

R

THYROID LESIONS IN MARSHALLESE¹ 1967-1974

| <u>GROUP</u> | <u>THYROID DOSE</u> ² | <u>LESIONS</u> |
|------------------------------|----------------------------------|------------------------------|
| <u>CHILDREN</u> ³ | | |
| R (exposed in utero) | 175 + ? | 33.3 (1/3) |
| R (exposed at < age 10) | 675 - 1440 | 89.5% (17/19) (1 cancer) |
| R (exposed at < age 10-16) | 335-675 | 12.5% (1/8) |
| A (exposed in utero) | 69 + ? | 0.0 (0/1) |
| A (exposed at < age 10) | 300 - 480 | 33.3% (2/6) |
| U (exposed at < age 10) | 40 - 80 | 0.0% (0/53) |
| R (non-exposed < age 10) | 0 | 1.6% (1/61) |
| L (exposed < age 10) | 0 | 0.0% (0/31) |
| <u>ADULTS</u> | | |
| R (exposed > age 16) | 335 | 8.1% (3/37) (2 cases cancer) |
| A (exposed > age 10) | 132 | 25.0% (3/12) |
| U exposed > age 10 | 22 | 5.8% (6/104) (1 cancer) |
| R(c) (non-exposed > age 10) | 0 | 5.3% (7/133) |
| L non-exposed > age 10 | 0 | 4.7% (5/106) |

1. Statistics based on original number people.
2. Thyroid dose from I - 131 - 132 - 133 - 135 plus gamma.
3. R = Rongelap exposed to 175 rad gamma dose; A = Rongelap people on nearby island receiving 69 rad gamma dose; U = Utirik people exposed to about a /4 rad gamma dose; R(c) = Unexposed Rongelap control group; L = Likiep people on an atoll with no radiation exposure.

THYROID LESIONS IN MARSHALLESE EXPOSED TO FALLOUT
(AS OF MAY, 1974)

| Marshall Island Group (radiation dose-gamma) | Age at Exposure | Estimated Thyroid ¹ dose-rads | Thyroid Lesions Percent ² | Thyroid Surgery | Malignant Lesions Percent ² |
|---|--------------------|--|--|--------------------|--|
| Rongelap (175 rads gamma exposure) | In-utero | 175 + ? | 33.3 (1/3) | | |
| | <10 | 675 - 1440 | 89.5 (17/19) | 15 | 5.3 (1/19) |
| | 11-16 | 335 - 675 | 12.5 (1/8) | 1 | - |
| | >16 | 335 | 8.1 (3/37) | 3 | 5.4 (2/37) |
| | all | - | 32.8 (21/64) | 17 | 4.7 (3/64) |
| Rongelap (on Ailingne Island -69 rads gamma exposure) | In-utero | 69 + ? | 0.0 (0/1) | | |
| | <10 | 300 - 480 | 33.3 (2/64) | 1 | - |
| | >16 | 132 | 16.6 (2/12) | 2 | - |
| | all | - | 22.2 (4/18) | 3 | - |
| Utirik ⁵ (14 rads gamma exposure) | <10 | 40 - 80 | 0.0 (0/53) | 0 | - |
| | >10 | 22 ⁶ | 5.8 (6/104) | 4 | 1.0 (1/104) |
| | all | - | 3.2 (5/157) | 4 | 0.6 (1/157) |
| Rongelap unexposed | <10 | - | 1.6 (1/61) | 0 | - |
| | >10 | - | 4.5 (6/133) | 2 | - |
| | all | - | 3.6 (7/194) | 2 | - |
| Likiep unexposed (1970) | <10 | - | 0.0 (0/31) | 0 | - |
| | > | - | 4.7 (5/106) | 0 | - |
| | all | - | 3.6 (5/137) | 0 | - |

¹Dose from 131, 132, 133, 135 I plus gamma dose.

²Based on number of original people exposed. In parentheses number of cases/total number in group.

³The thyroid is considered fully developed by age 16.

⁴Difference of opinion as to whether or not one lesion was malignant. Majority opinion was that it was benign.

⁵The more energetic shorter-lived isotopes of iodine contributed less to the total thyroid dose in the Utirik people due to later fallout. One might surmise also that the biological effectiveness of the thyroid dose per rad would be less in that group.

⁶Fifteen children 10-17 years of age at exposure in this group received estimated thyroid doses between 22 and 40 rads.

⁷In addition to thyroid lesions, one case of acute myelogenous leukemia was discovered in September 1972 in a 19-year-old Rongelap boy who had received 175 rad gamma radiation at one year of age. He died November, 1972.

1974 Medical Survey Team

Brookhaven National Laboratory

Dr. R. A. Conard
Dr. K. Knudsen (Resident Physician Marshall Islands)
Dr. S. Cohn

W. Scott
D. Clareus
J. Rothman
P. Heotis
R. Brown
N. Greenhouse
J. Ash

Trust Territory of Pacific Islands

Dr. J. Steele
S. Shoniber
P. Bien
N. Zetkeia
K. Mizutoni
S. Laigo

University of Washington

Dr. V. Nelson

University of Pittsburg School of Medicine

Dr. R. Larsen

National Institutes of Health

Dr. J. Wolff

AEC, Pacific Support Office

W. Streenan

Congress of Micronesia Observer

John Del Rosario