



BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC., UPTON, L.I., N.Y. 11973

401708

MEDICAL DEPARTMENT

TELEPHONE: (516) 345-3577

November 25, 1975

Mr. Fred M. Zeder
Director of Territorial Affairs
U.S. Department of Interior
Washington, D.C. 20240

Dear Mr. Zeder,

I have been in correspondence with your office and the Congress of Micronesia concerning thyroid cases in the Rongelap and Utirik populations, accidentally exposed to fallout radiation in 1954, which you might wish to consider for compensation in the bill coming up before our Congress. It was pointed out that though there has been correlation of radiation causation of thyroid tumors in the Rongelap population, such was not considered likely in the Utirik population since the incidence of such tumors in the latter population was about the same (or slightly less) than in the unexposed populations examined. The radiation causation in one case of cancer of the thyroid in a Utirik woman was more questionable. Last month another tumor (possibly malignant) was surgically removed from a Utirik woman. Nine outstanding thyroid pathologists were divided on the diagnosis - 2 favoring benign, 3 cancer, and 4 calling it a premalignant tumor (cancer in situ). We have decided to call the tumor cancer for statistical purposes. The statisticians advise me that it is extremely unlikely that two cases of thyroid cancer would occur by chance in the exposed Utirik population. Therefore you may wish to reexamine the issue of compensation based on this new information.

The incidence of benign tumors of the thyroid in the Utirik population is less than found in the unexposed Rongelap population examined. In addition to the 2 cases of thyroid cancer in this group, there have been 4 benign tumors, 3 of which were surgically removed. In the unexposed Rongelap group there have been 9 benign tumors of the thyroid, 3 of which were surgically removed (see attached tables).

BEST COPY AVAILABLE

11/25/75

If there are any questions regarding these data, please let me know. I am sending a copy of this letter to the Congress of Micronesia.

Sincerely,

Robert A. Conard, M.D.

RAC:gc

CC: Dr. J. L. Liverman, ERDA
Senator O. T. Borja
Congressman A. Balos
Dr. M. Kumangei, T.T.
Dr. V. P. Bond, BNL
Dr. E. P. Cronkite, BNL

5011447

... they do NOT give full examinations
to the people of Utirik every year, as they do in Rongelap. Is not?

Following the accident in 1954 the American physicians and scientists involved, based on knowledge of human radiation effects available at that time, did not believe that the dose estimated to have been received by the Utirik people would lead to diseases caused by radiation. Also, since they had shown us acute effects and only a slight statistical depression of platelet counts, they were returned to their home island. However, it was considered prudent that the Utirik people should be examined at regular intervals and they were given complete physical examinations in 1957, 1959, 1963, 1966, 1969, 1972 and 1975. During the past six years special attention has been paid to thyroid examinations on an annual basis and all of the people on the island have been encouraged to be examined and treated by the physicians at sick call. Since 1973 the resident physician has visited Utirik on a quarterly basis. Dr. Kotrady was employed by Brookhaven National Laboratory to continue and expand the program initiated by Brookhaven and first carried out by Dr. Knudsen.

There were different return times for the Utirik people and the Rongelap people from Kwajalein (following their evacuation) in 1954---the people of Utirik returned to their atoll after three months, and the people of Rongelap returned to their atoll after three years.
Would it be correct to say that perhaps the Utirik people received more than only 14 rads in light of their quick return time to Utirik?

Although the estimated doses received by both Rongelap and Utirik people are inexact, a review of the data indicates that the dose estimates are reasonable estimates. There were marked early effects in the Rongelap people, but the lack of acute symptoms and the minimal blood changes detectable by statistical means in Utirik individuals is consistent with a small dose. The fact that the Utirik people were returned to their home island several months after the fallout would have contributed only a very slight increase in dose since surveys of the island revealed that the radiation levels were very low.

14545

5011448

How come the ERDA doctors told us that there was just a little bit of radiation in Utirik and a lot in Rongelap? That is, why are there the same number of malignant thyroid glands in Utirik as there are in Rongelap?


The doctors from ERDA have told us that there were 14 rads in Utirik and 175 rads in Rongelap, therefore, we are very surprized, because in Utirik we have ten cases of thyroid nodules, three of which were malignant. But in Rongelap they have thirty cases of thyroid nodules, and also three cases of malignancy. Perhaps you can tell us if there is some explanation for the same number of malignant thyroid cases in Rongelap and Utirik, who received very different levels of radiation?

The radiation dose to the thyroid glands was higher than the dose to the rest of the body because of selective absorption by the thyroid of radioiodines inhaled and ingested from contaminated food and water at the time of the fallout. The radiation dose to the thyroid glands of the Utirik people was estimated to be about 30 rads for adults and between 30 and 90 rads for children compared with 335 rads for adults and up to 700 - 1400 rads for children exposed on Rongelap. By the time the people returned to Utirik the radioiodines had virtually disappeared so that no further significant thyroid exposure was possible to anyone living on the island at that time.

The development of thyroid cancer in the Utirik people within the past few years was unexpected. Statistical comparison of thyroid cancer incidence at Utirik with the larger experience of the United States indicates that radiation very likely was involved. Accordingly it was recommended to the Department of Interior that all Utirik people who have thyroid operations be considered for compensation similarly to the Rongelap people. Compared with limited data on the unexposed Marshallese populations there has been only a very slight increase, if any, in non-cancer thyroid nodules in the Utirik people. The three cases of thyroid cancer in the Utirik

people compared with four in the Rongelap people is definitely higher than expected based on the estimated dose. However, we have reviewed the data and have found no reason to change the estimates of the dose to the thyroids of the Utirik people. The number of cases observed may vary above or below the average number expected - the variation being larger as the population size decreases. In a small population such as Utirik the difference between the predicted and observed number of cases may be substantial. Of course, thyroid cancer occurs in populations not exposed to radiation above the natural background. The incidences of thyroid cancer varies with different population groups. For example, in children the risk rate (in number of cases per million people per rad per year) varies from 0.5 to 1.5 reported by the United Nations to 5.5 for a group of Americans in New York. It is essential to know the natural incidence in the Marshallese and larger studies of such incidence have been initiated.

Even though it was known that the dose to the thyroid glands was higher than to the rest of the body, what was not known during the earlier years was the degree of sensitivity of the thyroid gland to radiation. Even today, there are many facts about radiation that are not known, despite the large number of scientists that have studied this subject for the past twenty or thirty years. Even less was known about radiation in 1954 at the time of the exposure to the people on Rongelap and Utirik. Only relatively recently has the degree of sensitivity of the thyroid for developing tumors from radiation exposure been appreciated. Therefore, the physicians examining you in past years, based on the best possible medical information available at that time, were being truthful when they said that they did not expect radiation effects to develop in the Utirik people.

 5011450

Would it be correct to say that we can expect many more cases of thyroid problems in the future?

At this time it is impossible to predict whether more thyroid nodules will develop in the Utirik population. It is therefore of the greatest importance that the regular medical examinations be continued in the future. By having regular medical examinations, signs of thyroid disease can be detected early, and prompt treatment will avoid unnecessary suffering on the part of the Utirik people.

Why is there not a control group in Utirik?

- a) The people of Utirik are different from the people of Rongelap--they are a different gene pool and breeding population.
- b) The people of Utirik were exposed to different levels of radiation than the people of Rongelap---Utirik had 14 rads, and Rongelap had 175 rads.

In conducting the medical examinations on the Marshallese, a comparison (control) group was selected so that the exposed and non-exposed people could be compared. This comparison group was selected in 1958 from the unexposed people of Rongelap. A separate unexposed group of comparison people from Utirik was not considered necessary since the Rongelap group was considered adequate for comparison with both the peoples of Rongelap and Utirik. The slight genetic difference between the two exposed populations and differences in doses received were not considered sufficient reasons to select a separate comparison group for Utirik.

 5011451

Why is it that the ERDA doctors do not examine the children of the exposed Utirik group?

One of the questions concerned the fact that the children of the exposed islanders have not been included in the regular examination list. This was done because large groups of children of radiation-exposed parents have been studied in Japan. Since these studies, including examinations of Marshallese children of exposed parents, revealed no distinct genetic effects, it was felt that regular examinations of the Marshallese children born of exposed parents was not necessary. To quote from a letter from one of the foremost human geneticists, Dr. J. V. Neel, Professor of Human Genetics at the University of Michigan: "... there is no evidence that genetic change was induced in children born of the exposed Marshallese any more than there is unequivocal evidence of damage in the children born of the exposed Japanese." He pointed out, however, that there are some 15-20 dominantly inherited syndromes that might possibly be related to radiation exposure. Even if one of these occurred, it would be impossible to say it was due to radiation. It is most unlikely that any Marshallese child would develop such a syndrome. Nevertheless, if any child of an exposed Marshallese did, they would receive special treatment. A program for examination of all children on Utirik is discussed later in this letter.

 5011452

6. Some years ago, the ERDA doctors discovered that a number of the Marshall people had adult-onset diabetes, and said that 25% of the people had the disease.

- a) Why haven't the ERDA doctors given medicine to the people who have the disease in Utirik (medicine: Diabinase)?
- b) Dr. Konrad Kotrady had asked the Trust Territory Gov't. (in Majuro) for the medicine (Diabinase), and they refused to give him any for the people of Utirik, and therefore, the people with this disease have not been properly treated.

The medical team has been studying diabetes in the Utirik people and other Marshallese people. Though a study of this disease was not considered a responsibility of the medical team since the disease is not related to radiation exposure, it was considered important to help the Trust Territory with this disease which is such a serious problem in the Marshall Islands. With regard to the use of Diabinase in the treatment of this disease Dr. James Field, an expert on diabetes from the University of Pittsburgh who had been studying diabetes in the Marshall Islands with the medical team, states that "there would be inherent risks in the use of the drug Diabinase in treating diabetes on Utirik or other outer islands in the Marshalls since long term medical supervision and laboratory tests are necessary to insure its safe and effective use."

7. The people of Utirik feel that their arrowroot has been damaged as a result of the radiation. At present the arrowroot stalks measure one foot, whereas before the radiation they measured five feet.

With regard to your comment about the reduced size of arrowroot plants on Utirik, we can state that the results of studies of radiation effects on plants would not support radiation exposure as being responsible for a reduction in size of arrowroot or of any other plants growing on Utirik Atoll. Numerous studies of radiation on Utirik show the levels have been too low to result in such effects.

- c. The people of Utirik should be able to choose their own doctors:
- a) The people of Utirik do not like Dr. Knudsen because he does not examine all of the Utirik people, and looks at the people of Utirik as if they are merely animals in a scientific experiment, and further, he does not provide a "sick call" for the people.
 - b) The people of Utirik do not like Dr. Conard because he lies to the people, and has not helped the people to understand the radiation that they confront in regards to the radiation and its effects.

We believe Drs. Conard, Kotrady, and Knudsen to be very capable and conscientious physicians who are deeply committed to the health and welfare of the people of Utirik. Moreover, the report by the Special Committee on Rongelap and Utirik, which was formed by the Congress of Micronesia, was favorable with regard to the examinations. In view of the above, we were greatly surprised to learn about the apparent displeasure on the part of the people of Utirik as expressed in your letter. One possible explanation for this difference in sentiment with regard to Drs. Conard and Knudsen, as expressed in your letter, could possibly be a misunderstanding as to their role and reasons to come to the islands. I would like to repeat that it is my firm conviction that the principal concern of Drs. Conard and Knudsen is the welfare and well-being of the Utirik people. It is possible that such a misunderstanding could easily result from the difference in language. Again, I would appeal to the Chiefs of Utirik to impress upon their people the importance of the medical examinations and the necessity to trust and cooperate with the American physicians.

At present, the people of Utirik have been informed from the bomb:

a) Therefore the people of Utirik feel the need to have someone come out and do a study of Utirik for possible lingering radiation.

First it should be said that there has been continued assessment of the radiological ~~base~~ ^{Capitol 1273} ~~of people living~~ on Rongelap, Utirik and Bikini. Many tests have been and are being made on soil, plants, water and on persons living on the islands by measurement of radiation in individuals and radiation checks of urine. The results indicate that the levels of exposure are so low as not to present a serious threat to their health. In the near future an areal survey for radiation in the northern Marshalls is planned which should give better information on the outlying islands of the atolls. It is also planned to invite several radiological scientists from the International Atomic Energy Agency to carry out an independent evaluation of the radiological situation on these islands at the time of this survey.

With regard to education of the people on these islands about radiation and its effects it is planned that Dr. Jan Nadu, a scientist from India, will visit the islands of Rongelap and Utirik for several weeks on each atoll and carry out an educational program on this subject using illustrated lectures and demonstrations.

We would like to inform the Utirik people that we anticipate introducing an expanded health care program for people living on Utirik, Rongelap, Bikini and Eniwetok. Such a program would include annual examinations by the physicians of everyone living on Utirik island, including unexposed people and children. It should be pointed out that only the exposed Utirik people are eligible for the benefits of PL 5-52. As in the past everyone at Utirik would have the opportunity to be seen at sick call during the quarterly visits of the Resident Physician. This meeting is being held to discuss these plans which we hope will provide a basis for better health care for the people of Utirik and Rongelap.


5011455