

COMMENT

Open Access



# Response to Toshihide Tsuda, Yumiko Miyano and Eiji Yamamoto [1]

Joachim Schüz<sup>1</sup>, Evgenia Ostroumova<sup>1\*</sup>, Ausrele Kesminiene<sup>1</sup>, Louise Davies<sup>2,3</sup>, Hyeong Sik Ahn<sup>4</sup>, Kayo Togawa<sup>5</sup> and Salvatore Vaccarella<sup>1</sup>

## Abstract

**Background** Using a toolkit approach, Tsuda et al. critiqued work carried out by or in collaboration with the International Agency for Research on Cancer (IARC/WHO), including the IARC technical publication No. 46 on “Thyroid health monitoring after nuclear accidents” (TM-NUC), the project on nuclear emergency situations and improvement on medical and health surveillance (SHAMISEN), and the IARC-led work on global thyroid cancer incidence patterns as per IARC core mandate.

**Main body** We respond on the criticism of the recommendations of the IARC technical publication No. 46, and of global thyroid cancer incidence evaluation.

**Conclusion** After nuclear accidents, overdiagnosis can still happen and must be included in informed decision making when providing a system of optimal help for cases of radiation-induced thyroid cancer, to minimize harm to people by helping them avoid diagnostics and treatment they may not need.

**Keywords** Thyroid cancer, Incidence, Overdiagnosis, Nuclear accident

We noted the following publication by Tsuda et al. critiquing work carried out by or in collaboration with the International Agency for Research on Cancer (IARC/WHO) [1], including the IARC technical publication No. 46 on “Thyroid health monitoring after nuclear accidents” (TM-NUC) [2], the project on nuclear emergency situations and improvement on medical and health surveillance (SHAMISEN) [3], and the IARC-led work on

global thyroid cancer incidence patterns as per IARC core mandate [4, 5]. For the critique of our work Tsuda et al. used what they refer to as a “toolkit”, the purpose of which is to identify epidemiologic data misused by “powerful interests, particularly those with a financial stake... whose interest are not aligned with the public health sciences”. While Tsuda et al. may disagree with the conclusions reached in the publications, the selected items of the toolkit they apply to criticise it are misapplied – the work by IARC/WHO created no financial benefit for those publishing the work, and the mission of these organizations is explicitly oriented toward public health. We were also concerned to see that the authors confused study designs (page 15 [1]), bringing further misinterpretation of the weight of evidence to their critical evaluation of the papers that they are quoting.

IARC technical publication No. 46 “Thyroid health monitoring after nuclear accidents” is a forward-looking report coordinated by IARC that used scientific evidence and expertise of a large group of international scientists

\*Correspondence:

Evgenia Ostroumova  
ostroumovae@iarc.who.int

<sup>1</sup> International Agency for Research on Cancer, World Health Organisation (IARC/WHO), Lyon, France

<sup>2</sup> Department of Surgery—Otolaryngology—Head and Neck Surgery, The Dartmouth Institute for Health Policy and Clinical Practice, Geisel School of Medicine, Hanover, NH, USA

<sup>3</sup> VA Outcomes Group, Department of Veterans Affairs Medical Center, VT, White River Junction, USA

<sup>4</sup> Department of Preventive Medicine, College of Medicine, Korea University, Seoul, South Korea

<sup>5</sup> National Cancer Center Institute for Cancer Control, Tokyo, Japan



© The Author(s) 2023. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

representing a wide spectrum of disciplines. The group was assembled to advise countries how to prepare immediate and long-term response in case of a nuclear power plant accident, with regard to a possible increase in thyroid cancer incidence related to such accident [2]. The report applied the principles of screening, and evidence from thyroid cancer pathology, natural history, epidemiology, diagnostics and clinical management in general population as well in the populations affected by the Chernobyl and Fukushima nuclear accidents [6, 7]. The report's recommendations are not based on systematic reviews but drawn from all peer-reviewed publications relevant to the project objective. While we wish that our recommendations will never be needed, we believe they represent the recommended best practices for the data currently available.

IARC has been leading work on evaluation of global thyroid cancer incidence which provided convincing scientific evidence of an impact of thyroid care treatment patterns on incidence trends, first for adults [4], and then for children and adolescents [5] (latter not cited by Tsuda et al. [1]). Overdiagnosis in thyroid cancer is a well-recognized phenomena [8]. It globally affects a large number of people and has been acknowledged to result in overtreatment of many otherwise healthy individuals, exposing them to the potential for treatment-related complications and psychological harms, facts reflected in guidelines from the major professional organisations such as the American Thyroid Association (ATA) [9, 10]. The risk of overdiagnosis is also applicable in the setting of nuclear accidents and must be included in informed decision making when providing a system of optimal help for cases of radiation-induced thyroid cancer, to minimize harm to people by helping them avoid diagnostics and treatment they may not need.

#### Abbreviations

ATA	American Thyroid Association
IARC	International Agency for Research on Cancer
WHO	World Health Organisation

#### Disclaimer

Where authors are identified as personnel of the International Agency for Research on Cancer/World Health Organization, the authors alone are responsible for the views expressed in this article and they do not necessarily represent the decisions, policy or views of the International Agency for Research on Cancer/World Health Organization.

#### Authors' contributions

All authors contributed to this response, drafted by JS. The authors read and approved the final manuscript.

#### Declarations

#### Competing interests

The authors declare that they have no competing interests.

Received: 28 November 2022 Accepted: 26 December 2022  
Published online: 26 January 2023

#### References

1. Tsuda T, Miyano Y, Yamamoto E. Demonstrating the undermining of science and health policy after the Fukushima nuclear accident by applying the toolkit for detecting misused epidemiological methods. *Environ Health*. 2022. <https://doi.org/10.1186/s12940-022-00884-6>.
2. IARC Thyroid Health Monitoring after Nuclear Accidents Expert Group. Thyroid health monitoring after nuclear accidents. Lyon: International Agency for Research on Cancer (IARC Technical Publications, No. 46); 2018. Available from: <https://publications.iarc.fr/Book-And-Report-Series/Iarc-Technical-Publications/Thyroid-Health-Monitoring-After-Nuclear-Accidents-2018>. Accessed 28 Nov 2022
3. Cléro E, Ostroumova E, Demoury C, Grosche B, Kesminiene A, Liutsko L, et al. Lessons learned from Chernobyl and Fukushima on thyroid cancer screening and recommendations in case of a future nuclear accident. *Environ Int*. 2021. <https://doi.org/10.1016/j.envint.2020.106230>.
4. Vaccarella S, Franceschi S, Bray F, Wild C, Plummer M, Dal Maso L. Worldwide thyroid-cancer epidemic? The increase impact of overdiagnosis. *N Engl J Med*. 2016. <https://doi.org/10.1056/NEJMp1604412>.
5. Vaccarella S, Lortet-Tieulent J, Colombet M, Davies L, Stiller C, Schüz J, et al. Global patterns and trends in incidence and mortality of thyroid cancer in children and adolescents: a population-based study. *Lancet Diabetes Endocrinol*. 2021. [https://doi.org/10.1016/S2213-8587\(20\)30401-0](https://doi.org/10.1016/S2213-8587(20)30401-0).
6. Thomas G. Radiation and thyroid cancer - an overview. *Radiat Prot Dosim*. 2018. <https://doi.org/10.1093/rpd/ncy146>.
7. Yamashita S, Suzuki S, Shimura H, Saenko V. Lessons from Fukushima: latest findings of thyroid cancer after the Fukushima nuclear power plant accident. *Thyroid*. 2018. <https://doi.org/10.1089/thy.2017.0283>.
8. Davies L, Welch HG. Increasing incidence of thyroid cancer in the United States, 1973-2002. *JAMA*. 2016. <https://doi.org/10.1001/jama.295.18.2164>.
9. Francis G, Waguespack S, Bauer A, Angelos P, Benvenega S, Cerutti J, et al. Management guidelines for children with thyroid nodules. *Thyroid*. 2015. <https://doi.org/10.1089/thy.2014.0460>.
10. Haugen B, Alexander E, Bible K, Doherty G, Mandel S, Nikiforov Y, et al. American Thyroid Association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: the American Thyroid Association guidelines task force on thyroid nodules and differentiated thyroid cancer. *Thyroid*. 2016. <https://doi.org/10.1089/thy.2015.0020>.

#### Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

#### Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more [biomedcentral.com/submissions](https://biomedcentral.com/submissions)

