

Supplementary information

Title

The Fukushima Health Management Survey: estimation of external doses to residents in Fukushima Prefecture

Author names

Tetsuo Ishikawa¹, Seiji Yasumura¹, Kotaro Ozasa², Gen Kobashi³, Hiroshi Yasuda³, Makoto Miyazaki¹, Keiichi Akahane³, Shunsuke Yonai³, Akira Ohtsuru¹, Akira Sakai¹, Ritsu Sakata², Kenji Kamiya^{1,4} & Masafumi Abe¹

Affiliations

¹Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University

²Department of Epidemiology, Radiation Effects Research Foundation

³National Institute of Radiological Sciences

⁴Research Institute for Radiation Biology and Medicine, Hiroshima University

Corresponding author: Tetsuo Ishikawa (isikawat@fmu.ac.jp)

Table S1 Detailed distribution of estimated external doses for each of six municipalities shown in Fig. 4(b)

Effective dose (mSv)	Number of respondents (excluding radiation workers) by areas					
	Minami-Soma	Iitate	Kawamata	Namie	Katsurao	Futaba
<1	18,647	196	613	5,855	493	2,644
1 - 2	6,046	323	2,634	1,972	158	463
2 - 3	493	360	174	354	24	72
3 - 4	95	338	52	64	4	18
4 - 5	35	357	17	37	0	6
5 - 6	3	321	5	17	1	4
6 - 7	6	184	3	15	0	3
7 - 8	4	84	0	12	0	6
8 - 9	1	57	0	9	0	2
9 - 10	0	29	0	5	0	1
10 - 11	0	21	0	10	0	0
11 - 12	1	17	1	8	0	2
12 - 13	0	8	0	5	0	0
13 - 14	0	4	0	4	0	0
14 - 15	0	3	0	3	0	0
> 15	0	3	0	6	0	1
Total	25,331	2,305	3,499	8,376	680	3,222

From the next page, a complete form of the questionnaire is shown as Sheet S1.

The Fukushima Health Management Survey

Basic Survey Medical Interview Sheet (Response Sheet)



This medical interview sheet is to ask you to record the time and whereabouts during the period from the March 11 earthquake until July 11 (“Record of Movements”) in order to provide a basis for estimating levels of radiation exposure and to assist in future health control.

In particular, since there is no way to evaluate levels of external radiation exposure (other than by estimations based on your “Record of Movement”), we request that you enter your information as accurately as possible, while referring to resources such as the “Events Calendar” contained in the envelope.

The personal information contained in this medical interview sheet will be used for the purpose of health control in Fukushima Prefecture and information will also be provided to the municipality in which you live upon request. However this information will not be disclosed in any way that will identify an individual.

With the exceptions detailed below, this medical questionnaire must be completed only by the named respondent. However, in the case of minors, it should be filled out with a guardian’s consent, and we ask that the guardian’s name be written in the signature block provided for the guardian on the next page. For children under elementary school age, this form should be filled out by a guardian. Furthermore, for persons who are unable to complete the questionnaire by themselves (e.g., the elderly), it must be completed by a family member or a person living with the respondent.

After completing the questionnaire, please enclose it in the provided return envelope and return by post. It is acceptable to return multiple forms, such as those of family members, together in a single envelope.

Fukushima Prefecture

Fukushima Medical University

Please fill out the required information in the underlined spaces and select the applicable boxes with a tick (✓).

Today's Date: 2011 Month _____ Day _____		Respondent: 1 <input type="checkbox"/> Self 2 <input type="checkbox"/> Proxy (Relationship _____)	
Name (Family name, First Name): Katakana (if applicable):		Gender: 1 <input type="checkbox"/> Male 2 <input type="checkbox"/> Female	
Date of Birth : Year _____ Month _____ Date _____			
Guardian Signature Block (If the respondent is a minor, when consenting to complete this survey, please provide the name and signature of the guardian)			
(Guardian's printed name)		(Guardian's signature)	
Place of Birth (Nationality): _____ Prefecture _____ City/Ward/County _____ _____ Ward/Town/Village _____			
Registered address shown in the Alien Registration card as of March 11, 2011: 〒 _____ - _____ 1 <input type="checkbox"/> Same as on the cover (go to the next question) 2 <input type="checkbox"/> Same as place of birth (go to the next question)			
_____ Prefecture _____ City/Ward/County _____ Ward/Town/Village			
Name of Building / Room Number: _____			
Current address: 〒 _____ - _____		1 <input type="checkbox"/> Same as place of birth (go to the next question) 2 <input type="checkbox"/> Same as place of birth (go to the next question) 3 <input type="checkbox"/> Same as on March 11 (go to the next question)	
_____ Prefecture _____ City/Ward/County _____ Ward/Town/Village			
Name of Building / Room Number: _____			
Intended new address (Please fill this out if you know the address to which you plan to move in the future) 〒 _____ - _____			
_____ Prefecture _____ City/Ward/County _____ Ward/Town/Village			
Name of Building / Room Number: _____			
Intended date for moving: Year _____ Month _____ Date _____			
Contact Information *This is necessary in case we need to contact the respondent directly, such as to confirm incomplete information.			
Phone Number: (_____) _____ - _____		Mobile Phone Number: (_____) _____ - _____	
Are you currently living with others? 1 <input type="checkbox"/> I live alone 2 <input type="checkbox"/> I live with my family (including living only with spouse) 3 <input type="checkbox"/> I am living in a facility 4 <input type="checkbox"/> Other (_____)			

1. Please mark the appropriate box with a tick (✓) with respect to the building type of your home and the place of employment/education as of March 11.

In the space provided for place of employment/education, please provide details of the building type for other places (apart from your home) where you spend a lot of time as part of your daily routine, such as for employment or schooling. Please provide details of the address up to the city and neighborhood (chōme) or village level, as appropriate.

For fields labeled “Other” please provide specific details regarding building construction.

If you work outdoors, please select the “Other” box with a tick (✓).

Home	<p>1 <input type="checkbox"/> Detached house (reinforced/steel-reinforced concrete construction)</p> <p>2 <input type="checkbox"/> Detached house (other construction, e.g., wood, steel, light-gauge steel)</p> <p>3 <input type="checkbox"/> Multiple dwelling/apartment (reinforced/steel-reinforced concrete construction) (floor ___ of a ___ floor building)</p> <p>4 <input type="checkbox"/> Multiple dwelling/apartment (other construction, e.g., wood, steel, light-gauge steel) (floor ___ of a ___ floor building)</p> <p>5 <input type="checkbox"/> Other (_____) (floor ___ of a ___ floor building)</p> <p>*For the purpose of this survey, please answer “concrete” for all buildings of the following construction types: reinforced concrete; steel; and concrete block.</p>
Place of employment/education	<p>1 <input type="checkbox"/> Place of Employment 2 <input type="checkbox"/> School 3 <input type="checkbox"/> Other (_____)</p>
	<p>Address of place of employment or school (to the best of your knowledge)</p> <p>_____ Prefecture _____ City/Ward/County</p> <p>_____ Ward/Town/Village _____</p>
	<p>1 <input type="checkbox"/> Reinforced/steel-reinforced concrete construction (floor ___ of a ___ floor building)</p> <p>2 <input type="checkbox"/> Other construction (e.g., wood, steel, light-gauge steel) (floor ___ of a ___ floor building)</p> <p>3 <input type="checkbox"/> Outdoors (agriculture, etc.)</p> <p>If you have filled out details in this section, please use labels such as “Employment” and “Education” for the movement survey in the following Section 2.</p>

3. We would like to ask you about places you visited and places of regular outings for the period from March 26 to July 11, 2011. For example, if you commuted to work from Monday to Friday and you had different regular outings on Saturdays, please fill in the former as “Outing (1)” and the latter as “Outing (2)” etc.

Please fill in the address details up to the house/block number (*banchi*). If you are unsure of the address of a place which you visited while on an outing, it is acceptable to provide just the name of the facility. Also, for visits outside Fukushima Prefecture, it is acceptable to provide the address up to the name of the municipality.

Period	Places where you spent time
<p>March 26</p> <p style="text-align: center;">↓</p> <p>(month) (day)</p>	<p>Area of residence</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent outside for shopping, doing chores, etc in the area surrounding your place of residence: [_____] hours per day</p> <p>Place of regular outing ① (place of employment or education):</p> <p>Facility name: _____</p> <p>Location:</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at the place for outing: [_____] hours per day</p> <p>Time spent outdoors at the place for outing: [_____] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p> <p>Place of regular outing ②: Facility name _____</p> <p>Location:</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at place of outing: [_____] hours per day</p> <p>Time spent outdoors at place of outing: [_____] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p>
<p>(month) (day)</p> <p style="text-align: center;">↓</p> <p>(month) (day)</p>	<p>Area of residence</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent outside for shopping, doing chores, etc in the area surrounding your place of residence: [_____] hours per day</p> <p>Place of regular outing ① (place of employment or education):</p> <p>Facility name: _____</p> <p>Location:</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at the place for outing: [_____] hours per day</p> <p>Time spent outdoors at the place for outing: [_____] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p> <p>Place of regular outing ②: Facility name _____</p> <p>Location:</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at place of outing: [_____] hours per day</p> <p>Time spent outdoors at place of outing: [_____] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p>

Period	Places where you spent time
<p>(month) (day)</p> <p style="text-align: center;">↓</p> <p>(month) (day)</p>	<p>Area of residence</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent outside for shopping, doing chores, etc in the area surrounding your place of residence: [] hours per day</p> <p>Place of regular outing ① (place of employment or education):</p> <p>Facility name: _____</p> <p>Location: _____</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at the place for outing: [] hours per day</p> <p>Time spent outdoors at the place for outing: [] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p> <p>Place of regular outing ②: Facility name _____</p> <p>Location: _____</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at place of outing: [] hours per day</p> <p>Time spent outdoors at place of outing: [] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p>
<p>(month) (day)</p> <p style="text-align: center;">↓</p> <p>(month) (day)</p>	<p>Area of residence</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent outside for shopping, doing chores, etc in the area surrounding your place of residence: [] hours per day</p> <p>Place of regular outing ① (place of employment or education):</p> <p>Facility name: _____</p> <p>Location: _____</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at the place for outing: [] hours per day</p> <p>Time spent outdoors at the place for outing: [] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p> <p>Place of regular outing ②: Facility name _____</p> <p>Location: _____</p> <p>_____ Prefecture _____ City/Ward/Parish _____ Ward/Town/Village</p> <p>Time spent indoors at place of outing: [] hours per day</p> <p>Time spent outdoors at place of outing: [] hours per day</p> <p>Please circle the relevant day(s): Mon Tue Wed Thu Fri Sat Sun</p>

*Space for four (4) periods is provided; however, if this is insufficient, please submit with additional photocopies, etc., attached.

6. From March 11 through to March 31, to what extent did you consume products such as crops produced in your own fields, orchards, home garden, etc, or milk from livestock that you raise? Please mark the appropriate box with a tick (✓) and provide details in the square brackets ([]) with respect to types of food eaten, whether it was from an open field or greenhouse, and how many times such foodstuffs were consumed.

Type of food	Classification	
<p>Did you eat any home-grown fruit or vegetables?</p> <p>1 <input type="checkbox"/> Yes</p> <p style="text-align: center;">└─→</p> <p>2 <input type="checkbox"/> No</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Go to the next question.</p>		<p>If you answered “yes”, fill in the following information:</p> <p>① Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p>② Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p>③ Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p>④ Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p>⑤ Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p>⑥ Type [] : 1 <input type="checkbox"/> Field 2 <input type="checkbox"/> Greenhouse 3 <input type="checkbox"/> Unknown Approximately what quantity? Serving size: Small: [] Medium: [] Large: [] <i>or</i> No. of pieces []</p> <p><i>(A guide for serving sizes should be the normal amount that is served on plates of the following diameters, respectively: less than 10 cm (small), 10-20cm (medium) and over 20 cm (large))</i></p>
<p>Did you drink milk from any livestock you raise (cows, etc)?</p> <p>1 <input type="checkbox"/> Yes</p> <p style="text-align: center;">└─→</p> <p>2 <input type="checkbox"/> No</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Go to the next question.</p>		<p>Type of livestock: []</p> <p>On the basis of a 200 mL cup, how many cups in total did you drink? []</p>

7. For the period between March 11 and March 31, which of the following was the main source of drinking water that you used for everyday consumption?

Please mark the appropriate box with a tick (✓) and provide details in the square brackets ([])

- Tap water Consumed daily between: March [] and March []
- Water from private waterworks or well Consumed daily between: March [] and March []
- Mineral water Consumed daily between: March [] and March []
- Other [_____]

8. For the period between March 11 and March 31, did you take “stabilized iodine tablet”?

- No Yes → Date taken [_____(Month) _____(Day)] I don't know.

9. For the period between March 11 and March 31, did you undergo screening for radioactive contamination?

- No
- Yes → _____(Month) _____(Day) Place at measurement taken [_____]

Were you decontaminated? No Yes

10. Are you currently or have you previously been a “radiation worker”?

- No Yes
- I don't know → Please describe the details of your occupation (_____)

This is the end of the survey.
Please submit this form with the return envelope.