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### **Subjecting Radiologic Imaging to the Linear No-Threshold Hypothesis: A Non Sequitur!**

To the Editor:

Siegel et al. have again forced the scientific community to rethink the linear no threshold (LNT) hypothesis. In their recent JNM article <sup>1</sup> these authors have reviewed the data on low level radiation and documented the absence of carcinogenesis in humans below acute or subacute exposures of 100 mGy or less. An even more comprehensive data analysis by these authors, when space for publication was not limited, appears in *Biological Theory* in 2016, including 105 references.<sup>2</sup>

It is true that we cannot ethically prove Siegel et al. correct in a controlled prospective study. However, this is certainly not the only kind of data we accept scientifically. There are also ample epidemiological and *in vitro* data to support the contention of Siegel et al.<sup>1-4</sup> *And where are the excess cancers the LNT Hypothesis says should be found?*

I would ask the readers of JNM to review the first two articles cited above to understand that the LNT hypothesis carries its own potential for damage to populations from needless evacuations e.g. at Fukushima, and to individuals who are harmed from poor quality imaging studies with inadequate levels of radiation applied, as well as from the consequences of studies avoided by patients because of radiophobia. It is not impossible to study the "risk" of medical radiation vs. the risk arising from not performing an imaging study.

I would further request the JNM to insert verbiage in any article which attempts to estimate the number of cancers allegedly caused, or averted, by low level radiation exposures from any source, including radiation dose alterations due to changes in nuclear medicine/radiological technique, to indicate that *these carcinogenesis estimates are based on the unproven LNT Hypothesis, for which there are no credible data that have survived scientific scrutiny.* Could such verbiage not be shared to publicize this proposed "JNM approach" to all journals dealing with radiation and carcinogenesis? Such an approach to data on radiation carcinogenesis in humans would be a great boon both to the public we serve and to the many scientists and physicians who have not had the time, or background, to scrutinize these data as intensely as have Siegel et al.

Sincerely,

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### References

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