FIGURE. Prevalence of thyroid cancer in areas of Fukushima Prefecture with different radiation contamination.

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To the Editor:

In the recent article by Tsuda and colleagues, the authors performed two types of comparisons, internal and external. In the internal comparison, no difference among nine areas in Fukushima was observed. In contrast, in the external comparison, extremely high incident risk ratios—between 20 and 50 (except in one area)—compared with the rates from national cancer registries in Japan were reported.

For valid external comparison, comparability should be discussed. In this case, the system of case finding in Fukushima and other area is not the same, and therefore a direct comparison could be misleading.

In the study, the participation rate was as high as 81%, and this rate affects the incidence rate (i.e., a screening effect). For example, age-standardized incidence rate of thyroid cancer per 100,000 in Japan was 2.2 among men and 7.9 among women in

2007.² In Korea, however, it is 18.3 among men and 87.4 among women in 2010.³ Kweon et al.⁴ described how the high age-standardized incidence rate is mainly explained by enhanced detection (screening effect) and the changes in medical practice patterns rather than by specific factors. Even higher age-standardized incidence could be observed if the participation rate is extremely high, as in the study by Tsuda et al.

For valid causal inference, more detailed data on age and sex distribution are needed.

Sadao Suzuki

Department of Public Health
Nagoya City University Graduate School of
Medical Sciences
Nagoya, Japan
ssuzuki@med.nagoya-cu.ac.jp

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To the Editor:

Toshihide Tsuda and his colleagues¹ report that the annual incidence rate of thyroid cancer observed from September 2011 to March 2014 among ca. 300,000 children in Fukushima ages 18 years or less as of March 2011 is approximately 30-fold higher than the mean annual incidence rate in Japan reported by the National Cancer Center of Japan. However, the formula they use in Table 2 for deriving the incidence rate ratio, in which the prevalence is approximately equal to the product of “incidence rate” and “latent duration of disease,” has not been validated to date, although they cite 2nd edition of Rothman² probably for authorizing their formula.

Rothman² presents two formulas involving incidence rate: (1) Risk equals incident rate $\times$ time, and (2) prevalence, if small, is approximately equal to incidence rate $\times$ mean duration of the disease. They coined the above-mentioned formula by replacing risk in (1) with prevalence and by replacing the mean duration of disease in (2) with latent duration of the disease, which corresponds to time in (1). Since Tsuda et al. also use formula (2) in the previous presentation,³ I wonder why they abandon it in the present article.¹ One possible reason may be that they noticed the following statement in Saunders and Rothman⁴ regarding the formula in (2): “the formula presenting the three quantities does not apply to age-specific prevalence.” The prevalence of thyroid cancer is indeed age specific.

Incorrect citation is also seen in the reference (numbered 31), which they refer to for defending their assertion against the criticism that 4 years are too short for radiation exposure to induce thyroid cancer. The author of the cited reference (numbered 31) is “World Trade Center (WTC) Health Program Administrator” and we do not read “Centers for

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