

## NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES

9-1, 4-chome, Anagawa, Chiba-shi, Japan

Senator Olympio T. Borja  
Congress of Micronesia  
Saipan, Mariana Islands, 96950

October 27, 1972

Dear Senator Borja;

I have the honor to submit the report concerning the medical examination of exposed Marshallese. Also enclosed please find our short communication as a reference for the additional comments, paragraph 2.


I appreciate your kind information. Dr. Conard also informed me of the results of the survey. I regret the occurrence of a leukemia.

With the understanding that the information contained is confidential in nature, a copy of this report was given to Dr. K. Misono, Director of our Institute, by his request.

I hope this report will be of use for the future medical examinations.

Respectfully submitted,

Yours sincerely,

  
Toshiyuki Kumatori, M. D.  
Head, Division of Radiation  
Health

Encl.  
Tk:tk

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## Report to the Special Joint Committee Concerning Rongelap and Utirik Atolls, Congress of Micronesia

This report was prepared in response to the request from the Special Joint Committee. The comments in this report are arranged in the same order of the subjects of discussion in Memorandum of Understanding which I received on September 21, 1972.

### Comments on:

1-a. I think that medical examination of the exposed Marshallese on once a year basis is justifiable considering an island situation. However, since the immigration into other islands of the Rongelapese and Utirikese is unexpectedly frequent, I feel that it is necessary to take firm hold of actual circumstances. For this purpose, those who bear the responsibility of health control of the Rongelapese and Utirikese should inform the Trust Territory Government and Dr. Conard of these circumstances periodically. These actions will be very useful for the following examinations.

1-b. The present AEC team's examination methods which seem to attach importance to thyroid function are adequate to protect the health of exposed people. However, when we consider that the radiation health control forms a link in the chain of general health control and that detection of subtle late effects in the exposed people is necessary,

## NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES

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it is desirable, as an ideal, to add some other examinations to the present ones, f. e. chest X-ray examination to all residents, liver function tests, more detailed hematological examinations, cytogenetical study, etc.. Without saying, expensive equipments and man power will be required to perform such examinations. Moreover, closer co-operation of Marshallese is inevitable, because more frequent blood sampling and other procedures can not be avoided.

1-c. This time, the AEC team and the observers had meetings to discuss several problems with the Rongelapese and Utirikese before the beginning of the examinations. I think that these meetings were helpful to carry out the examinations smoothly. Nevertheless, I still feel that the difference of languages is the biggest obstacle which may sometimes disturb mutual understandings.

In general, personnels who are engaged in health control of the Rongelapese and Utirikese should be more trained. With the help of these personnels doctor-patient relationship between the AEC team and the people being examined will be much more improved.

1-d. As mentioned in the comment on paragraph 1-b, more detailed examinations are desirable as far as possible. I propose that Trust Territory Government own a ship which has enough rooms to complete the examinations. The ship should be equipped with an automatic

## NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES

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blood analyser, an automatic blood cell counter and other small examination rooms including a culture room and a dark room.

With the use of the ship most of the results of examinations will be available more quickly than at present.

2-a. I feel that the present treatment of AEC team is adequate.

Most remarkable late effects of the exposed Marshallese were thyroid abnormalities. The methods of the treatment of these abnormalities are quite adequate according to the Brookhaven National Laboratory Report.

2-b. The Rongelapese were irradiated by following three ways; external irradiation by  $\gamma$ -ray,  $\beta$ -radiation to skin, and internal irradiation. The treatments of the injuries due to  $\gamma$ -ray and  $\beta$ -ray irradiation were reasonable.

According to the present knowledge, when the uptake of radioactive iodine is suspected, inorganic iodine, f. e. NaI should be given to the suspicious patients as soon after irradiation as possible. The Rongelapese were evacuated about 2 days after the initial exposure. Even if these people had been given a dose of NaI containing 200 mg of stable iodine at that time, uptake of radioactive iodine might not have been much reduced.

## NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES

9-1, 4-chome, Anagawa, Chiba-shi, Japan

Furthermore, considering that the rescue operation was done 18 years ago, I don't think that the treatment without giving them inorganic iodine was inadequate.

Additional comments on:

1. The body burden of the Rongelapese and Utirikese is considered to have been increased by the fallout due to the following test explosion after their return to Rongelap and Utirik. However, the amount of fallout was not so much to injure them. At that time, namely in 1954 and 1957, if they found some benefit in returning to their home islands and wished to live there, I feel that it was not necessarily wrong to have made them return.
2. On the exposed Japanese fishermen the cytogenetical studies have been continued since 1964 by the staffs of our Division. The chromosome analyses are done by 2 day culture of peripheral lymphocytes. Some of the results are summarized in the attached paper. We found intimate correlation between the frequency of stable chromosome aberrations and estimated external dose or minimum value of neutrophils which indicates the severity of early radiation syndrome.

According to the report by Lisco and Conard (BNL 50029, p. 137), correlation of chromosomal aberrations and severity of early radiation

## NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES

9-1, 4-chome, Anagawa, Chiba-shi, Japan

syndrome was not apparent. However, Dr. M. S. Sasaki, Dept. of Human Cytogenetics, Tokyo Medical and Dental University, has found a difference between the 175-rad group and the 70-rad group of the exposed Marshallese (Radiation Biology Research Communication 3: 3-21, 1968, in Japanese) from the data of Lisco and Conard (Science 157: 445-447, 1967) using the method with which the estimate for atomic bomb survivors was made 22 years after exposure (Nature 220: 1189-1193, 1968).

Taking above mentioned facts into consideration, I would like to suggest that cytogenetical examination be done on the selected cases in near future. This study is considered to be important to detect the late effects.

3. Since I am not a specialist in the field of radiation dosimetry, I asked an authority of our Institute. According to his opinion, the ways of estimation described in BNL report are reasonable.

In addition to these comments, I would like to make a proposal that Trust Territory Government request the United Nations to have an international scientific meeting on the effects of radiation-exposed people including the Marshallese. I believe that such a meeting is useful to dispel several misunderstandings.

**NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES**

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Lastly I would like to take this opportunity to express my great admiration for the excellent results which have been obtained under the co-operation of AEC team, Trust Territory Government and many other authorities after overcoming many difficulties.

*Toshiyuki Kumatori*  
Toshiyuki Kumatori, M. D.

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## Résumé of Professional Background

I was graduated from School of Medicine, Tokyo University in 1945 and received a degree of Doctor of Medicine. After the graduation I entered the 3rd Department of Internal Medicine, Tokyo University as a research fellow. In October 1945 I went to Hiroshima for the survey and treatment of A-bomb victims and spent about two months. I practiced hematology. From 1948 to 1950 I was also a lecturer of Tokyo Medical and Dental College.

In 1952 I moved to First National Hospital of Tokyo. When Bikini radiation accident occurred I took charge of the treatment of Japanese fishermen exposed to fallout radiation in March 1954. In 1956 I got the scholarship of Japanese Government and studied radiation hematology for about a year mainly in Oxford University, England. I also visited other European countries and U. S. A. for the study until October in 1957.

In 1959 I was appointed to Chief of 1st Laboratory of Clinical Investigation at National Institute of Radiological Sciences. In October, 1962, I was invited to the scientific meeting on "Diagnosis and Treatment of Radioactive Poisoning" by the International Atomic Energy Agency. In March, 1964, I went to the Marshall Islands to observe the examinations of the exposed Marshallese with U. S. AEC team. In 1965 I was appointed to Head of Division of Radiation Health at National Institute of Radiological Sciences. In June, 1966, I went to U. S. A. and several European countries as a leader of a party of investigation on "Medical Supervision of Plutonium Operator". In August, 1970, I attended to the 13th International Congress of Hematology which was held in Munich. Since 1954, I have continued the follow-up studies on above mentioned Japanese fishermen. I have published many papers on the subjects of hematology and radiation effects on human being.

*Toshiyuki Kumatori*  
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