclear, biological and chemical weapons.

5. Psychological warfare will be used in an attempt to disrupt defense programs, impair production, create panic and despair, and weaken our will to fight.

6. The enemy's initial attack will be an attempted knockout blow, to be followed by other attacks of varying intensity, and that a large proportion of the weapons carried will be delivered on target.

Science News Letter, July 7, 1956



ROCKET ENGINE TEST—Three test firings of rocket engines to power U. S. military missiles. Photograph was made at the Field Propulsion Laboratory of Rocketdyne in California's Santa Susana Mountains. It was made in a series of exposures over a period of nearly four hours, since the engines can be tested only one at a time.