

THE CURRENT STATUS OF THYROID DISEASE AMONG
THE MARSHALLESE EXPOSED TO FALLOUT FROM
THE BRAVO TEST, MARCH 1, 1954

(The following data are taken from an informal report by Dr. Conard dated 4/20/71)

The current status may be updated as follows:

- I. Young Rongelapese exposed to fallout March 1, 1954, when they were 1 to 8 years of age. (Estimated dose: 175 rads external gamma plus 600 to 1400 rem internal irradiation.)

Total - 19

1. Currently normal by clinical and biochemical tests. (There may be a slight unevenness of the gland in one patient.) 2 (11%)
2. Currently hypothyroid with minimal nodularity. Responding satisfactorily to oral thyroid hormone therapy. 3 (16%)
3. have undergone surgery in the U. S. prior to 1969 because of nodular thyroid disease; histologic diagnosis of adenomatous goiter and Huerthle cell tumor. Responding satisfactorily to oral thyroid hormone therapy with one exception: This patient shows some enlargement of the remnant of thyroid left from a partial thyroidectomy in 1964; as she has not followed her post-operative thyroid hormone regimen, there is question as to whether she should have further surgery. 11 (58%)
4. Young people operated on for thyroid disease during August 1969 and recovered. Diagnoses: Primary benign adenomatous goiter in two and papillary adenoma of serious grade malignancy in one. 3 (16%)

(None of six Ailinginae children exposed to an estimated external dose of 69 rads have shown thyroid dysfunction.)

- II. Surviving adult Rongelapese exposed to fallout. (Estimated dose: 175 rads external plus 160 rem internal irradiation.)

Total - 34

1. Papillary carcinoma removed surgically at age 41. No recurrence. Taking oral thyroid hormone therapy. 1

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2. Small nodule at age 40 which disappeared under oral thyroid hormone therapy. 1
3. This patient operated on in 1969 for removal of an invasive adenoma; has recovered satisfactorily 1

(All the above in I and II who underwent surgery appear to be in good health without evidence of recurrence.)

III. Surviving adult Ailinginae people exposed to fallout. (Estimated dose: 69 rads external gamma irradiation.)

Total - 8

1. Adenomatous goiter removed at age 45; recovered and was on thyroid therapy. Died of influenza in 1968.

IV. Surviving adult Utirik people exposed to fallout. (Estimated dose: 14 rads external gamma plus 15 rem internal irradiation.)

Total - 120

1. One person developed a nodular thyroid gland and underwent surgery in 1969. As the tissue resembled a follicular adenoma in frozen section, a total thyroidectomy was performed; histologic sections confirmed the diagnosis and upgraded the degree of malignancy. She has recovered satisfactorily.
2. One person with slight enlargement of one lobe of the thyroid to be treated conservatively and observed.

One case of nodular thyroid has been found in a non-exposed Rongelap woman living on Ebeye. Thyroid surgery has been recommended for this patient at Majuro Hospital. No other instances of thyroid abnormalities have been found in the control populations living on Utirik, Majuro or Ebeye.

It appears that the exposed populations have stabilized so far as the thyroid reactions are concerned.

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The bibliography under Published Reports and Articles in Medical Journals below is not complete. Papers have been omitted which dealt with the development of techniques used in the laboratory or have reported some aspect of the study which has a limited or specific scientific interest. Also omitted are reprints of speeches made by members of the teams at various times and places. On the other hand the reluctance of editors or biomedical journals to publish bulk data has caused Dr. Conard to record summarized versions of the bulk data of a survey or group of surveys as Brookhaven National Laboratory. These can be used as source books and in fact have been so used by agencies such as the United Nations. Subjects of special interest to medicine and radiation biology have been developed from the data in these source books and published in the journals and proceedings referenced.

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TABLE I

A SUMMARY OF THE NUMBERS OF MARSHALLESE AND U. S. SERVICEMEN ON THE ATOLLS EAST OF BIKINI WHO WERE EXPOSED TO FALLOUT FROM THE TEST "BRAVO" ON MARCH 1, 1954 (2)

Number of People in Group	Time of Commencement of Fallout Hrs.	Time of Evacuation Hrs.	Est. Total r Air Dose Roentgens
1. Rongelap - 64	H +4-6	H +50 (16 people)	175
2. Ailinginae*- 18	H +4-6	H +51 (48 people)	69
3. Rongerik - 28 U. S. Servicemen	H +6.8	H +28.5 (8 men)	78
4. Utirik - 157	H +22	H +34 (20 men) Started H +55 Completed H +78	14

* The people in the Ailinginae group were Rongelapese who happened to be fishing on Ailinginae at the time of exposure.