

## <Preface>

# **Lessons learned on public health from the Fukushima Daiichi Nuclear Power Plant accident**

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It has been seven years since the Fukushima Daiichi Nuclear Power Plant Accident that occurred on the 11th of March 2011. A large amount of radioactive materials was released into the environment from the damaged Fukushima Daiichi Nuclear Power Plant. Health risks associated with exposure to low levels of ionizing radiation are a major concern following the Fukushima accident. In order to inform the public health issues due to the Fukushima accident, we have previously published two special issues in this Journal (Health effects of low-dose ionizing radiation and radionuclide, and risk communication on Aug. 2011 and Risk communication for existing exposure situation after the nuclear disaster on Apr. 2013) in Japanese.

International organizations such as World Health Organization (WHO) and the International Atomic Energy Agency (IAEA) reported that increased risk of disease associated with radiation exposure regarding the Fukushima accident will not be expected because of limited radiation exposure among the public. Although the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) indicated a possibility that the risk of thyroid cancer among those children most exposed to radiation could increase, the committee mentioned that the likelihood of a large number of radiation-induced thyroid cancers in Fukushima Prefecture could be discounted because absorbed doses to the thyroid after the Fukushima accident were substantially lower than those of the Chernobyl accident.

Furthermore, various domestic and overseas researches contributed to provide reliable scientific evidences in relation to the effects of human health due to the nuclear disaster. However, radiation is invisible to the human eye. Fear of radiation exposure causes mental health problem after the Fukushima accident, as was reported with the Chernobyl accident. So far, serious concerns due to the Fukushima accident still remain. Herein we summarize public health actions including both good practices and problems to be solved after the Fukushima incident in order to provide valuable lessons learned for disaster preparedness.

We will start by describing the Basic Survey for external dose estimation and internal dose assessments of Fukushima residents. In the early phase after the disaster, evacuations from the radiation affected areas and control of the distribution of various food products were critical public health actions to mitigate radiation exposure. In order to care for radiation workers in the Fukushima accident and the general public in Fukushima prefecture, a health management program was implemented in the subsequent phase. The Fukushima Health Management Survey consists of the Thyroid Ultrasound Examination, Mental Health and Lifestyle Survey and Pregnancy and Birth Survey for resident of Fukushima Prefecture. Risk communication is an important issue during the recovery phases to deal with difficult situations. We also discussed about science communication and current studies on media analysis concerning the Fukushima accident. We will provide the knowledge of radiation biology and disaster epidemiology associated with human health.

The aim of this special issue is to help understanding the current situation in the Fukushima accident. Many public health actions need to be considered in order to best protect the health of the affected populations. The information described in this issue will be useful not only for radiation specialists but also for public health workers in the world.