

Session 2.2

Basic Survey: External Dose Estimation

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The “Basic Survey”, as part of the Fukushima Health Management Survey, is a questionnaire to ask residents to record the time and whereabouts during the period from the March 11 earthquake until July 11 (“Record of Movements”). The target population of the Basic Survey is about 2.05 million and about 515,000 responses to the questionnaires have been collected by Fukushima Medical University as of the end of December, 2013. The individual external doses (for the first four months after the Fukushima Dai-ichi Nuclear Power Plant accident) have been estimated by a computer program developed by National Institute of Radiological Sciences. The program estimates the doses by superimposing the record of movements on daily gamma ray dose rate maps after the accident. The dose distribution for 460,408 residents (excluding radiation workers) was as follows: 66.3 %, <1 mSv; 94.9 %, <2 mSv; 99.3 %, <3 mSv. The arithmetic mean and maximum doses were 0.8 and 25 mSv, respectively. Dose distributions were slightly different among seven areas of Fukushima Prefecture; for example, the dose distribution for Soso area, where most of the areas were designated as Evacuation Area and Deliberate Evacuation Area, was: 78.0 %, <1 mSv; 94.7 %, <2 mSv; 97.2 %, <3 mSv. According to ICRP publication 74, a ratio of the thyroid equivalent dose to the effective dose is around 1.1 in the case of isotropic irradiation geometry. It suggested that the effective doses values mentioned above were almost similar to the thyroid equivalent doses due to external radiation during the corresponding period.