

Session 2.3

NIRS Estimation of Internal Dose to the Thyroid

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Dose reconstruction of the public related to the Fukushima Daiichi nuclear power station accident has been attempted by various approaches. National Institute of Radiological Sciences (NIRS) performed the estimation of the early internal dose to Fukushima residents, especially, the thyroid dose due to intake of radioiodine, based on the information on human measurements available and atmospheric dispersion simulations. Main parts of the estimation are as follows. (1) Thyroid doses to the subjects (1,080) of the screening survey on thyroid exposure were evaluated from their measured values. (2) Effective doses to adult subjects (~3,000) from measurements with whole-body counters were converted to thyroid doses using the derived effective intake ratio ($^{131}\text{I} / ^{137}\text{Cs}$). (3) The dose estimation by the simulations was applied to residents in areas where human measurement data were unavailable. As a result, the thyroid dose to hypothetical 1-yr-old children was estimated to be about 30 mSv as a 90 percentile value in relatively high dose areas and less than 10 mSv in most of the other areas. However, the present estimation includes a lot of uncertainty factors. Thus, future work is needed to improve the accuracy of the estimation by using additional information such as that on personal behaviors.