

## Collection and storage of data and biosamples from atomic bomb survivors at RERF

The Atomic Bomb Casualty Commission (ABCC), the predecessor of the Radiation Effects Research Foundation (RERF), was established in Hiroshima in 1947 and Nagasaki in 1948. Follow-up studies of fixed cohorts of atomic bomb survivors and their children have been conducted since the establishment of the two laboratories. The study populations of the follow-up studies of atomic bomb survivors are the Life Span Study (LSS) (120,000 people), the Adult Health Study (AHS) (25,000 people), and the In-Utero Study (a study of 3,600 people exposed to radiation from the atomic bombings while in their mother's womb).

In the LSS and In-Utero studies, information was obtained in interviews with each of the survivors regarding gender, birth date, original address, circumstances at time of bombing (or mother's circumstances for in-utero survivors), and health status after bombing. Information on survival, or cause of death information as indicated in death certificates, if an individual had died, is obtained with permission from Japan's Ministry of Justice and the Ministry of Health, Labour and Welfare. Furthermore, cancer incidence information through 2015 was obtained from the local cancer registries<sup>1</sup> of Hiroshima and Nagasaki prefectures, and starting in 2016, from the National Cancer Registry.<sup>2</sup> Moreover, information on lifestyle and medical history was obtained through mail surveys,<sup>3</sup> conducted thus far a total of five times.

Since 1958, AHS participants have visited RERF in Hiroshima and Nagasaki biennially for health examinations. Clinical and epidemiological information is obtained by lifestyle and medical history questionnaires, as well as through blood and urine testing, X-ray examinations, electrocardiograms, and other similar examinations. Blood and urine have been stored for use in future studies since 1969 and 1999, respectively, based on informed consent. The biosamples are valuable for future molecular biological studies to clarify the effects of radiation on the human body. RERF's Biosample Research Center was established in 2013, as a way to store the biosamples appropriately.

RERF is now working on plans to establish the Research Resource Center to comprehensively manage all the information, data, and biosample registers obtained from atomic bomb survivors and their children and to facilitate the conduct of collaborative studies.

### Notes

#### <sup>1</sup>Local cancer registries:

These cancer data are diagnosed and registered within each local government throughout Japan, and with that, the local cancer registry projects in Hiroshima prefecture, Hiroshima city, and Nagasaki prefecture had been outsourced to RERF until 2015.

#### <sup>2</sup>National cancer registry:

A single system was established by law to collect, analyze, and manage the data

of all people diagnosed with cancer in Japan, starting as a “national cancer registry” in January 2016.

<sup>3</sup>Mail surveys:

Data on factors other than radiation exposure related to the onset of illness and death, such as lifestyle habits, are obtained using questionnaires conducted by mail.

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RERF’s objective with this brief outline is to succinctly explain our research for the lay public. Much of the technical content of the original paper has been omitted. For further details about the study, please refer to the full paper published by the journal.