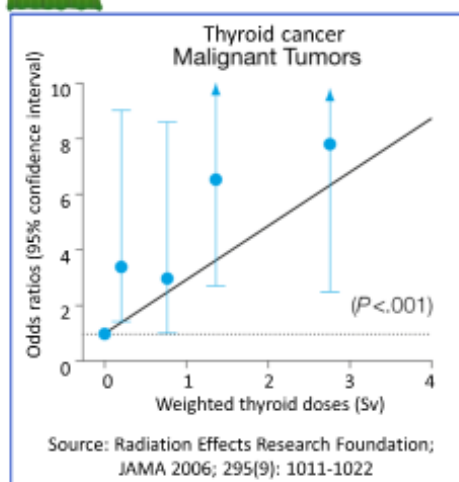


Data on Atomic  
Bomb Survivors

## Analysis of micro papillary cancer

| Weighted thyroid doses | Average doses (mGy) | Targets (people) | Cancer detected in (people) | Odds ratios (95% confidence interval) |
|------------------------|---------------------|------------------|-----------------------------|---------------------------------------|
| <5mGy                  | —                   | 755              | 33                          | 1                                     |
| 5~100mGy               | 32                  | 936              | 36                          | 0.85 (0.52~1.39)                      |
| 100~500mGy             | 241                 | 445              | 22                          | 1.12 (0.64~1.95)                      |
| 500mGy<                | 1237                | 236              | 15                          | 1.44 (0.75~2.67)                      |

Source: Hayashi et al., Cancer, 116, 1646, 2010

\* Odds ratio: A statistical scale for comparing the probability of a certain incident between two groups. Odds ratios larger than 1 suggest that the probability is larger. When the probability that a certain incident occurs is  $p$  (Group 1) and  $q$  (Group 2), respectively, the odds ratio is obtained by the following formula.

$$\text{Odds of } p / \text{Odds of } q = p / (1-p) \div q / (1-q)$$

When the 95% confidence interval does not include 1, the difference in the probability is statistically significant.

Odds ratios (statistical scales for comparing the probability of a certain incident between two groups) regarding incidence of thyroid cancer among atomic bomb survivors show that risks of thyroid cancer increase as doses increase.

A survey only targeting micro papillary thyroid cancer shows that the odds ratio remains low until the weighted thyroid dose exceeds 100 mGy, and that the ratio slightly exceeds 1 when the weighted thyroid dose becomes 100 mGy or larger, but no significant difference was found.<sup>1,2</sup> (When the odds ratio is larger than 1, the relevant incident is more highly likely to occur. However, in this data, as the 95% confidence interval includes 1, there is no statistically significant difference in the probability.)

1. M. Imaizumi, et.al., "Radiation Dose-Response Relationships for Thyroid Nodules and Autoimmune Thyroid Diseases in Hiroshima and Nagasaki Atomic Bomb Survivors 55-58 Years After Radiation Exposure" JAMA 2006;295(9):1011-1022
2. Y. Hayashi, et.al., "Papillary Microcarcinoma of the Thyroid Among Atomic Bomb Survivors Tumor Characteristics and Radiation Risk" Cancer April 1, 2010, 1646-1655

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