



# The Japan Environment and Children's Study

## For the future crew of the Earth

How can we keep the environment healthy and hand it over to the next generations? The Japan Environment and Children's Study (JECS) started in 2011 is to answer such a question by investigating a wide range of environmental factors that could affect children's health and development.

If you would like further information about this study please email to National Centre for Japan Environment and Children's Study ([jecs-en@nies.go.jp](mailto:jecs-en@nies.go.jp)).



## What is the Japan Environment and Children's Study?

The Japan Environment and Children's Study (JECS) is a national birth cohort study in Japan. It is commissioned by the Japanese Government. It started in January 2011. It is the largest birth cohort study first ever conducted in Japan that investigate the relationship between a wide range of environmental factors and children's health and development.

## Who takes part in the study?

The recruitment of hundred thousand pregnant women was achieved in March 2014. The babies born to the mothers will be followed-up until they reach 13 years of age. When accessible fathers will also be enrolled. Participation is entirely voluntary.

## What are the questions about?

The key questions are:

- What environmental factors pose threat to children's health?
- What chemical substances do children expose to during the foetal stage or early childhood?
- How does foetal exposure to chemical substances affect children's health and development?
- What roles do other factors such as physical environment, life style, socio-economic status and genetics play in children's growth?

## What will be measured?

Environmental exposures and children's health outcomes are measured. Priority health outcomes are 1) reproduction and pregnancy complications, 2) congenital anomalies, 3) neuropsychiatric disorders, 4) allergic and immune system disorders and 5) metabolism and endocrine system disorders. Exposures are measured through self-administered questionnaire, chemical analyses of biological specimens collected from the participants, ambient air monitoring and systematic numerical modelling. Biological samples include peripheral blood from mothers, fathers and children, cord blood, breast milk, urine from mothers and children and maternal and child hair.



## What are the target chemicals?

Chemicals of interest include inorganic and organic substances such as:

- Metals (e.g. lead, cadmium, mercury, selenium, manganese, arsenics)
- Persistent organic pollutants (e.g. polychlorinated biphenyls, flame retardants, pesticides, fluorinated surfactants)
- Phthalates
- Phenols (e.g. bisphenol A, nonylphenols, parabens)
- Aroma compounds (e.g. nitromusks, cyclic musks)
- Triclosan, benzophenone, cotinine, phytoestrogens, etc.
- Volatile organic compounds, aldehydes, nitrogen oxides, fine particulate matter (e.g. PM2.5)

## What is the study structure?

Main Study involves all the participants. A subgroup with the size of 5,000 will be randomly selected from the Main Study to form the Substudy in order to examine extended exposure–outcome relationship. Case-cohort and nested case-control studies are planned to investigate the relationship between exposures and rare health outcomes. Adjunct Studies can be conducted on a portion of the Main Study cohort when extramural funding is available and the protocols are approved.

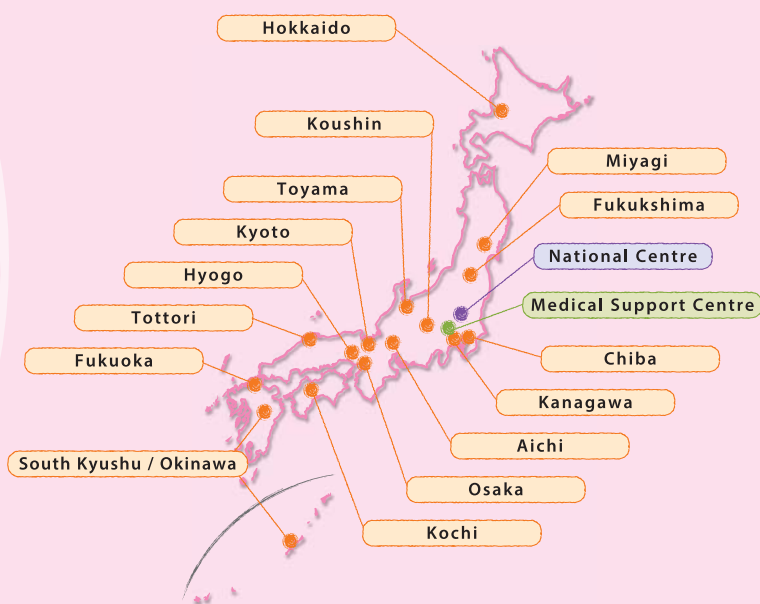
## Who uses the information?

The study products will be used to develop better chemical risk management strategies. The Japanese Government will also use the information to help plan health policy and services. The Government will use the study information to collaborate with other countries and international organisations such as the World Health Organisation (WHO).

## How is the JECS organised?

JECS is the project of the Japan Ministry of the Environment. The National Institute for Environmental Studies leads the study as the Programme Office, developing study protocols, designing questionnaires and outcome/exposure measurements, analysing biological samples and running data management system. National Centre for Child Health and Development supports the Programme Office with its medical expertise. Fifteen Regional Study Centres are responsible for recruitment/follow-up of the participants, data input and implementation of the Substudy.

- National Centre (1)
- Medical Support Centre (1)
- Regional Centre (15)



## Where can I find out more about the Japan Environment and Children's Study?

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