

July 25, 2022

Secretary Dr. Borislava Batandjieva-Metcalf

UNSCEAR

Dear Dr. Borislava Batandjieva-Metcalf,

I would like to express my gratitude to the UNSCEAR members for their outreach activities in Japan. I am a professor of marketing research at Keio University who majored in nuclear engineering in my master's degree. I am writing to inform you about the wrong report in the outreach coverage, an error in a slide, and an error in the Fukushima 2020/21 report¹.

1) Wrong reports of outreach

One of the report's key findings was that "No 'discernible' health effects from radiation exposure are likely to be observed." All of the slides are carefully labeled with the adjective "discernible" or “識別可能な.”

However, some newspapers summarize the report as saying, "被曝によるがんなどの健康影響が増加する可能性は低い(It is unlikely that radiation exposure will increase cancer and other health effects)." Similarly, one TV station reported that "「国連の科学委員会の前議長が7月20日、福島県の内堀知事を訪ね『被ばくによる健康への影響はない』という調査結果を報告しました。」(On July 20, the former chairman of the United Nations Scientific Committee visited Governor Uchibori of Fukushima Prefecture and reported the results of the report that there were no health effects from radiation exposure)." In both cases, "discernible" was omitted, leading to the misunderstanding that UNSCEAR concluded unconditionally that there were or will be no adverse health effects from radiation exposure.

Please clearly explain the meaning of "discernible" in paragraph 213 of the 2020/2021 report² to the news organizations and ask them to revise the articles. As far as I can tell, the following article reported this mistake.

¹ UNSCEAR (2022) UNSCEAR 2020/2021 Report: Annex B: Levels and effects of radiation exposure due to the accident at the Fukushima Daiichi Nuclear Power Station: implications of information published since the UNSCEAR 2013 Report. https://www.unscear.org/docs/publications/2020/UNSCEAR_2020_21_Report_Vol.II.pdf.

Japanese translation: UNSCEAR (2022), *UNSCEAR 2020年/2021年報告書 第II巻: 科学的附属書B 福島第一原子力発電所における事故による放射線ばくのレベルと影響 UNSCEAR2013年報告書刊行後に発表された情報の影響*. https://www.unscear.org/docs/publications/2020/UNSCEAR_2020_21_Report_Vol.II_JP.pdf.

² Paragraph 213 of the 2020/21 report explains the meaning of "discernible" as follows. The last part should be stressed. "213. The Committee explained that, in estimating values of the risk of stochastic effects due to exposure for members of various exposed groups, it has used the term "discernible" for cases where the estimated risk of the disease was sufficiently large in a large enough population to be detectable, compared to the normal statistical variability in the baseline incidence of the disease in that population. Conversely, when risks may be inferred from existing knowledge (i.e., using models), but the level of the inferred risk is low and/or the number of people exposed is small, the Committee has used the phrase "no discernible increase" to express the idea that currently available methods would most likely not be able to demonstrate an increased incidence in the future disease statistics due to irradiation (that is, the attributable risk is too small compared to the baseline levels of risk to be detected). The Committee emphasized that its use of the term "no discernible increase" did not equate to an absence of risk or rule out the possibility of excess cases of disease due to irradiation, nor the possibility of detection of a biomarker for certain types of cancer in certain subgroups being identified in the future that could be associated with radiation exposure. Nor was it intended to disregard the suffering associated with any such cases should they occur. "

In addition, as I posted in the outreach at Tokyo Institute of Technology³, the non-academic term "discernible" caused such misunderstandings. It should be corrected as "there could be some risks of cancers, but they are not identified due to statistical errors and other limitations."

-Partial list of wrong reports

Yomiuri Shinbun 2022/7/19 国連科学委、福島第一原発事故での「放射線被曝を原因とする健康被害は認められない」

<https://www.yomiuri.co.jp/science/20220719-OYT1T50202/>

「被曝によるがんなどの健康影響が増加する可能性は低い」と結論づけた。

TBS via TV You Fukushima 国連科学委員会が福島を訪問 裁判については「個々の案件にコメントは難しい」

<https://newsdig.tbs.co.jp/articles/-/100709?display=1>

「原発事故のあと、放射線の影響を調査していた国連の科学委員会の前議長が 20 日、福島県の内堀知事を訪ね「被ばくによる健康への影響はない」という調査結果を報告しました。

」

・Tokyo Shinbun 2022/7/22 原発事故の被ばく、国連科学委が「健康被害の可能性は低い」と結論も...福島の間場からは疑問の声 <https://www.tokyo-np.co.jp/article/191115>

「総合的に被ばく線量は少なく、がんなどの健康被害が増加する可能性は低い」と説明。

2) An error in a slide

The first line of the Health and Other Key Results slide states the committee conducted a power analysis, and the second line summarizes the results as follows (see attached Slide):

"一般に被ばく線量が低いため、小児期に被ばくした感受性の高い集団において、将来的に識別可能ながんの過剰発生が起こる可能性は低い(Because exposure doses are generally low, it is unlikely to occur an excess of discernible cancers in the future in susceptible populations exposed at childhood)."

This is against the result of Attachment-23 and must be corrected. In fact, in section "F. Lifetime risk of all solid cancer (excluding thyroid cancer and nonmelanoma skin cancer)" in Attachment-23, 1.2 and 1.8% increase in lifetime risk of solid cancer (excluding thyroid cancer and melanoma) and statistical power more than 80% are reported for a municipal average dose and 95% upper bound dose (Table A 23.9, attached below). The results are explained in the text as follows.

"A potential exception to this occurred for females initially exposed at age 10, with a related

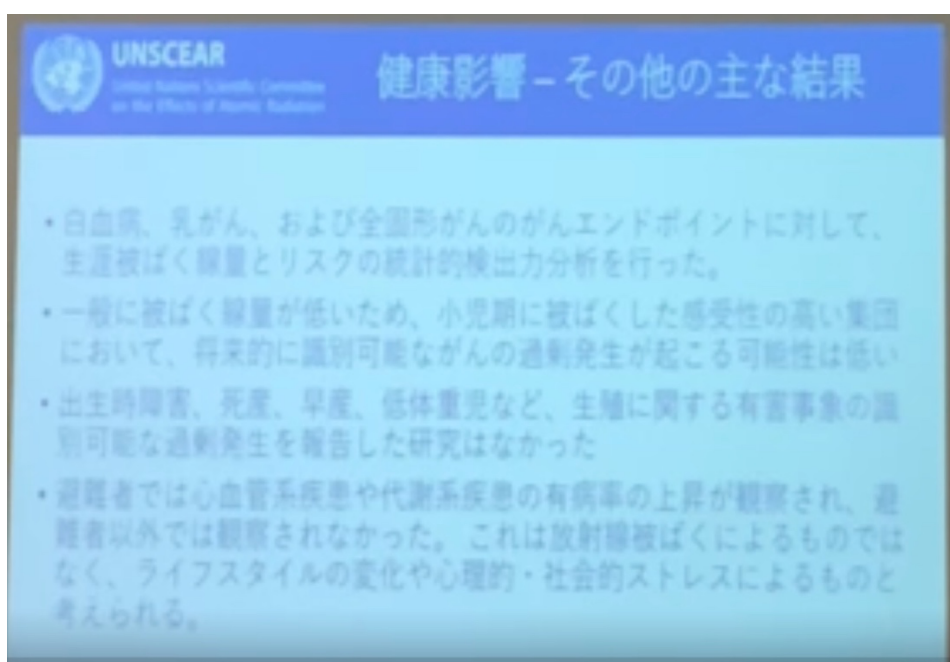
³ I posted the following question & comment at the Scientific meeting at the Tokyo Institute of Technology held on 7/19/2022. I thank Dr. Balonov and Dr. Shore for their reply. But their responses were not convincing.

Could you elaborate meaning of "discernible"? According to my understanding of the description in paragraph 222, you expect 16 to 50 excess thyroid cancer for under 5 years old girls. But you estimated you can not identify them because of noise and small sample size. Is it right? If it was right, it is completely different from "no risk of cancer." You should explain, "there is a certain risk of cancer, but we expect we can not detect them."

value for both sexes: statistical power achieved the 80% criterion for the mean dose, indicating that one might potentially see a radiation-associated excess in this subpopulation (but see caveats in the next paragraph).”

As mentioned within parentheses, four caveats are described in paragraph 46, which is not convincing. For example, for reason (b): Japanese cancer statistics experts say that the Japanese cancer registry is sufficiently accurate to detect the effect of radiation exposure-caused cancers⁴. Furthermore, reason (d) ignores the fact that the statistical power exceeds 80% not only in the upper 95% dose but also in the average dose population. Although I’m preparing another letter for detailed discussion, first, I'd like you to publish the corrected slides.

Figure Slide “the Health and Other Key Results”



Source) Captured from <https://twitcasting.tv/makomelo/movie/739189294>

⁴ Dr. Katanoda (Chief, Division of Surveillance and Policy Evaluation, Institute for Cancer Control, [National Cancer Center](#) and former member of the Thyroid Examination Evaluation Committee of Fukushima Health Management Survey) explained. "The cancer registry data [in Fukushima Prefecture] is sufficiently accurate [to detect an increase in thyroid cancer],"

Minutes of 16th Thyroid Examination Evaluation Committee of FHMS (2021/3/22) in Japanese.

<https://www.pref.fukushima.lg.jp/uploaded/attachment/454168.pdf>

Table A-23.9. All solid cancer (except thyroid cancer and nonmelanoma skin cancer) lifetime incidence: statistical power for mean and upper bound doses by sex and age at the time of the Fukushima Daiichi Nuclear Power Station accident for residents of all non-evacuated municipalities, for non-evacuated municipalities plus evacuated municipalities, and for the subset of municipalities with >5 mSv cumulative lifetime effective dose [Grant et al., 2017]

Group – sex and age (years)	Non-evacuated municipalities			Non-evacuated plus evacuated municipalities	
	Mean colon dose ^a		95%ile upper bound on mean dose	Mean colon dose	95%ile upper bound on mean dose
	LFER (%)	Statistical power	Statistical power	Statistical power	Statistical power
Municipalities with lifetime effective dose >5 mSv					
Male					
1	0.8	0.24	0.43	0.24	0.43
10	0.5	0.26	0.46	0.26	0.47
20	0.3	0.17	0.27	0.17	0.28
Female					
1	1.8	0.55	0.86	0.54	0.87
10	1.2	0.59	0.88	0.80	0.99
20	0.7	0.36	0.62	0.37	0.64
Both sexes					
1	1.2	0.58	0.89	0.57	0.89
10	0.8	0.62	0.91	0.80	0.99
20	0.5	0.38	0.65	0.39	0.67

Source) UNSCEAR (2022) ATTACHMENT A-23 POWER CALCULATIONS FOR EPIDEMIOLOGICAL DETECTION OF HEALTH EFFECTS FROM THE ACCIDENT AT THE FUKUSHIMA DAIICHI NUCLEAR POWER STATION. Electronic attachments for UNSCEAR 2020/2021 REPORT Vol. II
https://www.unscear.org/docs/publications/2020/UNSCEAR_2020-21_Annex-B_Attach_A-23.pdf

3) Error in the 2020/2021 Report

Similarly, paragraph 247 of the report states,

“Likewise, the levels of exposure of members of the public have been too low for the Committee to expect distinctive increases in the incidence of breast cancer or other solid cancers.”

Again, this statement misinterprets the result of Attachment-23. Please revise this part of the report as well⁵.

I was supposed to ask these questions in Iwaki City. I look forward to your reply and corrections. This letter and response will be published as an open letter for scientific discussion.

⁵ NCRP’s recent review summarizes as “Most of the larger, stronger studies broadly supported an LNT model.” the cancer risk is linearly increased with exposure without threshold. “Generally low exposure” does not assure no future cancer risk. NCRP (2018), *Commentary No. 27 – IMPLICATIONS OF RECENT EPIDEMIOLOGIC STUDIES FOR THE LINEAR-NONTHRESHOLD MODEL AND RADIATION PROTECTION*. NCRP.

Best Regards,

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