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OPEN**To the Editor:**

Dr. Tsuda and colleagues¹ analyzed statistical reports of the Fukushima Health Management Survey published by the Fukushima prefectural government, and obtained markedly higher incidence rates of thyroid cancer in Fukushima Prefecture compared with the rate for all of Japan. Regrettably, their analysis has a serious methodological error regarding the prevalence pool with the 4-year duration.¹

They assumed a steady prevalence pool² of thyroid cancer cases detected by screening in Fukushima with using the definition of the "latent duration," which

is the time period from the date when a case of thyroid cancer became detectable by screening and cytology ("detectable by screening" hereafter) to the date when the thyroid cancer could be diagnosed in a clinical setting without screening or the date of operation ("detectable clinically"), using the duration of 4 years as the maximum length between the nuclear accident and the cancer detection.

This assumption implies that the cancer in all cases became detectable by screening at or after the nuclear accident, and that all of these cancers progressed enough to be detected clinically within 4 years. However, both of them are unreasonable. They ignored two important possibilities: (1) the date at which a patient's cancer becomes detectable by screening (which is usually unknown) might have preceded the nuclear accident, and (2) the slow growing nature of thyroid cancer³ might cause many slowly progressing cases to remain in the pool. That is, the equilibrium of the pool within 4 years does not hold anymore. Thus, their incidence rate of the clinically detected cancer in Fukushima as the numerator of the paper's incidence rate ratio—which is the essential index in the paper—is severely overestimated.

The Fukushima Health Management Survey was commissioned by Fukushima Prefecture and has been conducted by the Radiation Medical Science Center for the Fukushima Health

Management Survey at Fukushima Medical University since June 2011. With the efforts of over one hundred of the Center's personnel, the results of the survey have become freely available on our website (<http://fmu-global.jp>) to ensure attention and transparency and to enable further examination of these findings.

As Professor Scott Davis noted regarding the screening for thyroid cancer after the Fukushima accident,⁴ "it should be of no surprise that a number of study designs and approaches have been tried, largely driven by the data available." For the analyses, special attention should always be placed on the inherent limitations of the study.

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The Authors Respond:

We read with great interest the Davis commentary¹ and the seven letters^{2–8} in response to our article.⁹ We thank the editors for the opportunity to respond to them. Due to the space limitation, we herein discuss four points raised, using data from the non-Fukushima exposed populations^{10–14} as well as the unexposed.^{15–19}

The authors report no conflicts of interest.

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