Report on the TUE Full-Scale Survey (fifth-round survey)

As of December 31, 2023

1. Summary

1.1 Purpose

To monitor the long-term health of children, we are continuing the Full-Scale Survey (fifth-round survey), following the Preliminary Baseline Survey for background assessment of thyroid glands, and prior Full-Scale Surveys (second-, third-, and fourth-round surveys) to continuously assess the status of thyroid glands.

1.2 Eligible persons

All Fukushima residents approximately 18 years old or younger at the time of the earthquake (those born between April 2, 1992 and April 1, 2012).

1.3 Implementation Period

FY2020 and FY2022, starting in April 2020:

1.3-1 For those 18 years old or younger

The examination will be carried out over 3 years, from FY2020 through FY2022.

1.3-2 For those 19 years old or older

The examination will be conducted on an age-group basis (i.e., school grade).

FY2020: those born in FY1998 and FY2000
FY2021: those born in FY1999 and FY2001
FY2022: no eligible persons

1.3-3 For those 25 years old or older

Those older than 20 are recommended to receive the examination every 5 years around the ages of 25, 30, and so on (Age 25 and Age 30 Surveys)

FY2020: those born in FY1995
FY2021: those born in FY1996
FY2022: those born in FY1992 and FY1997

Results of the survey for those 25 years old will be reported separately.

1.4 Implementing Organizations (number of medical facilities with agreements for the implementation of thyroid examinations as of December 31, 2023)

Fukushima Prefecture commissioned Fukushima Medical University (FMU) to conduct the Survey in cooperation with organizations inside and outside Fukushima for the convenience of participants.

1.4-1 Primary examination facilities

In Fukushima Prefecture	85 medical facilities
Outside Fukushima Prefecture	146 medical facilities

1.4-2 Confirmatory examination facilities

In Fukushima Prefecture	6 medical facilities, including FMU
Outside Fukushima Prefecture	40 medical facilities

1.5 Methods

1.5-1 Primary examination

Ultrasonography of the thyroid gland.

Assessments are made by specialists based on the following criteria:

- Grade A
  A1: No nodules/cysts
  A2: Nodules ≤ 5.0 mm or cysts ≤ 20.0 mm
- Grade B
  B: Nodules ≥ 5.1 mm or cysts ≥ 20.1 mm
  Some A2 results may be re-classified as B results when clinically indicated.
-Grade C
  C: Urgent need for confirmatory examination, judging from the condition of the thyroid gland.

1.5-2 Confirmatory examination

Ultrasonography of the thyroid gland, blood and urine tests, and fine needle aspiration cytology (FNAC) if needed for those with B or C test results.

Priority is given to those in urgent clinical need. A medical follow-up may be recommended based on confirmatory exam results.

1.5-3 Flow chart

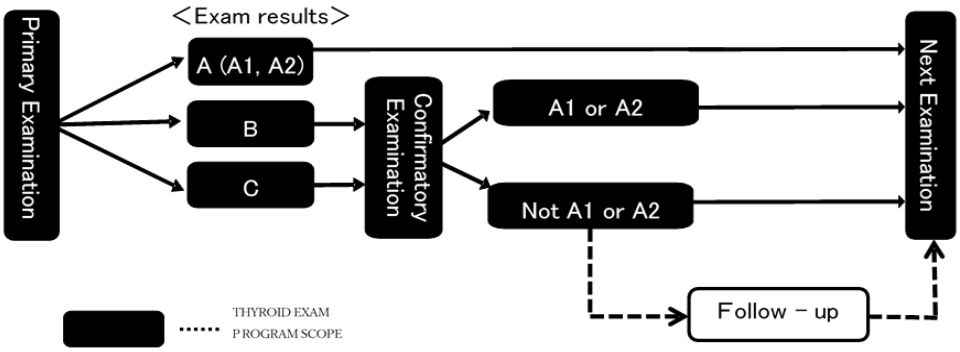


Figure 1 Flow chart

1.6 Municipalities Surveyed

The municipalities where examinations (for those 18 years old or younger) were carried out in FY2020 and FY2022 are as follows:

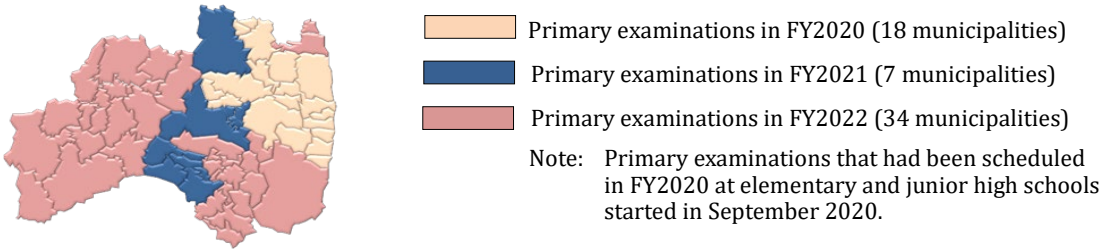


Figure 2 Municipalities covered for primary examinations at elementary and junior high schools

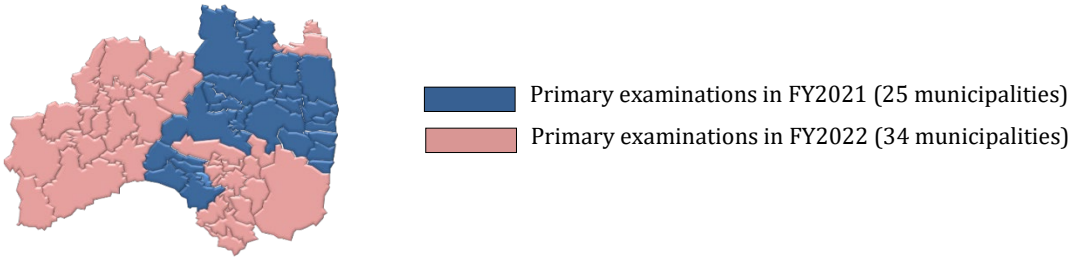


Figure 3 Municipalities covered for primary examinations at high schools and other facilities

Results of these surveys were aggregated based on the year when examinations were originally scheduled, which may differ from the year in which some examinations were conducted.

2. Results as of December 31, 2023

2.1 Results of the Primary Examination

2.1-1 Implementation status

The primary examination was completed for 113,950 participants (45.1%) by December 31, 2023. (Refer to Appendices 1 and 2 for the participation and progress summaries by municipalities in Fukushima prefecture and other prefectures.)

The results of 113,946 participants (100.0%) have been finalized and individual reports sent to them. (See Appendix 3 for details.)

Of these, 32,843 (28.8%) had Grade A1 results, 79,757 (70.0%) had Grade A2, 1,346 (1.2%) had Grade B, and none had Grade C.

Table 1 Progress and results of the primary examination

	Eligible persons	Participants (persons)			Participants with finalized results (persons and %)									
			Participation rate (%)	Those who participated outside Fukushima		Judgment rate (%)	Details by grade							
							A				Those referred to confirmatory exam			
							A1		A2		B		C	
	a	b	(b/a)		c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/c)
FY2020	144,902	69,176	(47.7)	5,499	69,174	(100.0)	19,997	(28.9)	48,429	(70.0)	748	(1.1)	0	(0.0)
FY2021	108,036	44,774	(41.4)	2,469	44,772	(100.0)	12,846	(28.7)	31,328	(70.0)	598	(1.3)	0	(0.0)
Total	252,938	113,950	(45.1)	7,968	113,946	(100.0)	32,843	(28.8)	79,757	(70.0)	1,346	(1.2)	0	(0.0)

Table 2 Number and proportion of participants with nodules/cysts (See Appendix 4 for details.)

	Participants with finalized results	**Participants with nodules / cysts (%)**							
		Nodules				**Cysts**			
		≥ 5.1mm		**≤ 5.0mm**		**≥20.1mm**		**≤ 20.0mm**	
	a	**b**	**(b/a)**	**c**	**(c/a)**	**d**	**(d/a)**	**e**	**(e/a)**
FY2020	69,174	748	(1.1)	380	(0.5)	1	(0.0)	48,846	(70.6)
FY2021	44,772	598	(1.3)	284	(0.6)	0	(0.0)	31,671	(70.7)
Total	113,946	1,346	(1.2)	664	(0.6)	1	(0.0)	80,517	(70.7)

- Proportions are rounded to a lower decimal place. This applies to other tables as well.
- Those who receive the examination at 5-year intervals (born between FY1992 and FY1997: Age 25 and Age 30 examinations) are excluded and will be reported separately.
- Examinations for those born in FY1995 (approx. 21,000) took place in FY2020; for those born in FY1996 (approx. 21,000), FY2021; and for those born in FY1992 (approx. 23,000) and FY1997 (approx. 20,000), FY2022.

2.1-2 Participation rate by age group

Table 3 shows the participation rate for each age group as of April 1 of each fiscal year.

Table 3 Participation rates by age group

			Total	Age group		
FY2020	Age group*			8-11	12-17	18-24
	Eligible persons	(a)	144,902	37,105	61,911	45,886
	Participants	(b)	69,176	27,925	36,161	5,090
	Participation rate (%)	(b/a)	47.7	75.3	58.4	11.1
FY2021	Age group*			9-11	12-17	18-24
	Eligible persons	(a)	108,036	19,771	45,061	43,204
	Participants	(b)	44,774	14,152	25,689	4,933
	Participation rate (%)	(b/a)	41.4	71.6	57.0	11.4
Total	Eligible persons	(a)	252,938	56,876	106,972	89,090
	Participants	(b)	113,950	42,077	61,850	10,023
	Participation rate (%)	(b/a)	45.1	74.0	57.8	11.3

* Age groups are based on ages as of April 1 of each fiscal year.

2.1-3 Comparison of the fourth- and fifth-round survey results

Table 4 compares the results of two Full-Scale Surveys (fourth- and fifth-round surveys).

Among 106,591 (sum of *1) participants with Grade A (A1 and A2) results in the fourth-round survey, 105,824 (sum of *2, 99.3%) had Grade A (A1 and A2) results, and 767 (sum of *3, 0.7%) had Grade B results in the fifth-round survey.

Among 546 participants with Grade B results in the fourth-round survey, 104 (sum of *4, 19.0%) had Grade A (A1 and A2) results, and 442 (81.0%) had Grade B results in the fifth-round survey.

Table 4 Comparison of the fourth- and fifth-round surveys

			Results of the fourth-round survey* a (%)	Results of the fifth-round survey**			
				A		B	C
				A1 b (b/a)	A2 c (c/a)	d (d/a)	e (e/a)
Results of the fourth-round survey	A	A1	34,597 *1 (100.0)	23,880 *2 (69.0)	10,582 *2 (30.6)	135 *3 (0.4)	0 (0.0)
		A2	71,994 *1 (100.0)	6,645 *2 (9.2)	64,717 *2 (89.9)	632 *3 (0.9)	0 (0.0)
	B		546 (100.0)	11 *4 (2.0)	93 *4 (17.0)	442 (81.0)	0 (0.0)
	C		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Did not participate		6,809 (100.0)	2,307 (33.9)	4,365 (64.1)	137 (2.0)	0 (0.0)
Total			113,946 (100.0)	32,843 (28.8)	79,757 (70.0)	1,346 (1.2)	0 (0.0)

* Results of the fourth-round survey are from fifth-round survey participants with finalized results, not the breakdown of all fourth-round survey participants.

** Results of the fifth-round survey participants diagnosed for each grade in the fourth-round survey.

2.2 Results of the Confirmatory Examination

2.2-1 Implementation status

By December 31, 2023, of 1,346 eligible persons, 1,092 (81.1%) had participated in the confirmatory examination, and 1,058 (96.9%) had completed the entire procedure. (See Appendix 5 for the implementation status of the confirmatory examinations by area.)

Of those 1,058 participants, 98 (A1: 7, A2: 91) (9.3%) were confirmed to meet A1 or A2 diagnostic criteria by primary examination standards (including those with other thyroid conditions). After the detailed examination, 960 (90.7%) were confirmed to be outside of the A1 or A2 criteria.

Table 5 Progress and results of the confirmatory examination

	Those referred to confirmatory exams	Participants (persons) (%)		Those with finalized results (%)									
				Determination rate (%)		A1		A2		Not A1 or A2			
												FNAC	
	a	b	(b/a)	c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/f)
FY2020	748	625	(83.6)	613	(98.1)	4	(0.7)	64	(10.4)	545	(88.9)	64	(11.7)
FY2021	598	467	(78.1)	445	(95.3)	3	(0.7)	27	(6.1)	415	(93.3)	26	(6.3)
Total	1,346	1,092	(81.1)	1,058	(96.9)	7	(0.7)	91	(8.6)	960	(90.7)	90	(9.4)

2.2-2 Results of fine needle aspiration cytology (FNAC)

Among those who underwent FNAC, 45 participants had nodules classified as malignant or suspicious for malignancy: 11 were male and 34 were female.

Participants' ages at the time of the confirmatory examination ranged from 12 to 24 (mean age: 17.4 ± 3.0 years). The tumor diameters were from 5.4 mm to 46.7mm, and the mean tumor diameter was 14.0 ± 8.4 mm.

Of these 45 participants, 33 had Grade A (A1:11, A2:22), 6 had Grade B results in the fourth-round survey, and the remaining 6 participants did not participate. Among 22 participants with Grade A2, 20 met cyst, and 2 met both cyst and nodule criteria.

Table 6 Results of FNAC.

A. Municipalities surveyed in FY2020
- Malignant or suspicious for malignancy: 29*
- Male to female ratio: 6:23
- Mean age±SD (min-max) 17.5 ± 3.4 (12–24)
  6.6 ± 3.4 (1–12) at the time of the earthquake
- Mean tumor size±SD (min-max) 11.3 ± 5.0 mm (5.4–30.1 mm)

B. Municipalities surveyed in FY2021
- Malignant or suspicious for malignancy: 16*
- Male to female ratio: 5:11
- Mean age±SD (min-max) 17.3 ± 2.2 (13–21)
  5.7± 3.0 (0–10) at the time of the earthquake
- Mean tumor size±SD (min-max) 18.8 ±11.0 mm (8.4–46.7 mm)

C. Total
- Malignant or suspicious for malignancy: 45*
- Male to female ratio: 11:34
- Mean age±SD (min-max) 17.4 ± 3.0 (12–24)
  6.3 ± 3.2 (0–12) at the time of the earthquake
- Mean tumor size±SD (min-max) 14.0 ± 8.4 mm (5.4–46.7 mm)

* Appendix 6 shows surgery cases.

2.2-3 Age distribution of malignant or suspected malignant cases diagnosed by FNAC

The age distribution of 45 people with malignant or suspected malignant nodules based on their age as of March 11, 2011, is in Figure 4, and the age distribution based on their age at the time of confirmatory examination is in Figure 5.

Note: Those aged between 13 and 18 at the time of the disaster are not included in the fifth-round survey participants. The horizontal axis begins at -1, including those born between April 2, 2011, and April 1, 2012.

*Those born between March 12 and April 1, 2011, are included in age 0.

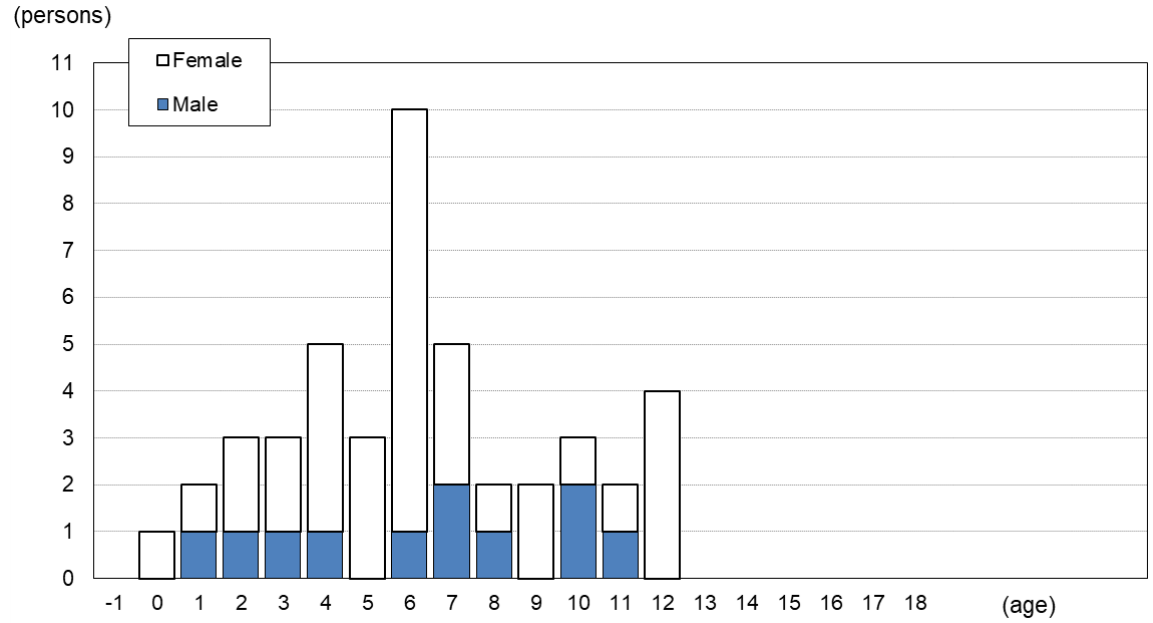


Figure 4 Age distributions as of March 11, 2011

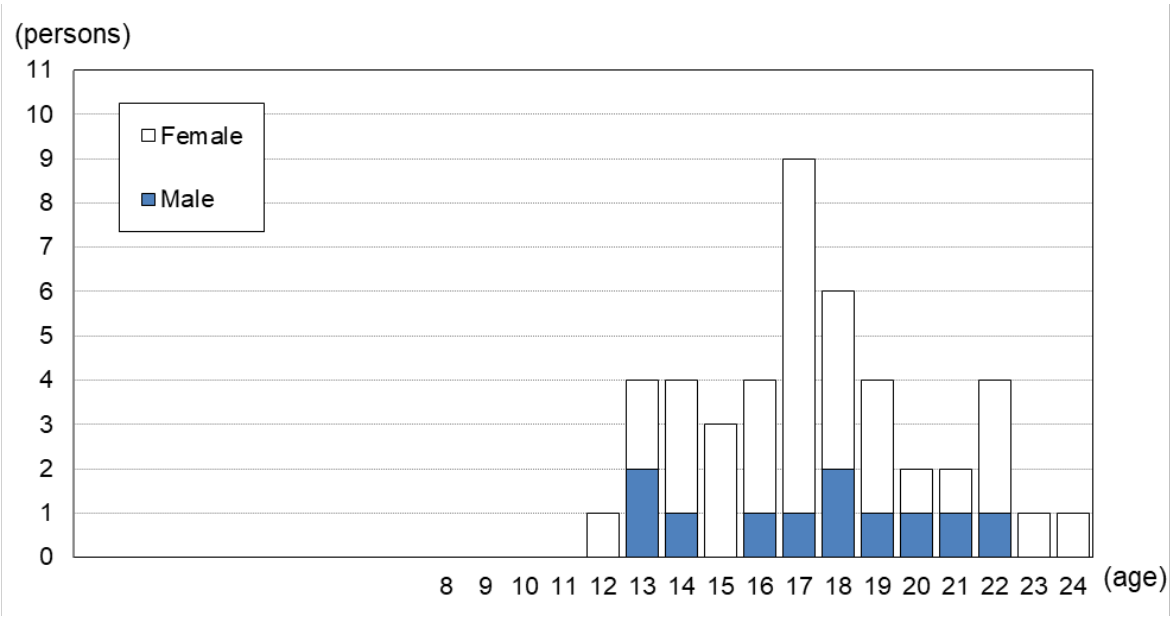


Figure 5 Age distributions as of the date of confirmatory examination

2.2-4 Basic Survey results for those deemed malignant or suspicious for malignancy by FNAC

Of those 45 people with malignant or suspicious findings, 27 (60.0%) had participated in the Basic Survey (for external radiation dose estimation), and all 27 received their results. The highest effective dose documented was 2.4 mSv.

Table 7　A breakdown of dose estimates for Basic Survey participants

Effective dose (mSv)	Age at the time of the earthquake									
	0–5		6–10		11–15		16–18		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
< 1	1	5	2	7	0	3	0	0	3	15
< 2	1	1	1	1	1	1	0	0	3	3
< 5	0	2	0	0	1	0	0	0	1	2
< 10	0	0	0	0	0	0	0	0	0	0
< 20	0	0	0	0	0	0	0	0	0	0
≥ 20	0	0	0	0	0	0	0	0	0	0
合計	2	8	3	8	2	4	0	0	7	20

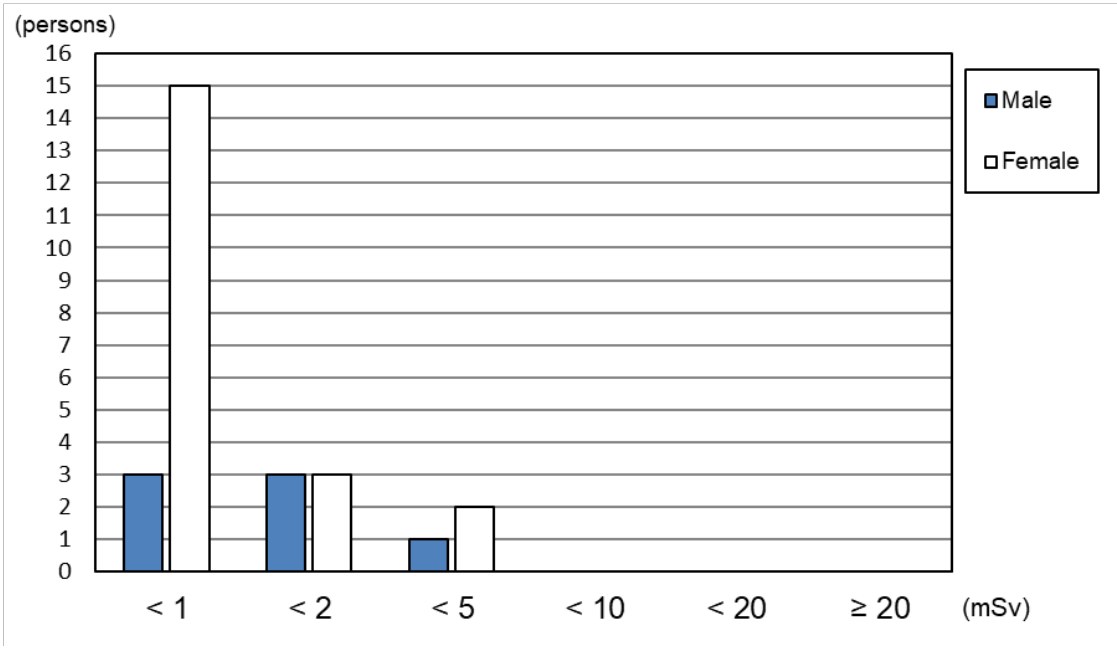


Figure 6 Effective dose distribution of the Basic Survey participants

2.2-5 Blood test and urinary iodine test results

Table 8 Blood test results

	FT4[1] (ng/dL)	FT3[2] (pg/mL)	TSH[3] (μIU/mL)	Tg[4] (ng/mL)	TgAb[5] (IU/mL)	TPOAb[6] (IU/mL)
Reference Range	0.95–1.74[7]	2.13–4.07[7]	0.340–3.880[7]	≤ 33.7	< 28.0	< 16.0
Malignant or suspicious : 45	1.2±0.2 (4.4%)	3.5±0.4 (4.4%)	1.2±0.7 (8.9%)	76.6±321.4 (17.8%)	15.6%	13.3%
Other : 920	1.2±0.2 (5.1%)	3.6±0.8 (7.5%)	1.3±1.1 (8.8%)	30.6±81.3 (15.4%)	8.7%	7.3%

Table 9 Urinary iodine test results

(μg/day)

	Minimum	25th percentile	Median	75th percentile	Maximum
Malignant or suspicious : 43	36	127	175	410	2,471
Other : 916	21	113	193	331	12,670

1) FT4: free thyroxine; thyroid hormone binding 4 iodines; higher among patients with thyrotoxicosis (such as Graves' disease) and lower with hypothyroidism (such as Hashimoto's thyroiditis).
2) FT3: free triiodothyronine; thyroid hormone binding 3 iodines; higher among patients with thyrotoxicosis (such as Graves' disease) and lower with hypothyroidism (such as Hashimoto's thyroiditis).
3) TSH: thyroid-stimulating hormone; higher among patients with Hashimoto's disease and lower with Graves' disease.
4) Tg: thyroglobulin; higher when thyroid tissue is destroyed or when neoplastic tissue produces thyroglobulin.
5) TgAb: anti-thyroglobulin antibody; higher among patients with Hashimoto's disease or Graves' disease.
6) TPOAb: anti-thyroid peroxidase antibody; higher among patients with Hashimoto's disease or Graves' disease.
7) Reference intervals vary according to age.

2.2-6 Confirmatory examination results by area

The percentages of those with malignant or suspicious findings were 0.04% in the 13 municipalities of the nationally-designated evacuation zone, Nakadori, and Hamadori, and 0.02% in Aizu.

Table 10 Confirmatory examination results by area

	The fifth-round survey participants (persons)	Those referred to confirmatory exam (persons) and rate (%)		Those who received the exam (persons)	Malignant or suspicious (persons) and rate (%)	
	a	b	b/a		c	c/a
13 municipalities[1)]	14,785	156	1.1	129	6	0.04
Nakadori[2)]	65,591	739	1.1	614	27	0.04
Hamadori[3)]	20,784	293	1.4	223	9	0.04
Aizu[4)]	12,790	158	1.2	126	3	0.02
Total	113,950	1,346	1.2	1,092	45	0.04

1) Tamura City, Minamisoma City, Date City, Kawamata Town, Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Iitate Village
2) Fukushima City, Koriyama City, Shirakawa City, Sukagawa City, Nihonmatsu City, Motomiya City, Koori Town, Kunimi Town, Otama Village, Kagamiishi Town, Tenei Village, Nishigo Village, Izumizaki Village, Nakajima Village, Yabuki Town, Tanagura Town, Yamatsuri Town, Hanawa Town, Samegawa Village, Ishikawa Town, Tamakawa Village, Hirata Village, Asakawa Town, Furudono Town, Miharu Town, Ono Town
3) Iwaki City, Soma City, Shinchi Town
4) Aizuwakamatsu City, Kitakata City, Shimogo Town, Hinoemata Village, Tadami Town, Minamiaizu Town, Kitashiobara Village, Nishiaizu Town, Bandai Town, Inawashiro Town, Aizubange Town, Yugawa Village, Yanaizu Town, Mishima Town, Kaneyama Town, Showa Village, Aizumisato Town

3. Mental Health Care

We have been providing the following support for thyroid examination participants.

3.1 Support for Primary Examination Participants

After the examination, medical doctors offer person-to-person explanations of examination results, showing ultrasound images in private consultation booths at examination venues set up in public facilities.

Consultation booths were set up at all venues for examinations conducted in and after April 2020; as of December 31, 2023, all 2,754 participants (100%) have visited these consultation booths.

3.2 Outreach programs (on-location lectures and information sessions)

We have conducted on-location lectures and information sessions to support participants and their parents/guardians to deepen their understanding of the thyroid examination.

From April 2020 to March 31, 2023, 607 people participated in these sessions offered at 11 locations: 3 elementary schools, 4 junior high schools, and 4 high schools.

3.3 Support for Confirmatory Examination Participants

A support team has been established within Fukushima Medical University to offer mental health support to those undergoing the confirmatory (secondary) examination to address their concerns and anxiety, as well as to answer questions and provide guidance via web consultation.

Since the start of the fifth-round survey, 402 participants (127 males and 275 females) have received support as of December 31, 2023. The number of support sessions provided was 710 in total. Of these, 397 (55.9%) received support at the participants' first examination and 313 (44.1%) at subsequent examinations.

For those who proceeded to regular insured medical care, the support team continues to provide support in cooperation with teams of medical staff at hospitals.

Appendix 1 Implementation status of the TUE primary examination, by the municipality

As of December 31, 2023

	Number of eligible persons	Participants (persons)		Participation rate(%)	Number of participants and participation rate by age group[2]			Participants living outside Fukushima	%
	a	b	Participated outside Fukushima[1]	b/a	8–11	12–17	18–24	c[3]	c/b
Municipalities surveyed in FY2020									
Kawamata	1,567	739	14	47.2	238 32.2	431 58.3	70 9.5	39	5.3
Namie	2,478	953	235	38.5	210 22.0	547 57.4	196 20.6	233	24.4
Iitate	731	345	20	47.2	88 25.5	202 58.6	55 15.9	25	7.2
Minamisoma	8,849	3,975	571	44.9	1,201 30.2	2,253 56.7	521 13.1	611	15.4
Date	7,412	4,039	166	54.5	1,143 28.3	2,284 56.5	612 15.2	170	4.2
Tamura	4,577	2,281	52	49.8	803 35.2	1,227 53.8	251 11.0	75	3.3
Hirono	647	289	28	44.7	68 23.5	166 57.4	55 19.0	25	8.7
Naraha	916	369	44	40.3	73 19.8	221 59.9	75 20.3	45	12.2
Tomioka	1,980	715	122	36.1	153 21.4	412 57.6	150 21.0	127	17.8
Kawauchi	225	98	7	43.6	20 20.4	59 60.2	19 19.4	8	8.2
Okuma	1,771	670	117	37.8	145 21.6	392 58.5	133 19.9	116	17.3
Futaba	839	247	48	29.4	51 20.6	155 62.8	41 16.6	50	20.2
Katsurao	148	65	3	43.9	14 21.5	39 60.0	12 18.5	5	7.7
Fukushima	37,320	18,604	1,415	49.8	4,862 26.1	11,047 59.4	2,695 14.5	1,380	7.4
Nihonmatsu	6,920	3,713	160	53.7	1,126 30.3	2,156 58.1	431 11.6	151	4.1
Motomiya	4,232	2,211	78	52.2	663 30.0	1,302 58.9	246 11.1	77	3.5
Otama	1,122	681	18	60.7	214 31.4	384 56.4	83 12.2	14	2.1
Koriyama	45,739	20,620	1,966	45.1	4,729 22.9	12,879 62.5	3,012 14.6	1,941	9.4
Koori	1,375	789	25	57.4	224 28.4	467 59.2	98 12.4	28	3.5
Kunimi	1,022	559	20	54.7	126 22.5	349 62.4	84 15.0	23	4.1
Tenei	728	332	19	45.6	95 28.6	180 54.2	57 17.2	12	3.6
Shirakawa	8,566	4,240	257	49.5	1,229 29.0	2,366 55.8	645 15.2	251	5.9
Nishigo	2,856	1,345	77	47.1	399 29.7	740 55.0	206 15.3	73	5.4
Izumizaki	893	394	7	44.1	105 26.6	245 62.2	44 11.2	11	2.8
Miharu	1,989	903	30	45.4	218 24.1	525 58.1	160 17.7	33	3.7
Subtotal	144,902	69,176	5,499	47.7	18,197 26.3	41,028 59.3	9,951 14.4	5,523	8.0

*1) The number of participants who received the examination at facilities outside Fukushima (as of November 30, 2023).

*2) Split cells show the number of participants above the corresponding percentage.

*3) The number of participants who have resident registration outside Fukushima.

・Age groups are based on participants' age at the Full-Scale Survey (fifth-round survey). This applies to other tables hereafter.

	Number of eligible persons	Participants (persons)	Participated outside Fukushima[1]	Participation rate(%)	Number of participants and participation rate by age group[2]			Participants living outside Fukushima	%
	a	b		b/a	8–11	12–17	18–24	c[3]	c/b
Municipalities surveyed in FY2021									
Iwaki	42,530	18,579	1,369	43.7	2,130	12,306	4,143	1,265	6.8
					11.5	66.2	22.3		
Sukagawa	10,705	4,582	181	42.8	773	3,055	754	180	3.9
					16.9	66.7	16.5		
Soma	4,771	1,781	167	37.3	325	1,204	252	188	10.6
					18.2	67.6	14.1		
Kagamiishi	1,835	818	28	44.6	142	552	124	21	2.6
					17.4	67.5	15.2		
Shinchi	983	424	29	43.1	61	279	84	32	7.5
					14.4	65.8	19.8		
Nakajima	706	266	9	37.7	54	169	43	6	2.3
					20.3	63.5	16.2		
Yabuki	2,326	977	22	42.0	217	639	121	23	2.4
					22.2	65.4	12.4		
Ishikawa	1,860	790	25	42.5	161	489	140	23	2.9
					20.4	61.9	17.7		
Yamatsuri	685	306	13	44.7	66	207	33	7	2.3
					21.6	67.6	10.8		
Asakawa	913	408	21	44.7	73	268	67	16	3.9
					17.9	65.7	16.4		
Hirata	838	371	9	44.3	86	220	65	7	1.9
					23.2	59.3	17.5		
Tanagura	2,049	847	32	41.3	178	562	107	35	4.1
					21.0	66.4	12.6		
Hanawa	1,070	419	8	39.2	83	262	74	12	2.9
					19.8	62.5	17.7		
Samegawa	457	191	4	41.8	43	129	19	3	1.6
					22.5	67.5	9.9		
Ono	1,252	502	7	40.1	107	339	56	6	1.2
					21.3	67.5	11.2		
Tamakawa	920	386	9	42.0	68	258	60	6	1.6
					17.6	66.8	15.5		
Furudono	692	337	17	48.7	71	199	67	11	3.3
					21.1	59.1	19.9		
Hinoemata	75	16	2	21.3	3	11	2	0	0.0
					18.8	68.8	12.5		
Minamiaizu	1,788	666	20	37.2	148	445	73	19	2.9
					22.2	66.8	11.0		
Kaneyama	114	38	0	33.3	6	25	7	0	0.0
					15.8	65.8	18.4		
Showa	101	33	5	32.7	9	22	2	5	15.2
					27.3	66.7	6.1		
Mishima	131	45	0	34.4	12	24	9	1	2.2
					26.7	53.3	20.0		
Shimogo	646	216	3	33.4	41	143	32	3	1.4
					19.0	66.2	14.8		
Kitakata	5,939	2,227	66	37.5	393	1,515	319	66	3.0
					17.6	68.0	14.3		
Nishiaizu	618	201	5	32.5	43	133	25	5	2.5
					21.4	66.2	12.4		
Tadami	475	212	5	44.6	38	150	24	7	3.3
					17.9	70.8	11.3		
Inawashiro	1,760	696	23	39.5	137	454	105	20	2.9
					19.7	65.2	15.1		
Bandai	415	159	9	38.3	32	106	21	8	5.0
					20.1	66.7	13.2		
Kitashiobara	385	163	6	42.3	32	111	20	6	3.7
					19.6	68.1	12.3		
Aizumisato	2,371	987	25	41.6	179	633	175	25	2.5
					18.1	64.1	17.7		
Aizubange	2,012	789	27	39.2	140	504	145	29	3.7
					17.7	63.9	18.4		
Yanaizu	393	148	3	37.7	31	98	19	3	2.0
					20.9	66.2	12.8		
Aizuwakamatsu	15,770	5,983	316	37.9	950	4,003	1,030	315	5.3
					15.9	66.9	17.2		
Yugawa	451	211	4	46.8	38	130	43	5	2.4
					18.0	61.6	20.4		
Subtotal	108,036	44,774	2,469	41.4	6,870	29,644	8,260	2,358	5.3
					15.3	66.2	18.4		
Total	252,938	113,950	7,968	45.1	25,067	70,672	18,211	7,881	6.9
					22.0	62.0	16.0		

Appendix 2 Implementation status of the TUE primary examination, by prefecture

As of November 30, 2023

Prefecture	Number of medical facilities	Participants (persons)
Hokkaido	6	**195**
Aomori	3	**94**
Iwate	4	**182**
Miyagi	2	**1,756**
Akita	1	**131**
Yamagata	3	**355**
Ibaraki	4	**476**
Tochigi	9	**542**
Gunma	2	**154**
Saitama	4	**443**
Chiba	5	**353**
Tokyo	22	**1,366**
Kanagawa	7	**537**
Niigata	3	**346**
Toyama	2	**21**
Ishikawa	1	**25**

Prefecture	Number of medical facilities	Participants (persons)
Fukui	1	**12**
Yamanashi	2	**65**
Nagano	4	**104**
Gifu	2	**13**
Shizuoka	3	**75**
Aichi	6	**144**
Mie	1	**17**
shiga	1	**15**
Kyoto	3	**49**
Osaka	10	**109**
Hyogo	2	**99**
Nara	3	**16**
Wakayama	1	**4**
Tottori	1	**2**
Shimane	1	**11**
Okayama	3	**35**

Prefecture	Number of medical facilities	Participants (persons)
Hiroshima	2	**17**
Yamaguchi	1	**14**
Tokushima	1	**4**
Kagawa	1	**13**
Ehime	3	**13**
Kochi	2	**8**
Fukuoka	3	**56**
Saga	1	**6**
Nagasaki	3	**20**
Kumamoto	1	**19**
Oita	1	**12**
Miyazaki	1	**12**
Kagoshima	1	**6**
Okinawa	1	**22**
Total	144	**7,968**

The number of participants examined at medical facilities outside Fukushima Prefecture.

Appendix 3 TUE primary examination results, by the municipality

As of December 31, 2023

	a. Number of participants (persons)	b. Those with finalized results (persons) (%)	Number of participants by grade (persons)				Number of participants with nodules (persons)		Number of participants with cysts (persons)	
			Percentages by grade (%)							
			A		B	C	Percentage (%)		Percentage (%)	
		b/a (%)	A1	A2			≥5.1mm	≤5.0mm	≥20.1mm	≤20.0m
Municipalities surveyed in FY2020										
Kawamata	739	739	227	506	6	0	6	5	0	508
		100.0	30.7	68.5	0.8	0.0	0.8	0.7	0.0	68.7
Namie	953	953	297	640	16	0	16	5	0	649
		100.0	31.2	67.2	1.7	0.0	1.7	0.5	0.0	68.1
Iitate	345	345	104	231	10	0	10	0	0	240
		100.0	30.1	67.0	2.9	0.0	2.9	0.0	0.0	69.6
Minamisoma	3,975	3,975	1,235	2,697	43	0	43	14	0	2,720
		100.0	31.1	67.8	1.1	0.0	1.1	0.4	0.0	68.4
Date	4,039	4,039	1,159	2,847	33	0	33	23	0	2,859
		100.0	28.7	70.5	0.8	0.0	0.8	0.6	0.0	70.8
Tamura	2,281	2,281	718	1,540	23	0	23	10	0	1,548
		100.0	31.5	67.5	1.0	0.0	1.0	0.4	0.0	67.9
Hirono	289	289	93	191	5	0	5	1	0	192
		100.0	32.2	66.1	1.7	0.0	1.7	0.3	0.0	66.4
Naraha	369	369	114	253	2	0	2	1	0	253
		100.0	30.9	68.6	0.5	0.0	0.5	0.3	0.0	68.6
Tomioka	715	715	212	497	6	0	6	4	0	501
		100.0	29.7	69.5	0.8	0.0	0.8	0.6	0.0	70.1
Kawauchi	98	98	32	65	1	0	1	0	0	66
		100.0	32.7	66.3	1.0	0.0	1.0	0.0	0.0	67.3
Okuma	670	670	196	464	10	0	10	9	0	464
		100.0	29.3	69.3	1.5	0.0	1.5	1.3	0.0	69.3
Futaba	247	247	72	174	1	0	1	0	0	175
		100.0	29.1	70.4	0.4	0.0	0.4	0.0	0.0	70.9
Katsurao	65	65	29	36	0	0	0	0	0	36
		100.0	44.6	55.4	0.0	0.0	0.0	0.0	0.0	55.4
Fukushima	18,604	18,604	5,412	13,007	185	0	185	98	0	13,104
		100.0	29.1	69.9	1.0	0.0	1.0	0.5	0.0	70.4
Nihonmatsu	3,713	3,713	1,158	2,504	51	0	51	27	0	2,535
		100.0	31.2	67.4	1.4	0.0	1.4	0.7	0.0	68.3
Motomiya	2,211	2,211	668	1,522	21	0	21	9	0	1,533
		100.0	30.2	68.8	0.9	0.0	0.9	0.4	0.0	69.3
Otama	681	681	198	472	11	0	11	3	0	479
		100.0	29.1	69.3	1.6	0.0	1.6	0.4	0.0	70.3
Koriyama	20,620	20,619	5,589	14,804	226	0	226	128	0	14,944
		100.0	27.1	71.8	1.1	0.0	1.1	0.6	0.0	72.5
Koori	789	789	245	535	9	0	9	2	0	542
		100.0	31.1	67.8	1.1	0.0	1.1	0.3	0.0	68.7
Kunimi	559	559	181	371	7	0	7	2	0	377
		100.0	32.4	66.4	1.3	0.0	1.3	0.4	0.0	67.4
Tenei	332	332	88	239	5	0	5	0	1	242
		100.0	26.5	72.0	1.5	0.0	1.5	0.0	0.3	72.9
Shirakawa	4,240	4,240	1,201	2,993	46	0	46	25	0	3,019
		100.0	28.3	70.6	1.1	0.0	1.1	0.6	0.0	71.2
Nishigo	1,345	1,344	402	924	18	0	18	6	0	936
		99.9	29.9	68.8	1.3	0.0	1.3	0.4	0.0	69.6
Izumizaki	394	394	119	271	4	0	4	2	0	272
		100.0	30.2	68.8	1.0	0.0	1.0	0.5	0.0	69.0
Miharu	903	903	248	646	9	0	9	6	0	652
		100.0	27.5	71.5	1.0	0.0	1.0	0.7	0.0	72.2
Subtotal	69,176	69,174	19,997	48,429	748	0	748	380	1	48,846
		100.0	28.9	70.0	1.1	0.0	1.1	0.5	0.0	70.6

	a. Number of participants (persons)	b. Those with finalized results (persons) (%)	Number of participants by grade (persons)				Number of participants with nodules (persons)		Number of participants with cysts (persons)	
			Percentages by grade (%)							
			A		B	C	Percentage (%)		Percentage (%)	
		b/a (%)	A1	A2			≥5.1mm	≤5.0mm	≥20.1mm	≤20.0m
Municipalities surveyed in FY2021										
Iwaki	18,579	18,578	5,309	13,014	255	0	255	107	0	13,151
		100.0	28.6	70.1	1.4	0.0	1.4	0.6	0.0	70.8
Sukagawa	4,582	4,582	1,255	3,255	72	0	72	41	0	3,301
		100.0	27.4	71.0	1.6	0.0	1.6	0.9	0.0	72.0
Soma	1,781	1,781	523	1,227	31	0	31	12	0	1,245
		100.0	29.4	68.9	1.7	0.0	1.7	0.7	0.0	69.9
Kagamiishi	818	818	214	593	11	0	11	6	0	595
		100.0	26.2	72.5	1.3	0.0	1.3	0.7	0.0	72.7
Shinchi	424	424	127	290	7	0	7	5	0	293
		100.0	30.0	68.4	1.7	0.0	1.7	1.2	0.0	69.1
Nakajima	266	266	78	187	1	0	1	2	0	188
		100.0	29.3	70.3	0.4	0.0	0.4	0.8	0.0	70.7
Yabuki	977	977	279	693	5	0	5	4	0	696
		100.0	28.6	70.9	0.5	0.0	0.5	0.4	0.0	71.2
Ishikawa	790	790	226	557	7	0	7	5	0	561
		100.0	28.6	70.5	0.9	0.0	0.9	0.6	0.0	71.0
Yamatsuri	306	306	70	230	6	0	6	4	0	235
		100.0	22.9	75.2	2.0	0.0	2.0	1.3	0.0	76.8
Asakawa	408	408	102	303	3	0	3	4	0	305
		100.0	25.0	74.3	0.7	0.0	0.7	1.0	0.0	74.8
Hirata	371	371	119	247	5	0	5	1	0	251
		100.0	32.1	66.6	1.3	0.0	1.3	0.3	0.0	67.7
Tanagura	847	847	224	611	12	0	12	2	0	618
		100.0	26.4	72.1	1.4	0.0	1.4	0.2	0.0	73.0
Hanawa	419	418	106	302	10	0	10	0	0	307
		99.8	25.4	72.2	2.4	0.0	2.4	0.0	0.0	73.4
Samegawa	191	191	49	141	1	0	1	1	0	142
		100.0	25.7	73.8	0.5	0.0	0.5	0.5	0.0	74.3
Ono	502	502	143	355	4	0	4	4	0	358
		100.0	28.5	70.7	0.8	0.0	0.8	0.8	0.0	71.3
Tamagawa	386	386	125	256	5	0	5	1	0	260
		100.0	32.4	66.3	1.3	0.0	1.3	0.3	0.0	67.4
Furudono	337	337	91	241	5	0	5	3	0	245
		100.0	27.0	71.5	1.5	0.0	1.5	0.9	0.0	72.7
Hinoemata	16	16	4	12	0	0	0	0	0	12
		100.0	25.0	75.0	0.0	0.0	0.0	0.0	0.0	75.0
Minamiaizu	666	666	205	453	8	0	8	2	0	459
		100.0	30.8	68.0	1.2	0.0	1.2	0.3	0.0	68.9
Kaneyama	38	38	12	26	0	0	0	0	0	26
		100.0	31.6	68.4	0.0	0.0	0.0	0.0	0.0	68.4
Showa	33	33	13	20	0	0	0	0	0	20
		100.0	39.4	60.6	0.0	0.0	0.0	0.0	0.0	60.6
Mishima	45	45	8	36	1	0	1	1	0	37
		100.0	17.8	80.0	2.2	0.0	2.2	2.2	0.0	82.2
Shimogo	216	216	66	146	4	0	4	1	0	148
		100.0	30.6	67.6	1.9	0.0	1.9	0.5	0.0	68.5
Kitakata	2,227	2,227	692	1,509	26	0	26	10	0	1,525
		100.0	31.1	67.8	1.2	0.0	1.2	0.4	0.0	68.5
Nishiaizu	201	201	44	154	3	0	3	3	0	155
		100.0	21.9	76.6	1.5	0.0	1.5	1.5	0.0	77.1
Tadami	212	212	53	158	1	0	1	3	0	158
		100.0	25.0	74.5	0.5	0.0	0.5	1.4	0.0	74.5
Inawashiro	696	696	195	488	13	0	13	6	0	496
		100.0	28.0	70.1	1.9	0.0	1.9	0.9	0.0	71.3
Bandai	159	159	44	114	1	0	1	1	0	114
		100.0	27.7	71.7	0.6	0.0	0.6	0.6	0.0	71.7
Kitashiobara	163	163	47	113	3	0	3	1	0	114
		100.0	28.8	69.3	1.8	0.0	1.8	0.6	0.0	69.9
Aizumisato	987	987	297	681	9	0	9	7	0	686
		100.0	30.1	69.0	0.9	0.0	0.9	0.7	0.0	69.5
Aizubange	789	789	203	571	15	0	15	5	0	581
		100.0	25.7	72.4	1.9	0.0	1.9	0.6	0.0	73.6
Yanaizu	148	148	51	96	1	0	1	1	0	96
		100.0	34.5	64.9	0.7	0.0	0.7	0.7	0.0	64.9
Aizuwakamatu	5,983	5,983	1,799	4,113	71	0	71	39	0	4,155
		100.0	30.1	68.7	1.2	0.0	1.2	0.7	0.0	69.4
Yugawa	211	211	73	136	2	0	2	2	0	138
		100.0	34.6	64.5	0.9	0.0	0.9	0.9	0.0	65.4
Subtotal	44,774	44,772	12,846	31,328	598	0	598	284	0	31,671
		100.0	28.7	70.0	1.3	0.0	1.3	0.6	0.0	70.7
Total	113,950	113,946	32,843	79,757	1,346	0	1,346	664	1	80,517
		100.0	28.8	70.0	1.2	0.0	1.2	0.6	0.0	70.7

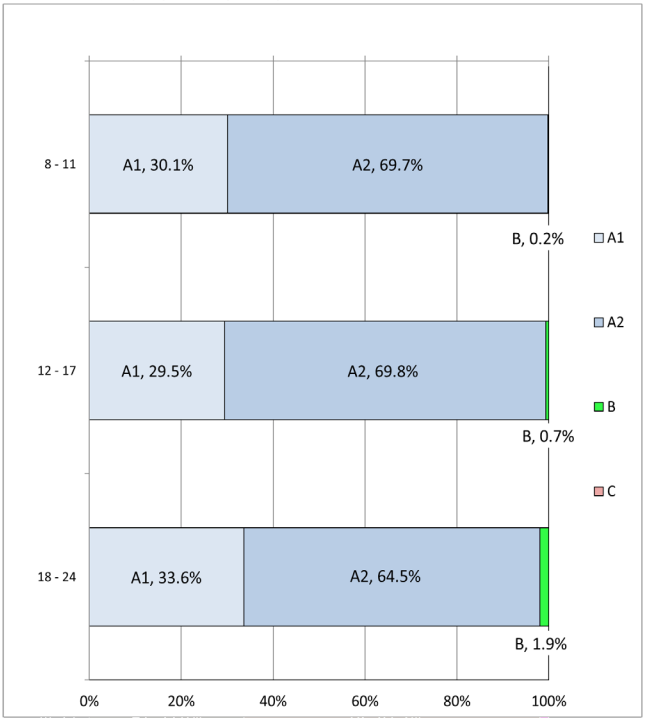
Appendix 4 – 1 TUE primary examination results, by age and gender

(persons)

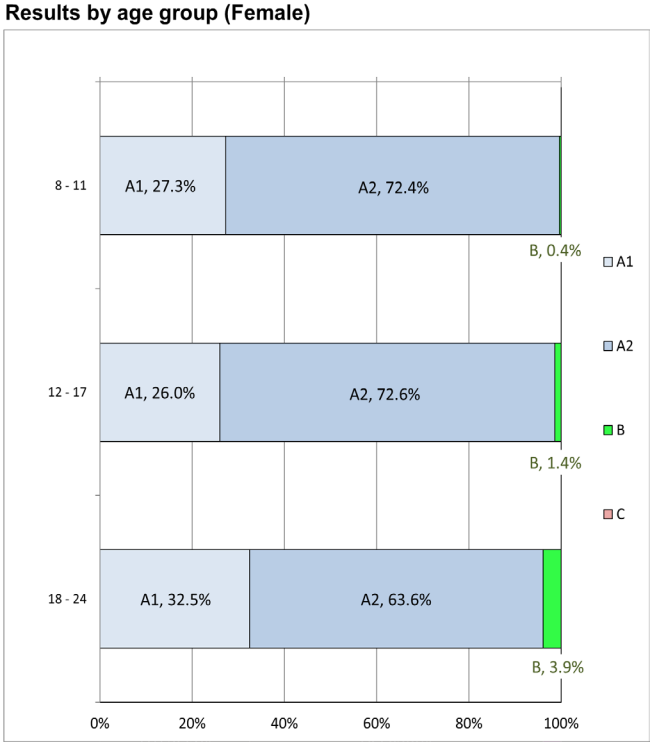
As of December 31, 2023

Grade/ Gender / Age group	A						B			C			Total		
	A1			A2											
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
8-11	3,862	3,338	7,200	8,951	8,852	17,803	21	43	64	0	0	0	12,834	12,233	25,067
12-17	10,583	9,052	19,635	25,072	25,227	50,299	251	487	738	0	0	0	35,906	34,766	70,672
18-24	2,805	3,203	6,008	5,378	6,277	11,655	159	385	544	0	0	0	8,342	9,865	18,207
Total	17,250	15,593	32,843	39,401	40,356	79,757	431	915	1,346	0	0	0	57,082	56,864	113,946

Results by age group (Male)



Results by age group (Female)

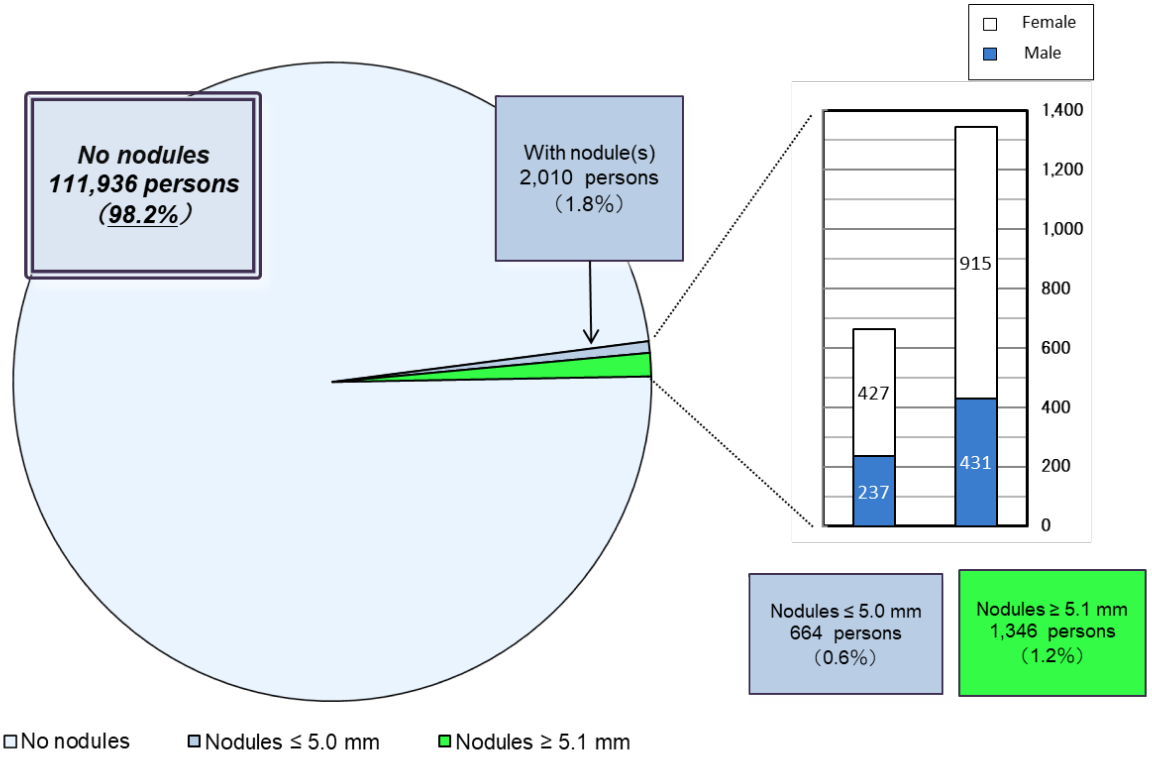


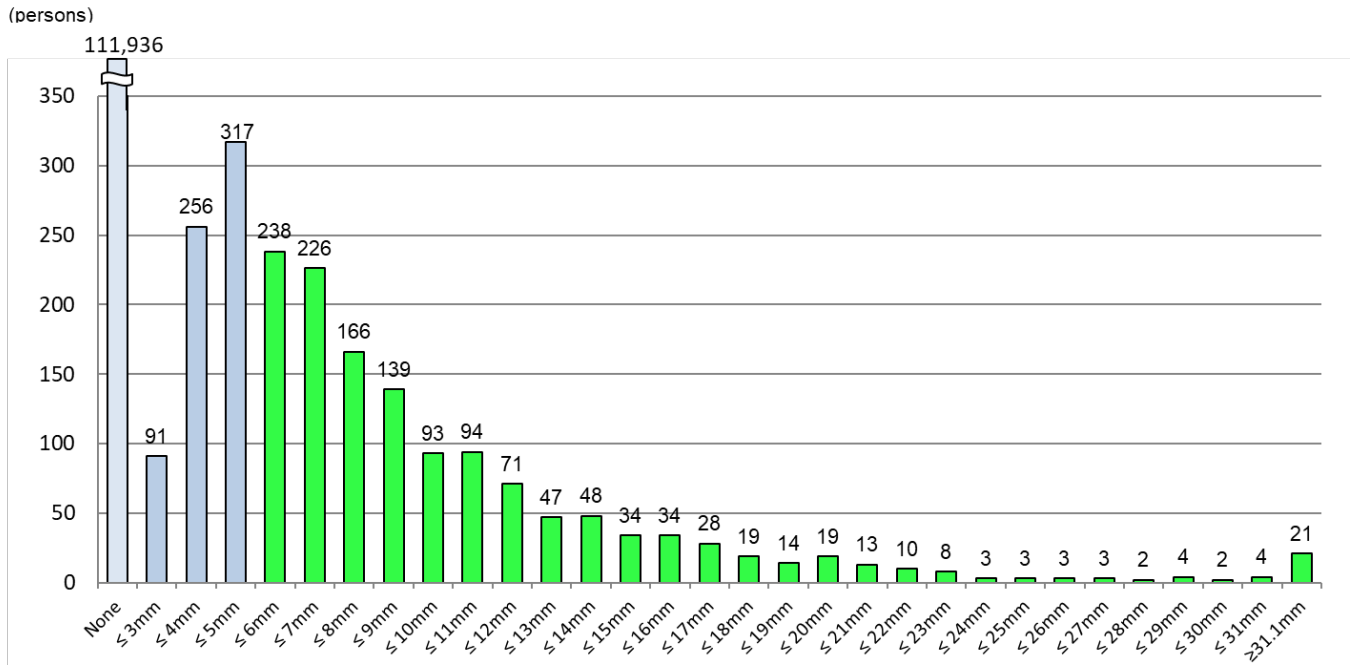
Appendix 4 – 2 Nodule characteristics

As of December 31, 2023

(persons)

Nodule size	Total	Male	Female	Grade	
None	111,936	56,414	55,522	A1	98.2%
≤ 3.0mm	91	27	64	A2	0.6%
3.1–5.0mm	573	210	363		
5.1–10.0mm	862	284	578	B	1.2%
10.1–15.0mm	294	85	209		
15.1–20.0mm	114	42	72		
20.1–25.0mm	37	10	27		
≥ 25.1mm	39	10	29		
Total	113,946	57,082	56,864		



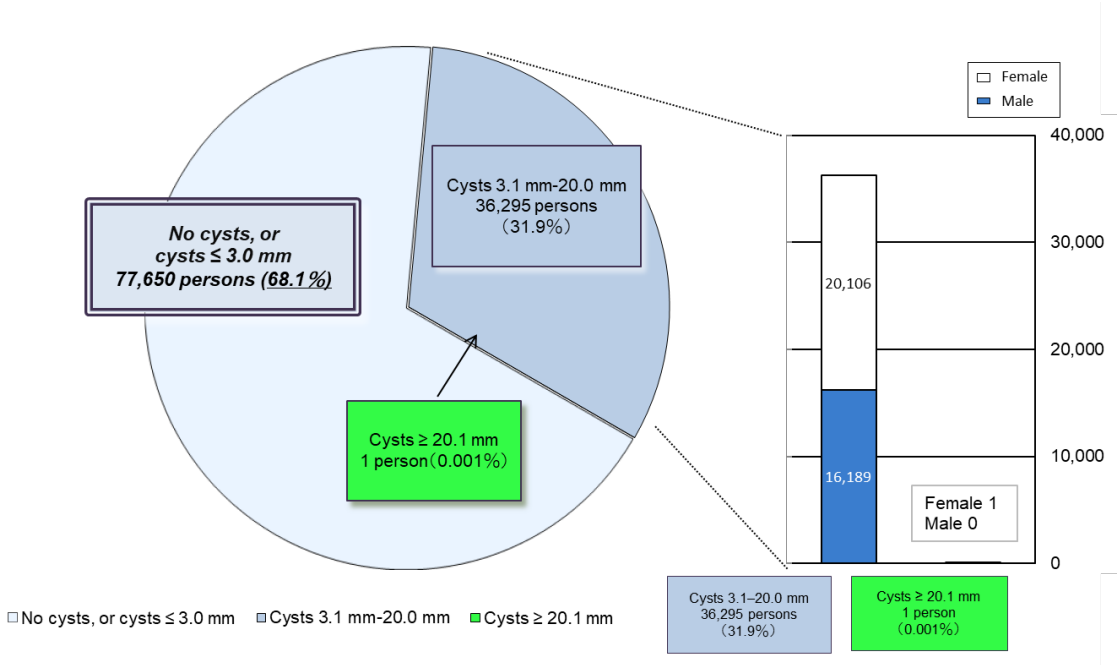


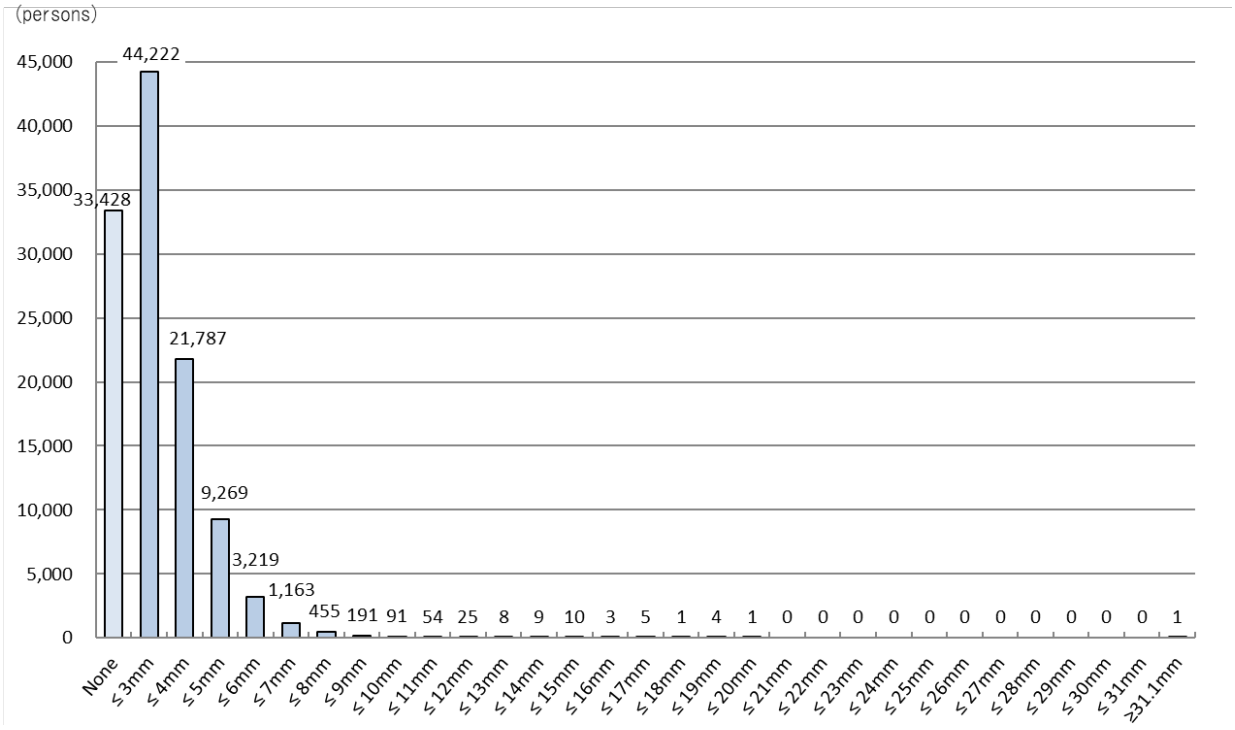
Appendix 4 – 3 Cyst characteristics

As of December 31, 2023

(persons)

Cyst size	Total	Male	Female	Grade	
None	33,428	17,460	15,968	A1	68.1%
≤ 3.0mm	44,222	23,433	20,789	A2	31.9%
3.1–5.0mm	31,056	14,332	16,724		
5.1–10.0mm	5,119	1,829	3,290		
10.1–15.0mm	106	25	81		
15.1–20.0mm	14	3	11		
20.1–25.0mm	0	0	0	B	0.001%
≥ 25.1mm	1	0	1		
Total	113,946	57,082	56,864		





Appendix 5 Implementation status of the TUE confirmatory examination, by area

As of December 31, 2023

	Those who participated in primary examination (persons)	Those refered to confirmatory examination (persons)	Those who participated in confirmatory examination				Those with finalized results (persons)				
			Total	8-11 years old	12-17 years old	18 and older	Total	A1	A2	Other than A1 or A2	
											FNAC
	a	b	c	d	e	f	g	h	i	j	k
		b/a (%)	Participation rate c/b (%)	d/c (%)	e/c (%)	f/c (%)	g/c (%)	h/g (%)	i/g (%)	j/g (%)	k/j (%)
13 municipalities 1)	14,785	156	129	8	62	59	126	0	12	114	8
		1.1	82.7	6.2	48.1	45.7	97.7	0.0	9.5	90.5	7.0
Nakadori 2)	65,591	739	614	27	308	279	601	4	61	536	63
		1.1	83.1	4.4	50.2	45.4	97.9	0.7	10.1	89.2	11.8
Hamadori 3)	20,784	293	223	3	96	124	213	2	14	197	12
		1.4	76.1	1.3	43.0	55.6	95.5	0.9	6.6	92.5	6.1
Aizu4)	12,790	158	126	4	63	59	118	1	4	113	7
		1.2	79.7	3.2	50.0	46.8	93.7	0.8	3.4	95.8	6.2
Total	113,950	1,346	1,092	42	529	521	1,058	7	91	960	90
		1.2	81.1	3.8	48.4	47.7	96.9	0.7	8.6	90.7	9.4

1) Tamura City, Minamisoma City, Date City, Kawamata Town, Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Iitate Village
2) Fukushima City, Koriyama City, Shirakawa City, Sukagawa City, Nihonmatsu City, Motomiya City, Koori Town, Kunimi Town, Otama Village, Kagamiishi Town, Tenei Village, Nishigo Village, Izumizaki Village, Nakajima Village, Yabuki Town, Tanagura Town, Yamatsuri Town, Hanawa Town, Samegawa Village, Ishikawa Town, Tamakawa Village, Hirata Village, Asakawa Town, Furudono Town, Miharu Town, Ono Town
3) Iwaki City, Soma City, Shinchi Town
4) Aizuwakamatsu City, Kitakata City, Shimogo Town, Hinoemata Village, Tadami Town, Minamiaizu Town, Kitashiobara Village, Nishiaizu Town, Bandai Town, Inawashiro Town, Aizubange Town, Yugawa Village, Yanaizu Town, Mishima Town, Kaneyama Town, Showa Village, Aizumisato Town

Appendix 6 Surgery cases for malignancy or suspicion of malignancy

1. Municipalities surveyed in FY2020
   Malignant or suspicious for malignancy: 29
   (surgical cases: 26, papillary thyroid carcinomas: 26)

2. Municipalities surveyed in FY2021
   Malignant or suspicious for malignancy: 16
   (surgical cases: 10, papillary thyroid carcinomas: 10)

3. Total
   Malignant or suspicious for malignancy: 45
   (surgical cases: 36, papillary thyroid carcinomas: 36)

Report on the TUE Full-Scale Survey (sixth-round survey)

As of December 31, 2023

1. Summary

1.1 Purpose

To monitor the long-term health of children, we are continuing the Full-Scale Survey (sixth-round survey), following the Preliminary Baseline Survey for background assessment of thyroid glands, and prior Full-Scale Surveys (second-, third-, fourth, and fifth-round surveys) to continuously assess the status of thyroid glands.

1.2 Eligible persons

All Fukushima residents approximately 18 years old or younger at the time of the earthquake (those born between April 2, 1992, and April 1, 2012).

1.3 Implementation Period

FY2023 and FY2024, starting in April 2023:

1.3-1 For those 18 years old or younger

The examination will be carried out for 2 years: FY2023 and FY2024.

1.3-2 For those 19 years old or older

The examination will be conducted on an age-group basis (i.e., school grade).

FY2023: those born between FY2000 and FY2003

FY2024: those born in FY2004

1.3-3 For those 25 years old or older

Those who are older than 20 are recommended to receive the examination every 5 years at the ages of 25, 30, and so on (Age 25 and Age 30 Survey)

FY2023: those born in FY1993 and FY1998

FY2024: those born in FY1994 and FY1999

Results of the survey for those 25 years old will be reported separately.

1.4 Implementing Organizations (number of medical facilities with agreements for the implementation of thyroid examinations as of December 31, 2023)

Fukushima Prefecture commissioned Fukushima Medical University (FMU) to conduct the survey in cooperation with organizations inside and outside Fukushima for the convenience of participants.

1.4-1 Primary examination facilities

In Fukushima Prefecture	85 medical facilities
Outside Fukushima Prefecture	146 medical facilities

1.4-2 Confirmatory examination facilities

In Fukushima Prefecture	6 medical facilities, including FMU
Outside Fukushima Prefecture	40 medical facilities

1.5 Methods

1.5-1 Primary examination

Ultrasonography of the thyroid gland.

Assessments are made by specialists based on the following criteria:

- Grade A

A1: No nodules/cysts

A2: Nodules ≤ 5.0 mm or cysts ≤ 20.0 mm

- Grade B

B: Nodules ≥ 5.1 mm or cysts ≥ 20.1 mm

Some A2 results may be re-classified as B results when clinically indicated.

-Grade C

C: Urgent need for confirmatory examination, judging from the condition of the thyroid gland.

1.5-2 Confirmatory examination

Ultrasonography of the thyroid gland, blood and urine tests, and fine needle aspiration cytology (FNAC) if needed for those with B or C test results.

Priority is given to those in urgent clinical need. A medical follow-up may be recommended based on confirmatory exam results.

1.5-3 Flow chart

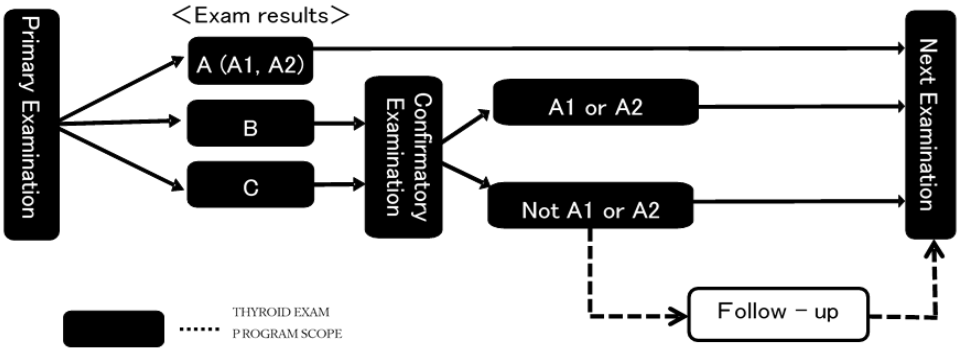


Figure 1 Flow chart

1.6 Municipalities Surveyed

The municipalities where examinations (for those 18 years old or younger) were carried out in FY2023 and FY2024 are as follows:

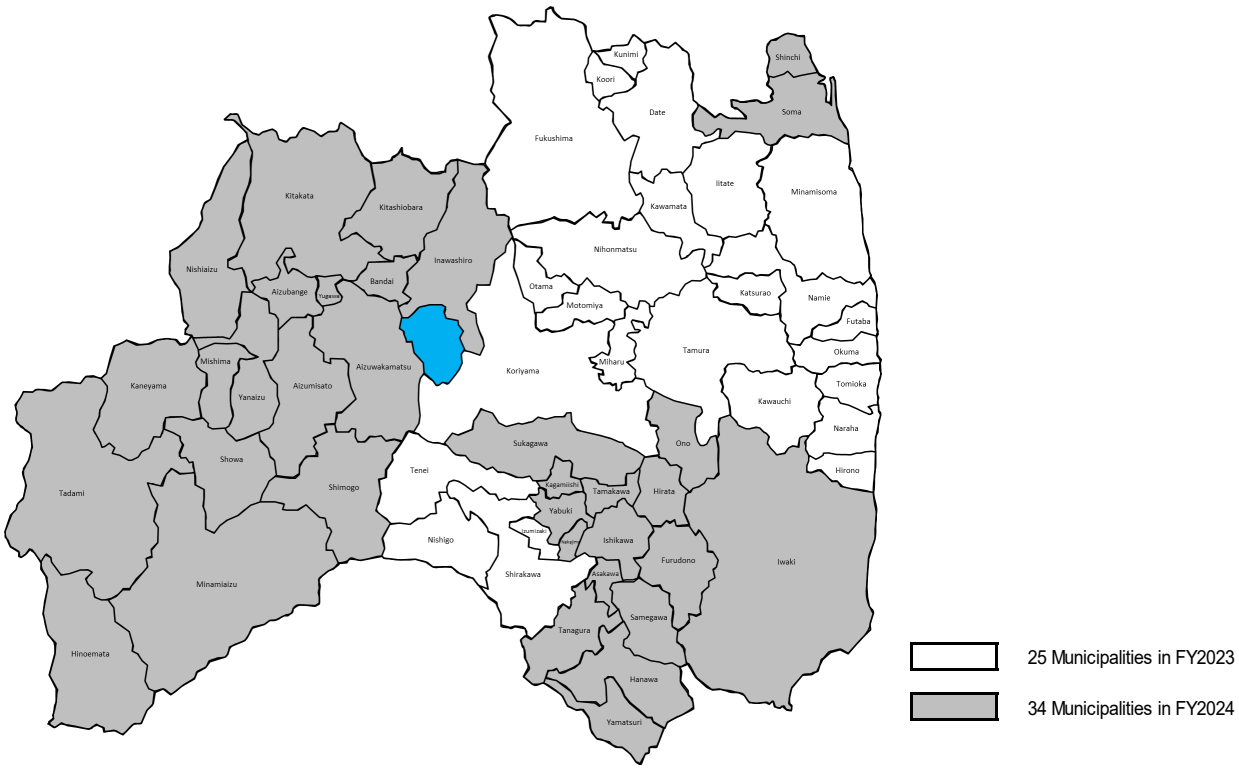


Figure 2 Municipalities covered for primary examinations in FY2023 and FY2024

2. Results as of December 31, 2023

2.1 Results of the Primary Examination

2.1-1 Implementation status

The primary examination was completed for 34,435 participants (16.3%) by December 31, 2023.

The results of 27,923 participants (81.1%) have been finalized and individual reports have been sent to them.

Of these, 7,601 (27.2%) had Grade A1 results, 19,940 (71.4%) had Grade A2, 382 (1.4%) had Grade B, and none had Grade C.

Table 1 Progress and results of the primary examination

	Eligible persons	Participants (persons)			Participants with finalized results (persons / %)									
			Participation rate (%)	Those who participated outside Fukushima		Judgment rate (%)	Details by grade (%)							
							A				Those referred to confirmatory exam			
							A1		A2		B		C	
	a	b	(b/a)		c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/c)
FY2023	121,805	30,855	(25.3)	2,281	25,591	(82.9)	6,932	(27.1)	18,338	(71.7)	321	(1.3)	0	(0.0)
FY2024	90,080	3,580	(4.0)	311	2,332	(65.1)	669	(28.7)	1,602	(68.7)	61	(2.6)	0	(0.0)
Total	211,885	34,435	(16.3)	2,592	27,923	(81.1)	7,601	(27.2)	19,940	(71.4)	382	(1.4)	0	(0.0)

Table 2 Number and proportion of participants with nodules/cysts.

	Participants with finalized results	Participants with nodules / cysts (%)							
		Nodules				Cysts			
		≥ 5.1mm		≤ 5.0mm		≥20.1mm		≤ 20.0mm	
	a	b	(b/a)	c	(c/a)	d	(d/a)	e	(e/a)
FY2023	25,591	318	(1.2)	153	(0.6)	3	(0.0)	18,526	(72.4)
FY2024	2,332	61	(2.6)	24	(1.0)	0	(0.0)	1,640	(70.3)
Total	27,923	379	(1.4)	177	(0.6)	3	(0.0)	20,166	(72.2)

- Proportions are rounded to a lower decimal place. This applies to other tables as well.
- Those who receive the examination at 5-year intervals (born between FY1992 and FY1999) are excluded. The results of examinations at 5-year intervals (Age 25 and Age 30 examinations) will be reported separately.
- Examinations for those born in FY1993 (approx. 22,000) and FY1998 (approx. 21,000) take place in FY2023. Examinations for those born in FY1994 (approx. 22,000) and FY1999 (approx. 20,000) will be carried out in FY2024.

2.1-2 Participation rate by age group

Table 3 shows the participation rate for each age group as of April 1 of each fiscal year.

Table 3 Participation rates by age group

			Total	Age group		
FY2023	Age group*			11 years old	12 to 17 years old	18 to 24 years old
	Eligible persons	(a)	121,805	8,414	58,636	54,755
	Participants	(b)	30,855	3,282	25,612	1,961
	Participation rate (%)	(b/a)	25.3	39.0	43.7	3.6
FY2024	Age group*				12 to 17 years old	18 to 24 years old
	Eligible persons	(a)	90,080		41,640	48,440
	Participants	(b)	3,580		1,727	1,853
	Participation rate (%)	(b/a)	4.0		4.1	3.8
Total	Eligible persons	(a)	211,885	8,414	100,276	103,195
	Participants	(b)	34,435	3,282	27,339	3,814
	Participation rate (%)	(b/a)	16.3	39.0	27.3	3.7

* Age groups are based on ages as of April 1 of each fiscal year

2.1-3 Comparison of the fifth- and sixth-round survey results

Table 4 shows the comparison of results of two Full-Scale Surveys (fifth- and sixth-round surveys).

Among 25,457 (sum of *1) participants with Grade A1 and A2 results in the fifth-round survey, 25,270 (sum of *2, 99.3%) had Grade A results and 187 (sum of *3, 0.7%) had Grade B results in the sixth-round survey.

Among 200 participants with Grade B results in the fifth-round survey, 42 (sum of *4, 21.0%) had Grade A results and 158 (79.0%) had Grade B results in the sixth-round survey.

Table 4 Comparison of the fifth- and sixth-round surveys

			Results of the fifth-round survey* a (%)	Results of the sixth-round survey**			
				A		B	C
				A1 b (b/a)	A2 c (c/a)	d (d/a)	e (e/a)
Results of the fifth-round survey	A	A1	7,214 *1 (100.0)	5,173 *2 (71.7)	2,005 *2 (27.8)	36 *3 (0.5)	0 (0.0)
		A2	18,243 *1 (100.0)	1,752 *2 (9.6)	16,340 *2 (89.6)	151 *3 (0.8)	0 (0.0)
	B		200 (100.0)	3 *4 (1.5)	39 *4 (19.5)	158 (79.0)	0 (0.0)
	C		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Did not participate		2,266 (100.0)	673 (29.7)	1,556 (68.7)	37 (1.6)	0 (0.0)
Total			27,923 (100.0)	7,601 (27.2)	19,940 (71.4)	382 (1.4)	0 (0.0)

* Results of the fifth-round survey are from sixth-round survey participants with finalized results, not the breakdown of all fifth-round survey participants.

** Results of the sixth-round survey participants who were diagnosed for each grade in the fifth-round survey.

2. Mental Health Care

We provide the following support for thyroid examination participants.

2.1 Support for Primary Examination Participants

After the examination, medical doctors offer person-to-person explanations of examination results, showing ultrasound images in private consultation booths at examination venues set up in public facilities

Consultation booths were set up at all venues for examinations conducted in and after April 2023; as of December 31, 2023, all 447 participants (100%) have visited these consultation booths.

2.2 On-location Lectures and Information Sessions

To help participants and their parents/guardians improve their understanding of the thyroid examination, we have conducted on-location lectures and information sessions.

Between April 2023 (the start of FY2023) and December 31, 2023, we delivered 7 on-location sessions (5 at elementary schools, 1 at a junior high school, and 1 at a high school) for 231 students. In total, 15,924 people have participated since the start of these sessions.

Report on the Results of the Second Follow-up Survey Covering FY2014 Pregnancy and Birth Survey (PBS) Respondents

1 Overview

1-1 Purpose

To provide continuous support to those who were pregnant or nursing around the time of the 3.11 disaster, by assessing their health conditions through the second follow-up survey of respondents to the FY2014 Pregnancy and Birth Survey (PBS).

1-2 Background

The PBS (Main Survey) found that a particularly high percentage of post-disaster survey respondents tended to be depressed, so the first follow-up survey was conducted from FY2015 (for FY2011 survey respondents) to FY2018 (for FY2014 survey respondents), four years after childbirth, when the number of mothers feeling unconfident about child rearing tended to increase.

Respondents to the FY2011 and FY2012 PBS showed strong concerns about radiation effects and a high tendency toward depression, with the same tendency observed in the first follow-up survey. Therefore, instead of conducting a first follow-up survey for the respondents of the FY2015 and FY2016 surveys, we conducted a second follow-up survey (with support) for respondents of the FY2011 and FY2012 surveys, to provide continuous support for those who were pregnant or nursing at the time of the earthquake.

The results of the second follow-up survey conducted in FY2019 and FY2020 showed that the percentage of those with depression decreased in the FY2019 survey compared to the first follow-up survey, but increased in the FY2020 survey, while radiation anxiety decreased in both fiscal years.

From the content of telephone consultations, the percentage with "concerns about radiation effects" (high immediately after the earthquake) decreased, and "the mothers' mental and physical condition" and "child-rearing-related (daily life) issues" emerged as top concerns, consistent with a trend away from radiation-related concerns to mothers' mental health in general.

However, results from the first follow-up survey of FY2013 and FY2014 respondents showed a certain number of respondents with a low subjective sense of health, depressive tendencies, and those who have radiation anxiety; these findings warrant close attention. In light of such findings, we conducted the second follow-up (with support) for respondents of the FY2014 survey in FY2022.

1-3 Covered population

Of FY2014 PBS respondents (excluding miscarriage, abortion, and stillbirth), 5,248 persons were identified through municipal records to be living with children in their respective municipalities.

[For reference]

Survey year	Survey type	Covered respondents	Number of persons
FY2015	First Follow-up Survey	FY2011 PBS respondents	7,252
FY2016		FY2012 PBS respondents	5,602
FY2017		FY2013 PBS respondents	5,734
FY2018		FY2014 PBS respondents	5,856
FY2019	Second Follow-up Survey	FY2011 PBS respondents	6,643
FY2020		FY2012 PBS respondents	5,152
FY2021		FY2013 PBS respondents	5,402
FY2022		FY2014 PBS respondents	5,248

1-4 Survey Method

A. Survey sheet: self-completed questionnaire (postcard)
B. Date of distribution: January 11, 2023
C. Response methods: by post or online
*Online response period: January 11, 2023 to March 31, 2023

1-5 Questionnaire items

Questionnaire items are as follows, with a comment section available to fill in freely.
How many children do you have? ( )
How old is your youngest child? ( ) years and ( ) months

Q1. Do you usually consider yourself healthy?
□Yes, I think I am very healthy. □Yes, I think I am healthy. □ No, I don't think I am so healthy.
□No, I don't think I am healthy.

Q2. Have you often felt down or depressed during the past month?
□Yes □No

Q3. During the past month, have you often felt uninterested in or unable to truly enjoy things?
□Yes □No

Q4. Do you sometimes feel unconfident about child-rearing?
□Yes □No □Neither yes nor no

Q5. Please check all the boxes that describe what you are worried about regarding radiation effects.
□Water □Food □Your child's outdoor activities □Your child's health □Prejudice
□Genetic effects □Other

Q6. Has your child ever had a disease that required hospitalization?
□Yes (disease name:) □No

Q7. Please check all the boxes that describe what you are anxious about concerning your child.
□Mental and physical development □Diseases □Lifestyle habits □School life □Other

1-6 Data tabulation period of the survey

The tabulation period for this report is from January 11, 2023 to August 31, 2023

[For reference]

Year	Survey	Data tabulation period (Period for accepting online responses)
FY2015	Follow-up Survey Covering FY2011 Survey Respondents (“First Follow-up for FY2011”)	September 14, 2015–May 31, 2016 (Online response was not available)
FY2016	Follow-up Survey Covering FY2012 Survey Respondents (“First Follow-up for FY2012”)	November 22, 2016–June 30, 2017 (November 22, 2016–June 30, 2017)
FY2017	Follow-up Survey Covering FY2013 Survey Respondents (“First Follow-up for FY2013”)	January 12–August 31, 2018 (January 12–April 30, 2018)
FY2018	Follow-up Survey Covering FY2014 Survey Respondents (“First Follow-up for FY2014”)	January 11–August 31, 2019 (January 11–April 30, 2019)
FY2019	Second Follow-up Survey Covering FY2011 Survey Respondents (“Second Follow-up for FY2011”)	January 10–August 31, 2020 (January 10–April 30, 2020)
FY2020	Second Follow-up Survey Covering FY2012 Survey Respondents (“Second Follow-up for FY2012”)	January 15–August 31, 2021 (January 15–April 30, 2021)
FY2021	Second Follow-up Survey Covering FY2013 Survey Respondents (“Second Follow-up for FY2013”)	January 12–August 31, 2022 (January 12–April 30, 2022)
FY2022	Second Follow-up Survey Covering FY2014 Survey Respondents (“Second Follow-up for FY2014”)	January 11–August 31, 2023 (January 11–March 31, 2023)

2. Interim summary of survey results

5.1 through 5.3, under “5. Tabulated Results of the Second Follow-up for FY2014” shows the survey results. Note that the totals may not match the sum of valid responses due to missing values in each question item.

2-1 Number of responses and response rate (see Table 1)

The number of responses (response rate) in the Second Follow-up for FY2014 was 2,266 (43.2%) and the number of valid responses was 2,266 (no invalid responses). Among them, the number of online responses (response rate) was 1,311 (57.9%).

[For reference]

Survey Year	Survey	Total	Breakdown by response method		
		Number of responses (Response rate)	By post	Online	Online response rate
FY2015	First Follow-up for FY2011	2,554 (35.2%)	2,554	-	-
FY2016	First Follow-up for FY2012	2,021 (36.1%)	1,719	302	14.9%
FY2017	First Follow-up for FY2013	2,706 (47.2%)	2,062	644	23.8%
FY2018	First Follow-up for FY2014	2,719 (46.4%)	1,951	768	28.2%
FY2019	Second Follow-up for FY2011	2,354 (35.4%)	1,641	713	30.3%
FY2020	Second Follow-up for FY2012	2,178 (42.3%)	1,277	901	41.4%
FY2021	Second Follow-up for FY2013	2,492 (46.1%)	1,247	1,245	50.0%
FY2022	Second Follow-up for FY2014	2,266 (43.2%)	955	1,311	57.9%

2-2 Number of responses, by region (see Table 1)

The number of responses (with response rates in parentheses) by the regions of residence in the Second Follow-up for FY2014 was as follows: 658 (47.4%) in Kenpoku, 580 (40.0%) in Kenchu, 172 (44.3%) in Kennan, 131 (37.6%) in Soso, 448 (45.1%) in Iwaki, 256 (40.7%) in Aizu, and 21 (40.4%) in Minamiaizu.

[For reference]

’ Survey Year	Survey	Number of responses by region (response rate)						
		Kenpoku	Kenchu	Kennan	Soso	Iwaki	Aizu	Minami-aizu
FY2015	First Follow-up for FY2011	679 (38.7%)	721 (32.7%)	168 (34.1%)	256 (34.9%)	434 (35.9%)	271 (34.5%)	25 (34.7%)
FY2016	First Follow-up for FY2012	675 (45.3%)	508 (32.2%)	165 (36.4%)	113 (30.5%)	330 (32.5%)	212 (33.4%)	18 (29.0%)
FY2017	First Follow-up for FY2013	770 (49.4%)	716 (47.1%)	204 (44.0%)	192 (46.6%)	479 (46.0%)	315 (46.9%)	30 (44.1%)
FY2018	First Follow-up for FY2014	753 (51.5%)	815 (45.8%)	194 (45.9%)	175 (41.8%)	480 (46.7%)	281 (40.5%)	21 (38.9%)
FY2019	Second Follow-up for FY2011	655 (40.4%)	639 (31.2%)	125 (28.7%)	181 (30.4%)	447 (38.9%)	281 (38.7%)	26 (37.7%)
FY2020	Second Follow-up for FY2012	713 (51.7%)	579 (39.7%)	154 (38.6%)	106 (34.0%)	352 (36.8%)	248 (42.0%)	26 (48.1%)
FY2021	Second Follow-up for FY2013	733 (49.8%)	677 (47.4%)	198 (45.2%)	140 (36.6%)	424 (43.7%)	292 (45.2%)	28 (44.4%)
FY2022	Second Follow-up for FY2014	658 (47.4%)	580 (40.0%)	172 (44.3%)	131 (37.6%)	448 (45.1%)	256 (40.7%)	21 (40.4%)

2-3 Maternal mental health conditions (See Table 4–7)

A. The proportion of mothers who responded that their subjective health condition was poor ("Not so healthy" or "Not healthy") was 10.3%. The proportion was 7.9% in the First Follow-up for FY2014, four years prior (Q1).

[For reference]

Survey	Second Follow-up Survey	First Follow-up Survey	Main Survey
FY2011 survey respondents	9.8%	9.6%	Not included
FY2012 survey respondents	9.4%	9.3%	3.8%
FY2013 survey respondents	8.7%	7.9%	3.7%
FY2014 survey respondents	10.3%	7.9%	3.9%

B. The proportion of mothers who were deemed to have depressive symptoms was 24.9%. The proportion was 22.5% in the First Follow-up for FY2014, four years prior (Q2, Q3)

[For reference]

Survey	Second Follow-up Survey	First Follow-up Survey	Main Survey
FY2011 survey respondents	24.3%	25.6%	27.1%
FY2012 survey respondents	27.1%	25.7%	25.5%
FY2013 survey respondents	24.9%	23.5%	24.5%
FY2014 survey respondents	24.9%	22.5%	23.4%

Reference: According to the 2010 national survey to assess toddlers' health status (conducted by the Japanese Society of Child Health), 21.8% of mothers with children aged 1 to 6 years (pre-school) responded that they cannot say they are in good mental condition.

2-4 Family life and child-rearing (See Table 8)

The proportion of mothers who responded that they sometimes feel unconfident about child rearing was 19.9%. The proportion was 17.7% in the First Follow-up for FY2014, four years prior (Q4)

[For reference]

Survey	Second Follow-up Survey	First Follow-up Survey	Main Survey
FY2011 survey respondents	19.1%	15.8%	Not included
FY2012 survey respondents	18.8%	18.2%	15.4%
FY2013 survey respondents	20.3%	16.7%	17.5%
FY2014 survey respondents	19.9%	17.7%	16.6%

Reference: According to the 2010 national survey to assess toddlers' health status (conducted by the Japanese Society of Child Health), 23.0% of mothers with children aged 1 to 6 (pre-school children) responded that they sometimes feel unconfident about child-rearing.

2-5 Anxiety about radiation effects (See Table 9)

The proportion of mothers who checked at least one box in the list of anxieties about radiation effects was 79.5%. Among them, the proportion of those who checked the box for the child's health was 58.6% (Q5, multiple answers are allowed).

[For reference]

Survey	Those who checked at least one box for anxiety about radiation effects		Those who checked the box for child's health	
	Second Follow-up	First Follow-up	Second Follow-up	First Follow-up
FY2011 survey respondents	87.2%	94.2%	68.1%	79.5%
FY2012 survey respondents	84.0%	90.9%	62.8%	68.7%
FY2013 survey respondents	83.5%	87.5%	60.6%	66.3%
FY2014 survey respondents	79.5%	85.4%	58.6%	63.3%

2-6 Children's health conditions and mothers' anxiety (See Tables 10-1, 10-2, and 11)

A. The proportion of mothers who responded that hospitalization had been required for a child's disease was 26.0%. Major diseases for hospitalization included pneumonia, RS virus infection, Kawasaki disease, or febrile seizures (Q6).

[For reference]

Survey	Second Follow-up	First Follow-up
FY2011 survey respondents	26.5%	24.7%
FY2012 survey respondents	27.2%	24.4%
FY2013 survey respondents	25.3%	23.7%
FY2014 survey respondents	26.0%	25.3%

B. The proportion of mothers who checked at least one box in the list of anxieties about their children was 74.1% (Q7, multiple answers are allowed).

[For reference]

Survey	Those who checked at least one box for anxiety about their children		Those who checked the box for anxiety about physical and mental development		Those who checked the box for anxiety about diseases	
	Second Follow-up	First Follow-up	Second Follow-up	First Follow-up	Second Follow-up	First Follow-up
FY2011 survey respondents	68.8%	70.8%	50.8%	56.1%	34.3%	57.6%
FY2012 survey respondents	72.5%	66.9%	52.2%	56.9%	26.6%	45.5%
FY2013 survey respondents	73.9%	61.2%	51.4%	57.4%	23.2%	40.4%
FY2014 survey respondents	74.1%	63.4%	54.3%	56.9%	22.6%	38.7%

2-7 Content of free comments (see Tables 12-1 and 12-2)

288 respondents (12.7%) wrote comments in the free comment section. The most frequently raised topics were child-rearing, mental and physical health, and COVID-19.
(Q7, multiple answers are allowed.)
[For reference]

Year	Survey	Those who wrote comments (%)	The most concerning topic(s)				
			No. 1 topic	No. 2 topic	No. 3 topic	No. 4 topic	No. 5 topic
FY 2015	First Follow-up for FY2011	383 (15.0%)	Anxiety about radiation effects on fetus/child 53(13.8%)	Positive comments about this survey 47(12.3%)	Opinions/complaints about this survey 44(11.5%)	Request for information on radiation and survey results 37(9.7%)	Request regarding thyroid examination 23(6.0%)
FY 2016	First Follow-up for FY2012	186 (9.2%)	Positive comments about this survey 33(17.7%)	Opinions/complaints about this survey 24(12.9%)	Anxiety about radiation effects on fetus/child 23(12.4%)	Consultation about child rearing 17(9.1%)	Request for improved parenting support 14(7.5%)
FY 2017	First Follow-up for FY2013	208 (7.7%)	Positive comments about this survey 36(17.3%)	Opinions/complaints about this survey 25(12.0%)	Anxiety about radiation effects on fetus/child 24(11.5%)	Mother's own poor mental health 16(7.7%)	Request for improved parenting support 15(7.5%)
FY 2018	First Follow-up for FY2014	198 (7.3%)	Positive comments about this survey 42(21.2%)	Opinions/complaints about this survey 26(13.1%)	Consultation about child rearing 17(8.6%)	Anxiety about radiation effects on fetus/child 14(7.1%)	Request for improved parenting support 14(7.1%)
FY 2019	Second Follow-up for FY2011	304 (12.9%)	Consultation about child rearing 82(27.0%)	Anxiety about radiation effects on fetus/child 53(17.4%)	Mother's own poor physical health 36(11.8%)	Positive comments about this survey 28(9.2%)	Mother's own poor mental health 26(8.6%)
FY 2020	Second Follow-up for FY2012	248 (11.4%)	COVID-19 pandemic* 54(21.8%)	Positive comments about this survey 47(19.0%)	Consultation about child rearing 44(17.7%)	Anxiety about radiation effects on fetus/child 37(14.9%)	Mother's own poor mental health 30(12.1%)
FY 2021	Second Follow-up for FY2013	300 (12.0%)	Consultation about child rearing 130(43.3%)	COVID-19 pandemic related* 57(19.0%)	Mother's own poor Mental health 54(18.0%)	Mother's own poor physical health 39(13.0%)	Anxiety about radiation effects on fetus/child 27(9.0%)
FY 2022	Second Follow-up for FY2014	288 (12.7%)	Consultation about child rearing 102 (35.4%)	Mother's own poor Mental health 58 (20.1%)	Mother's own poor physical health 48 (16.7%)	COVID-19 pandemic related* 48 (16.7%)	Anxiety about radiation effects on fetus/child 27 (9.4%)

*There was no COVID-19-related free comment space in the Second Follow-up Survey for FY2011 respondents; it was added to the FY2020 Second Follow-up Survey for FY2012 respondents.

2-8 Conclusion

The proportion of mothers with poor subjective health and depressive symptoms in the Second Follow-up for FY2014 Survey Respondents showed a temporal increase, compared with the FY2014 Main Survey eight years prior and the First Follow-up four years prior.

There was also an increase in the proportion of mothers with anxieties about their children while the proportion of mothers with anxieties about radiation effects showed a decline.

A. The response rate was 43.2%, lower than the First Follow-up for FY2014, four years prior. Online responses accounted for 57.9%, which shows an increasing trend over time since the introduction of online responses and the highest percentage to date.
B. 10.3% of respondents had poor subjective health (those who responded “not so healthy” or “not healthy”). This was higher than the First Follow-up for FY2014, four years prior.
C. 24.9% of the respondents had depressive symptoms and showed a slight increase compared to the Main Survey 8 years prior and the First Follow-up Survey 4 years prior for FY2014. In terms of the percentage, the rate was the same as the Second Follow-up for FY2013.
D. 79.5% of the respondents checked at least one box in the list of anxieties about radiation effects, The rate decreased from the First Follow-up for FY2014 four years prior and the Second Follow-up for FY2013 last year.
E. 74.1% of the respondents checked at least one box in the list of anxieties about their children. This was higher than the First Follow-up for FY2014 four years prior and the Second Follow-up for FY2013 last year. The most common anxiety was about the physical and mental development of their children (54.3%).
F. 12.7% of the respondents wrote in the free comment section. The most frequently raised topic was the consultation about child-rearing followed by mental health-related anxiety, physical health-related anxiety, and the COVID-19 pandemic,

3. Summary of Post Survey Support

3-1 Purpose of the support

To address the anxieties at this Second Follow-up Survey for the FY2014 Main Survey respondents, we offered telephone/online counseling and support from midwives and public health nurses.

3-2 Support eligible respondents (See Table 13)

Among respondents to the Second Follow-up for the FY2014 Main Survey, those who were judged to need support (“respondents requiring support”)

3-3 Selection criteria for providing support (See Table 14)

Respondents who fall under either one of the following:

A: Those who responded “yes” to two questions regarding depressive symptoms (Q2, Q3)
B: Those who wrote comments implying the need for support (in the free comment section or other parts of the questionnaire)
e.g., any comments indicative of severe depression, need for support in child rearing, anxieties about radiation levels, poor health conditions, desire for direct response or counseling, or desire for support.

3-4 Methods

Telephone and email counseling and support

4. Summary of Results of Post-Survey Support

Detailed results of post-survey support are as shown below in 5. Interim Results of the Second Follow-up for the FY2014 Survey Respondents, subpart (4) Implementation status of post-survey support,

4-1 Number of respondents requiring support (see Tables 13 and 14)

Of 2,266 respondents from January 11 to August 31, 2023, there were 414 who were judged to need counselling and support.

The proportion of respondents requiring support was 18.3% in total, among those, 12.5% were related to the responses of depression, and 5.7% based on the comments they wrote.

Since the FY2017 Survey (the first Follow-up Survey for the FY2013 Main Survey), we started to include respondents to who expressed specific anxieties in places other than the questionnaire's free comment section.

[For reference]

Survey Year	Survey	Respondents	Respondents requiring support (depression-related) (%)	Support required respondents (by comments) (%)		Total number of support required respondent
				Free comment section	Other commnets	
FY2015	First Follow-up for FY2011	2,554	299 (11.7%)	76 (3.0%)	-	375 (14.7%)
FY2016	First Follow-up for FY2012	2,021	209 (10.3%)	47 (2.3%)	-	256 (12.7%)
FY2017	First Follow-up for FY2013	2,706	277 (10.2%)	51 (1.9%)	65 (2.4%)	393 (14.5%)
FY2018	First Follow-up for FY2014	2,719	265 (9.7%)	31 (1.1%)	84 (3.1%)	380 (14.0%)
FY2019	Second Follow-up for FY2011	2,354	295 (12.5%)	92 (3.9%)	34 (1.4%)	421 (17.9%)
FY2020	Second Follow-up for FY2012	2,178	287 (13.2%)	70 (3.2%)	29 (1.3%)	386 (17.7%)
FY2021	Second Follow-up for FY2013	2,492	299 (12.0%)	125 (5.0%)	45 (1.8%)	469 (18.8%)
FY2022	Second Follow-up for FY2014	2,266	284 (12.5%)	112 (4.9%)	18 (0.8%)	414 (18.3%)

* If a respondent requires support based on depression and free comments, they are counted under depression.

4-2 Topics mentioned during support provision (see Table 15)

The most common topics mentioned by respondents were "mother's own physical and mental health conditions" (141, 34.1%), followed by "child rearing (daily life)" (110, 26.6%).

The proportion of "questions and anxiety about radiation effects" was 31 (7.5%).

(Note: Multiple answers are allowed)

[For reference]

Survey Year	Survey	Most frequently raised topics (%)					Support candidates	
		No. 1	No. 2	No. 3	No. 4	No. 5		
FY2015	First Follow-up for FY2011 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 129 (34.4%)	Questions and anxiety about radiation effects 96 (25.6%)	Child rearing (daily life) 81 (21.6%)	Child's physical and/or mental health 68 (18.1%)	Family life 52 (13.9%)	375	
FY2016	First Follow-up for FY2012 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 115 (44.9%)	Child rearing (daily life) 59 (23.0%)	Child's physical and/or mental health 58 (22.7%)	Questions and anxiety about radiation effects 34 (13.3%)	Family life 27 (10.5%)	256	
FY2017 *1	First Follow-up for FY2013 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 118 (36.0%)	Child rearing (daily life) 91 (27.7%)	Family life 48 (14.6%)	Questions and anxiety about radiation effects 43 (13.1%)	Child's physical and/or mental health 32 (9.8%)	328	393
	*(based on comments in other parts of the questionnaire) *2*	*Child rearing (daily life)* *30 (46.2%)*	*Questions and anxiety about radiation effects* *17 (26.2%)*	*Child's physical and/or mental health* *6 (9.2%)*	*Mother's own physical and/or mental health* *4 (6.2%)*	*Family life* *2 (3.1%)*	*65*	
FY2018 *1	First Follow-up for FY2014 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 78 (26.4%)	Child rearing (daily life) 36 (12.2%)	Family life 19 (6.4%)	Questions and anxiety about radiation effects 17 (5.7%)	Child's physical and/or mental health 16 (5.4%)	296	380
	*(based on comments in other parts of the questionnaire) *2*	*Questions and anxiety about radiation effects* *19 (22.6%)*	*Child rearing (daily life)* *9 (10.7%)*	*Child's physical and/or mental health* *8 (9.5%)*	*Mother's own physical and/or mental health* *4 (4.8%)*	*Family life* *3 (3.6%)*	*84*	
FY2019 *1	Second Follow-up for FY2011 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 113 (29.2%)	Child rearing (daily life) 69 (17.8%)	Child's physical and/or mental health 39 (10.1%)	Questions and anxiety about radiation effects 25 (6.5%)	Family life 20 (5.2%)	387	421
	*(based on comments in other parts of the questionnaire) *2*	*Child's physical and/or mental health* *8 (23.5%)*	*Child rearing (daily life)* *6 (17.6%)*	*Mother's own physical and/or mental health* *4 (11.8%)*	*Questions and anxiety about radiation effects* *3 (8.8%)*	*Family life/ evacuation life* *1 (2.9%)*	*34*	
FY2020 *1	Second Follow-up for FY2012 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 121 (33.9%)	Child rearing (daily life) 68 (19.0%)	Child's physical and/or mental health 46 (12.9%)	Questions and anxiety about radiation effects 27 (7.6%)	Family life 20 (5.6%)	357	386
	*(based on comments in other parts of the questionnaire) *2*	*Mother's own physical and/or mental health* *6 (20.7%)*	*Child rearing (daily life)* *5 (17.2%)*	*Questions and anxiety about radiation effects* *5 (17.2%)*	*Child's physical and/or mental health* *4 (13.8%)*	- -	*29*	
FY2021 *1	Second Follow-up for FY2013 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 160(37.7%)	Child rearing (daily life) 118(27.8%)	Child's physical and/or mental health 61(14.4%)	COVID-19 Related concerns *3 42(9.9%)	Family life 32(7.5%)	424	469
	*(based on comments in other parts of the questionnaire) *2*	*Child rearing (daily life)* *14(31.1%)*	*Child's physical and/or mental health* *10(22.2%)*	*Mother's own physical and/or mental health* *7(15.6%)*	*Questions and anxiety about radiation effects* *5(11.1%)*	*COVID-19 Related concerns *3* *1(2.2%)*	*45*	
FY2022 *1	Second Follow-up for FY2014 (based on the depression questions+free comment section)	Mother's own physical and/or mental health 134(33.8%)	Child rearing (daily life) 106(26.8%)	Child's physical and/or mental health 57(14.4%)	Family life 33(8.3%)	*COVID-19 Related concerns *3* 32(8.1%)	396	414
	*(based on comments in other parts of the questionnaire) *2*	*Mother's own physical and/or mental health* *7(38.9%)*	*Child's physical and/or mental health* *7(38.9%)*	*Child rearing (daily life)* *4(22.2%)*	*Questions and anxiety about radiation effects* *2(11.1%)*	- -	*18*	

**1 The support criteria and data entry method (questionnaire format, data entry staff, etc.) were changed in the First Follow-up for FY2013 and those that followed.

*2 This criterion was added in the First Follow-up for FY2013 and those that followed.

*3 This criterion was added in the Second Follow-up for FY2013 and those that followed.

4-3 Reasons for ending support (See Table 16)

The most common reasons for ending support were: “listened carefully” (supporters listened carefully and helped to sort out the respondent’s problems) in 235 cases (56.8%), followed by “provided information” (supporters provided information on relevant municipal contact points and other useful information) in 149 cases (36.0%). Support ended because respondents requiring support were “absent” at the time of the phone call in 115 cases (27.8%). (Note: Multiple answers allowed.)

[For Reference]

Survey year	Survey	Most common reasons for ending support (%)			
		No. 1	No. 2	No. 3	Absent
FY2015	First Follow-up for FY2011	Listened carefully*1 197(52.5%)	Provided information *2 105(28.0%)	Confirmed consultation availability *3 29(7.7%)	131 (34.9%)
FY2016	First Follow-up for FY2012	Listened carefully*1 159(62.1%)	Provided information *2 53(20.7%)	Confirmed consultation availability *3 26(10.2%)	70 (27.3%)
FY2017	First Follow-up for FY2013	Listened carefully*1 245(62.3%)	Provided information *2 133(33.8%)	Confirmed consultation availability *3 66(16.8%)	119(30.3%)
FY2018	First Follow-up for FY2014	Listened carefully*1 229(60.3%)	Provided information *2 90(23.7%)	Confirmed consultation availability *3 55(14.5%)	124(32.6%)
FY2019	Second Follow-up for FY2011	Listened carefully*1 217(51.5%)	Provided information *2 98(23.3%)	Confirmed consultation availability *3 37(8.8%)	98(23.3%)
FY2020	Second Follow-up for FY2012	Listened carefully*1 217(56.2%)	Provided information *2 107(27.7%)	Confirmed consultation availability *3 32(8.3%)	73(18.9%)
FY2021	Second Follow-up for FY2013	Listened carefully*1 286(61.0%)	Provided information *2 201(42.9%)	Confirmed consultation availability *3 62(13.2%)	106(22.6%)
FY2022	Second Follow-up for FY2014	Listened carefully*1 235(56.8%)	Provided information *2 149(36.0%)	Confirmed consultation availability *3 77(18.6%)	115(27.8%)

*1 Support ended after listening carefully and helping mothers to sort out their problems.
*2 Support ended after providing information on relevant municipal departments and other useful information.
*3 Support ended after confirming that the mother had already seen a doctor or had someone to consult with.

4-4 Conclusion

A. The proportion of those deemed to need support based on questions about depressive symptoms was 12.5%. This was slightly higher than last year's Second Follow-up for FY2013.

B. The most frequently mentioned topic during support was "Mother's physical or mental health" (34.1%) according to the same criteria for support used in the previous follow-up surveys. "Questions and anxieties about radiation effects" was 7.5%, well below the most frequent topics for consultation, the same as the Second Follow-up for FY2013 (surveyed in FY2021).

* The most frequently mentioned topic: the total number of consultations and support based on both "The questions related to the depressive symptoms" and "Free comment section"

C. The most common reason for ending support was "listened carefully" (supporters listened carefully and helped the mother sort out her problems).

5. Results of the Second Follow-up for FY2014

Covered population: 5,248 respondents of the FY2014 Pregnancy and Birth Survey, who gave birth and were confirmed to be living with their children as of September 2022.

Tabulated responses: 2,266 respondents who participated and returned the Survey Sheet from January 11 to August 31, 2023. (Survey sheets were distributed by post on January 11, 2023).

* Due to rounding, the sum of percentages for each question item may not add up to 100%.

5-1 The survey sheet distribution and response status

(Table 1) The survey sheet distribution and responses

Region	No. of survey sheets distributed		No. of responses					
			Total responses (response rate)		Breakdown by response method			
					by post		online	
Kenpoku	1,387	26.4%	658	47.4%	275	41.8%	383	58.2%
Kenchu	1,451	27.6%	580	40.0%	250	43.1%	330	56.9%
Kennan	388	7.4%	172	44.3%	83	48.3%	89	51.7%
Soso	348	6.6%	131	37.6%	54	41.2%	77	58.8%
Iwaki	993	18.9%	448	45.1%	167	37.3%	281	62.7%
Aizu	629	12.0%	256	40.7%	118	46.1%	138	53.9%
Minamiaizu	52	1.0%	21	40.4%	8	38.1%	13	61.9%
Total	5,248	100.0%	2,266	43.2%	955	42.1%	1,311	57.9%

5-2 Tabulated results by question item

Responses from 2,266 respondents were tabulated (invalid responses: 0). Individual question items may contain non-responses or invalid responses.

(Table 2) How many children do you have?

Region	Total	Minimum	Maximum	Valid responses
Kenpoku	2.4±0.9	1	6	646
Kenchu	2.3±0.9	1	8	566
Kennan	2.3±0.9	1	5	169
Soso	2.4±0.9	1	7	125
Iwaki	2.4±0.9	1	7	436
Aizu	2.5±0.8	1	5	246
Minamiaizu	2.4±0.8	1	5	21
Total	2.4±0.9	1	8	2,209

(Table 3) How old is your youngest child (in months)?

Region	Total	Minimum	Maximum	Valid responses
Kenpoku	78.7± 28.3	0	110	629
Kenchu	78.3± 29.7	0	112	556
Kennan	79.3± 26.7	1	119	163
Soso	78.2± 28.1	0	108	124
Iwaki	78.9± 29.6	0	117	422
Aizu	80.3± 27.5	1	108	240
Minamiaizu	81.0± 23.6	18	106	21
Total	78.8± 28.6	0	119	2,155

(Table 4) Do you usually consider yourself healthy? (Q1)

*The proportion of mothers who responded that their subjective health was poor (“Not so healthy” or “Not healthy”) was 10.3%

Region	Very healthy		Healthy		Not so healthy		Not healthy		Non-response/ invalid responses		Total
Kenpoku	101	15.3%	494	75.1%	61	9.3%	2	0.3%	0	0.0%	658
Kenchu	84	14.5%	425	73.3%	67	11.6%	3	0.5%	1	0.2%	580
Kennan	24	14.0%	130	75.6%	16	9.3%	1	0.6%	1	0.6%	172
Soso	19	14.5%	94	71.8%	13	9.9%	5	3.8%	0	0.0%	131
Iwaki	75	16.7%	335	74.8%	35	7.8%	2	0.4%	1	0.2%	448
Aizu	39	15.2%	190	74.2%	24	9.4%	3	1.2%	0	0.0%	256
Minamiaizu	7	33.3%	13	61.9%	1	4.8%	0	0.0%	0	0.0%	21
Total	349	15.4%	1,681	74.2%	217	9.6%	16	0.7%	3	0.1%	2,266

(Table 5) Have you often felt down or depressed during the past month? (Q2)

Region	Yes		No		Non-response/ invalid responses		Total
Kenpoku	156	23.7%	499	75.8%	3	0.5%	658
Kenchu	129	22.2%	450	77.6%	1	0.2%	580
Kennan	36	20.9%	135	78.5%	1	0.6%	172
Soso	28	21.4%	103	78.6%	0	0.0%	131
Iwaki	100	22.3%	348	77.7%	0	0.0%	448
Aizu	57	22.3%	196	76.6%	3	1.2%	256
Minamiaizu	2	9.5%	19	90.5%	0	0.0%	21
Total	508	22.4%	1,750	77.2%	8	0.4%	2,266

(Table 6) During the past month, have you often felt uninterested in or unable to truly enjoy things? (Q3)

Region	Yes		No		Non-response/ invalid responses		Total
Kenpoku	110	16.7%	545	82.8%	3	0.5%	658
Kenchu	78	13.4%	501	86.4%	1	0.2%	580
Kennan	21	12.2%	150	87.2%	1	0.6%	172
Soso	20	15.3%	111	84.7%	0	0.0%	131
Iwaki	67	15.0%	381	85.0%	0	0.0%	448
Aizu	45	17.6%	208	81.3%	3	1.2%	256
Minamiaizu	0	0.0%	21	100.0%	0	0.0%	21
Total	341	15.0%	1,917	84.6%	8	0.4%	2,266

(Table 7) Mothers with depressive symptoms (Those who responded “Yes” to Q2 or Q3)

Region	"Yes" to both questions		"Yes" to one question		"No" to both questions		Non-response/ invalid response		Total
Kenpoku	91	13.8%	84	12.8%	480	72.9%	3	0.5%	658
Kenchu	61	10.5%	85	14.7%	433	74.7%	1	0.2%	580
Kennan	20	11.6%	17	9.9%	134	77.9%	1	0.6%	172
Soso	16	12.2%	16	12.2%	99	75.6%	0	0.0%	131
Iwaki	60	13.4%	47	10.5%	341	76.1%	0	0.0%	448
Aizu	36	14.1%	30	11.7%	187	73.0%	3	1.2%	256
Minamiaizu	0	0.0%	2	9.5%	19	90.5%	0	0.0%	21
Total	284	12.5%	281	12.4%	1,693	74.7%	8	0.4%	2,266

*Depressive tendency : 24.9 % - 565 persons (yes to both question & yes to one question)/ Total 2,266 persons

(Table 8) Do you sometimes feel unconfident about child-rearing? (Q4)

Region	Yes		No		Neither yes nor no		Non-response/ invalid response		Total
Kenpoku	144	21.9%	205	31.2%	305	46.4%	4	0.6%	658
Kenchu	109	18.8%	217	37.4%	253	43.6%	1	0.2%	580
Kennan	36	20.9%	67	39.0%	69	40.1%	0	0.0%	172
Soso	25	19.1%	58	44.3%	48	36.6%	0	0.0%	131
Iwaki	90	20.1%	205	45.8%	152	33.9%	1	0.2%	448
Aizu	45	17.6%	98	38.3%	112	43.8%	1	0.4%	256
Minamiaizu	1	4.8%	13	61.9%	7	33.3%	0	0.0%	21
Total	450	19.9%	863	38.1%	946	41.7%	7	0.3%	2,266

(Table 9) Please check all the boxes that describe what you are worried about regarding radiation effects. (Q5)

Region	Health of children		Prejudice		Genetic effects		Food		Water		Outdoor activities		Others		Valid responses
Kenpoku	287	55.7%	194	37.7%	205	39.8%	115	22.3%	95	18.4%	50	9.7%	2	0.4%	515
Kenchu	299	64.0%	179	38.3%	166	35.5%	115	24.6%	112	24.0%	50	10.7%	2	0.4%	467
Kennan	83	58.9%	55	39.0%	57	40.4%	34	24.1%	42	29.8%	20	14.2%	1	0.7%	141
Soso	53	48.6%	56	51.4%	34	31.2%	31	28.4%	26	23.9%	14	12.8%	1	0.9%	109
Iwaki	200	58.1%	117	34.0%	122	35.5%	97	28.2%	117	34.0%	40	11.6%	6	1.7%	344
Aizu	124	59.0%	65	31.0%	70	33.3%	71	33.8%	53	25.2%	36	17.1%	3	1.4%	210
Minamiaizu	10	66.7%	4	26.7%	4	26.7%	3	20.0%	2	13.3%	1	6.7%	0	0.0%	15
Total	1,056	58.6%	670	37.2%	658	36.5%	466	25.9%	447	24.8%	211	11.7%	15	0.8%	1,801

* The denominator of percentages is the number of valid responses (those who checked at least one box). The sum of individual percentages for each question item may not add up to 100% because multiple answers were allowed

* 79.5% of the respondents checked at least one box (1,801 out of 2,266 respondents).

(Table 10-1) Has your child ever had a disease that required hospitalization? (Q6)

Region	Yes		No		Non-response/ invalid response		Total
Kenpoku	178	27.1%	464	70.5%	16	2.4%	658
Kenchu	179	30.9%	397	68.4%	4	0.7%	580
Kennan	51	29.7%	117	68.0%	4	2.3%	172
Soso	36	27.5%	92	70.2%	3	2.3%	131
Iwaki	75	16.7%	364	81.3%	9	2.0%	448
Aizu	62	24.2%	189	73.8%	5	2.0%	256
Minamiaizu	8	38.1%	13	61.9%	0	0.0%	21
Total	589	26.0%	1,636	72.2%	41	1.8%	2,266

(Table 10-2) Diseases that caused hospitalization mentioned in Q6 (Has your child ever had a disease that required hospitalization?) (Multiple answers were allowed.)

Pneumonia	120	Anaphylactic shock	2	Syndactyly (foot)	1
RS virus infection	68	Very low birth weight	2	Bronchiolitis	1
Kawasaki disease	42	Hemangioma	2	Bacterial infection	1
Febrile seizure	34	RS virus bronchitis	2	Seborrheic keratosis	1
Asthma	32	Lipoblastoma	2	Hand, foot and mouth disease	1
Bronchitis	29	Odontoma	2	PFAPA syndrome	1
Gastroenteritis	24	Artrial septal defect	2	Small intestinal abnormality	1
Inguinal hernia	21	Hhypospadia	2	Cerebellar infarction	1
RS virus pneumonia	19	Cellulitis	2	Disappearing testis	1
Influenza	16	Tonsillitis	2	Upper respiratory inflammation	1
Bronchial asthma	15	Umbilical hernia	2	Melena neonatorum	1
Tonsillar hypertrophy	15	Trisomy 18	1	Neonatal infections	1
Adenovirus infection	11	Type 1 diabetes	1	Neonatal apneic attack	1
Mycoplasma pneumonia	11	Adenovirus gastroenteritis	1	Hydronephrosis	1
Pharyngitis	11	Adenovirus pneumonia	1	Meningitis	1
Urinary tract infection	10	Allegy	1	Congenital arachnoid cyst	1
Otitis media	9	Allergic dermatitis	1	Congenital duodenal stenosis	1
Norovirus infection	7	Ileus	1	Congenital heart disease	1
Ventricular septal defect	7	Viral infection	1	Meconium aspiration syndrome	1
Cryptorchidism	7	West syndrome	1	Biliary atresia	1
Hydrocele testis	6	Guillain-Barré syndrome	1	Poisoning rash	1
Supernumerary tooth	6	Ketonemic emesis	1	Mesenteric lipoma	1
Bronchial pneumonia	6	Ketogenic hypoglycemia	1	Extremely low birth weight infant	1
Streptococcal infection	6	Noonan syndrome	1	Vertebral artery dissection	1
Cold syndrome	6	Norovirus gastroenteritis	1	Hypoxic encephalopathy	1
Seizure	5	Panayiotopoulos syndrome	1	Juvenile idiopathic arthritis	1
Rotavirus infection	5	Perthes disease	1	Idiopathic thrombocytopenic purpı	1
COVID-19 infection	5	Hernia	1	Hearing loss	1
Dehydration	5	Herpangina	1	Spina bifida	1
Appendicitis	5	Mycoplasma infection	1	Burn	1
Intussusception	5	Rotavirus gastroenteritis	1	Pulmonary valve stenosis	1
Croup syndrome	4	Penile tumor	1	Hypertrophic pyloric stenosis	1
Epilepsy	4	Discoid meniscus	1	Nasopharyngitis	1
Food allergy	4	Entropion	1	Nasal passage stenosis	1
Calcified epithelioma	4	Facial nerve paralysis	1	Olecranon fracture	1
Exanthem subitum	4	Acute lymphoblastic leukemia	1	Accessory ear	1
Allergic purpura	3	Acute myositis	1	Sinusitis	1
Nephrotic syndrome	3	Acute laryngitis	1	Fetomaternal transfusion syndrom	1
Acute pyelonephritis	3	Acute myocarditis	1	Filled tooth	1
Bone fracture	3	Acute encephalopathy	1	Impacted supernumerary tooth	1
Cyclic vomiting syndrome	3	Muscular torticollis	1	Cryptotia	1
Low birth weight infant	3	Bacteremia	1	Ovarian sliding hernia	1
Craniosynostosis	3	Eardrum depression	1	Asthma-like bronchitis	1
Afebrile convulsions	3	Communicating scrotal hydrops	1	Vesicoureteral reflux disease	1
Cleft lip and palate	3	Cleft lip	1	Cervical lymphadenitis	1
Lymphadenitis	2	Epiglottitis	1	Neck edema	1
Migratory testis	2	Neutropenia	1		

(Table 11) Please check all the boxes that describe what you are anxious about regarding your child. (Q7)
* The denominator of percentages is the number of valid responses (those who checked at least one box). The sum of individual

Region	Mental and physical development		School life		Lifestyle habits		Deseases		Others		Valid responses
Kenpoku	284	57.1%	239	48.1%	238	47.9%	94	18.0%	3	0.6%	497
Kenchu	240	53.2%	216	47.9%	198	43.9%	117	25.9%	8	1.8%	451
Kennan	76	56.7%	63	47.0%	55	41.0%	28	20.9%	2	1.5%	134
Soso	44	47.3%	43	46.2%	43	46.2%	25	26.9%	2	2.2%	93
Iwaki	162	53.3%	137	45.1%	137	45.1%	74	24.3%	5	1.6%	304
Aizu	97	52.2%	89	47.8%	78	41.9%	38	20.4%	5	2.7%	186
Minamiaizu	8	57.1%	4	28.6%	7	50.0%	3	21.4%	0	0.0%	14
Total	911	54.3%	791	47.1%	756	45.0%	379	22.6%	25	1.5%	1,679

Percentages for each question item may not add up to 100% because multiple answers were allowed
* 74.1% of the respondents checked at least one box (1,679 out of 2,266 responses).

5-3 Free descriptions/comments section

(Table 12-1) The proportion of those who wrote in the free comment section

Region	Those who wrote comments		Those who didn't write comments		Total
Kenpoku	84	12.8%	574	87.2%	658
Kenchu	69	11.9%	511	88.1%	580
Kennan	25	14.5%	147	85.5%	172
Soso	12	9.2%	119	90.8%	131
Iwaki	58	12.9%	390	87.1%	448
Aizu	36	14.1%	220	85.9%	256
Minamiaizu	4	19.0%	17	81.0%	21
Total	288	12.7%	1,978	87.3%	2,266

(Table 12-2) Contents of free comments

Contents	Number	%
Consultation about child rearing	102	35.4%
Mother's own poor mental health	58	20.1%
Mother's own poor physical health	48	16.7%
COVID-19 related issues	48	16.7%
Anxiety about radiation effects on fetus and child health	27	9.4%
Positive comments about this survey	27	9.4%
Opinions/complaints about this survey	22	7.6%
Request for improved parenting and child-rearing support services	12	4.2%
Comments regarding financial anxiety and/or burden	11	3.8%
Personal relationship(s)	10	3.5%
Anxiety about radiation exposure of the children when playing outside	8	2.8%
Anxiety about radiation effects on baby food or general food products	8	2.8%
Request regarding information dissemination and publication of survey results	8	2.8%
Anxiety and/or dissatisfaction about reliability or lack of information	6	2.1%
Request for decontamination and provision of safe playgrounds	5	1.7%
Anxiety about radiation effects on water	4	1.4%
Anxiety related with the outcome of the latest pregnancy	3	1.0%
Request regarding thyroid examination	3	1.0%
Request for improved medical services and physical care	3	1.0%
Anxiety or dissatisfaction with examinations and medical services	2	0.7%
Request for financial support	2	0.7%
Comments regarding other examinations and surveys	2	0.7%
Request for improved mental health care support system	2	0.7%
Request for relief supply and/or fuel (gasoline)	1	0.3%
Others	64	22.2%

*Multiple answers are allowed. The denominator of percentages is 288 (those who wrote comments are in the free comment section).
*A COVID-19-related section was added to the Second Follow-up Survey of 2012 survey respondents.

5-4 Status of post-survey support

The number of respondents requiring support in the Second Follow-up for FY2014 was 414 (18.3% of 2,266 respondents).

Tabulation of data regarding post-survey support is based on 2,266 responses returned between January 11 and August 31, 2023.

(Table 13) Number of persons requiring support

Region	Respondents	Persons requiring support	
Kenpoku	658	127	19.3%
Kenchu	580	91	15.7%
Kennan	172	36	20.9%
Soso	131	20	15.3%
Iwaki	448	86	19.2%
Aizu	256	52	20.3%
Minamiaizu	21	2	9.5%
Total	2,266	414	18.3%

*The denominator for percentage calculations is the number of respondents.

(Table 14) Breakdown of persons requiring support, by region

Region	Entries related to the depressive symptoms		Entries of the free comments		Total
Kenpoku	91	71.7%	36	28.3%	127
Kenchu	61	67.0%	30	33.0%	91
Kennan	20	55.6%	16	44.4%	36
Soso	16	80.0%	4	20.0%	20
Iwaki	60	69.8%	26	30.2%	86
Aizu	36	69.2%	16	30.8%	52
Minamiaizu	0	0.0%	2	100.0%	2
Total	284	68.6%	130	31.4%	414

*The sum of individual percentages for each question item may not add up to 100% due to rounding

(Table 15) Major topics mentioned during support, by region

Region	Mother's own physical or mental health		Child-rearing (daily life)		Child's physical or mental health		Family life		COVID-19 related issues		Questions and anxiety about radiation effects		Evacuation life		Other		Persons requireing support
Kenpoku	43	33.9%	34	26.8%	20	15.7%	11	8.7%	8	6.3%	6	4.7%	1	0.8%	61	48.0%	127
Kenchu	29	31.9%	24	26.4%	11	12.1%	6	6.6%	3	3.3%	6	6.6%	0	0.0%	46	50.5%	91
Kennan	18	50.0%	12	33.3%	9	25.0%	3	8.3%	4	11.1%	3	8.3%	0	0.0%	11	30.6%	36
Soso	5	25.0%	4	20.0%	1	5.0%	1	5.0%	1	5.0%	3	15.0%	0	0.0%	14	70.0%	20
Iwaki	27	31.4%	22	25.6%	15	17.4%	6	7.0%	10	11.6%	9	10.5%	0	0.0%	43	50.0%	86
Aizu	18	34.6%	13	25.0%	8	15.4%	6	11.5%	6	11.5%	4	7.7%	0	0.0%	24	46.2%	52
Minamiaizu	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	50.0%	2
Total	141	34.1%	110	26.6%	64	15.5%	33	8.0%	32	7.7%	31	7.5%	1	0.2%	200	48.3%	414

*The denominator for percentage calculations is the number of respondents requiring support. The sum of individual percentages may not be 100% because multiple answers were allowed.

*A COVID-19-related section was added to the Second Follow-up Survey of 2013 survey respondents.

(Table 16) Reasons for ending support

Region	Listened carefully[1)]		Provided information[2)]		Confirmed consultation availability[3)]		Recommended medical care[4)]		Answered questions[5)]		Referred to Mental Health Support Team[6)]		Referred to municipalities[7)]	
Kenpoku	69	54.3%	36	28.3%	25	19.7%	12	9.4%	0	0.0%	1	0.8%	0	0.0%
Kenchu	53	58.2%	37	40.7%	16	17.6%	1	1.1%	2	2.2%	0	0.0%	0	0.0%
Kennan	24	66.7%	14	38.9%	10	27.8%	5	13.9%	3	8.3%	0	0.0%	0	0.0%
Soso	8	40.0%	7	35.0%	2	10.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Iwaki	50	58.1%	33	38.4%	14	16.3%	6	7.0%	2	2.3%	0	0.0%	0	0.0%
Aizu	30	57.7%	21	40.4%	9	17.3%	3	5.8%	2	3.8%	0	0.0%	0	0.0%
Minamiaizu	1	50.0%	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	235	56.8%	149	36.0%	77	18.6%	27	6.5%	9	2.2%	1	0.2%	0	0.0%

Region	Referred to radiation consultation[8)]		Referred to medical specialists[9)]		Absent		Contact number remained unknown		Support declined		Other reasons		Person requiring support
Kenpoku	0	0.0%	0	0.0%	40	31.5%	16	12.6%	1	0.8%	0	0.0%	127
Kenchu	0	0.0%	0	0.0%	24	26.4%	12	13.2%	0	0.0%	1	1.1%	91
Kennan	0	0.0%	0	0.0%	7	19.4%	3	8.3%	0	0.0%	0	0.0%	36
Soso	0	0.0%	0	0.0%	7	35.0%	3	15.0%	0	0.0%	1	5.0%	20
Iwaki	0	0.0%	0	0.0%	21	24.4%	15	17.4%	0	0.0%	0	0.0%	86
Aizu	0	0.0%	0	0.0%	15	28.8%	6	11.5%	0	0.0%	0	0.0%	52
Minamiaizu	0	0.0%	0	0.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	2
Total	0	0.0%	0	0.0%	115	27.8%	55	13.3%	1	0.2%	2	0.5%	414

*The denominator for percentage calculations is the number of respondents requiring support. The numbers are cumulative totals. The sum of individual percentages may not be 100% because multiple answers were allowed.

1) Support ended after listening carefully and helping to sort out the mother's problems.
2) Support ended after providing information on relevant municipal service contact points and other useful information.
3) Support ended after confirming that the mother has consulted doctors or other specialists.
4) Support ended after recommending that the mother seek medical consultation.
5) Support ended after answering questions from the mother.
6) Support ended after referring and connecting the mother's information to FMU's Mental Health Support Team (with consent).
7) Support ended after referring and connecting the mother's information to relevant sections of the municipality of residence (with consent).
8) Support ended after referring and connecting the mother's information to FMU's radiation consultation desk (with consent).
9) Support ended after referring and connecting the mother's information to medical specialists of FMU (FMU Hospital).

Summary of the Results of the Fukushima Health Management Survey, the "Pregnancy and Birth Survey (PBS)" (FY2011-FY2022)

1. Purpose and Outline of the Survey

The "Pregnancy and Birth Survey" (PBS) was conducted every year (the Main Survey) from FY2011 to FY2020 to properly ascertain pregnant women's physical and mental health, to assess their intentions about giving birth and raising children in Fukushima, to alleviate their worries, and to provide them with the necessary care.
The PBS found a high prevalence of depressive symptoms among respondents immediately after the disaster. Accordingly, the first round of the Follow-up Survey was also conducted from FY2015 (covering FY2011 Main Survey respondents) to FY2018 (covering FY2014 Main Survey respondents), four years after childbirth, when the number of mothers who lose confidence about rearing their children tends to increase and there are no routine health checks for their children.

The Follow-up Surveys revealed that FY2011 and FY2012 Survey respondents showed strong concerns about radiation effects and high depressive symptoms. A certain number of respondents to the FY2013 and FY2014 Survey still considered that their subjective health was poor, had depressive symptoms, or were worried about radiation effects. Therefore, it was decided to conduct the second round of Follow-up Surveys from FY2019 (covering FY2011 Survey respondents) to FY2022 (covering FY2014 Survey respondents), eight years after childbirth.

2. Outline of the Survey and support

2-1 Main Survey

Covered population

A Woman who obtained a maternity handbook from municipalities in Fukushima from August 1, 2010, to July 31, 2020.

B Women who obtained a maternity handbook somewhere else but received prenatal health checks and gave birth in Fukushima (e.g., homecoming birth).

Survey items

- Mental health of pregnant and nursing mothers
- Current living conditions (evacuation, family separation)
- Childbirth status and maternal health status during pregnancy
- Confidence in child-rearing
- Expectations for the next pregnancy
- Others and free comments

Survey sheet distribution

Those covered under A: Survey sheets were sent by post, requesting to fill in and return them.
Those covered under B: Survey sheets were distributed with the cooperation of OBGs.

Survey method

Response by postal mail or online.
*The online response system was introduced in FY2016.

2-2 Follow-up Survey

Covered population

Respondents to the Main Surveys conducted from FY2011 to FY2014 (excluding those having a miscarriage, an abortion, or a stillbirth) who have been confirmed to be alive along with their children through inquiries to their respective municipalities (See [For reference] below.)

Survey items

- Mental health of the mothers
- Confidence in child-rearing
- Worries over radiation effects
- Hospitalization of children
- Worries over children
- Others and free comments

Survey methods

Survey sheets were distributed by post.

Response by postal mail or online.

*The online response system was introduced in FY2016.

(For reference)

Survey year	Folow-up times	Covered respondents
FY2015	First Follow-up	Follow-up Survey Covering FY2011 Survey Respondents ("First Follow-up for FY2011")
FY2016		Follow-up Survey Covering FY2012 Survey Respondents ("First Follow-up for FY2012")
FY2017		Follow-up Survey Covering FY2013 Survey Respondents ("First Follow-up for FY2013")
FY2018		Follow-up Survey Covering FY2014 Survey Respondents ("First Follow-up for FY2014")
FY2019	Second Follow-up	Second Follow-up Survey Covering FY2011 Survey Respondents ("Second Follow-up for FY2011")
FY2020		Second Follow-up Survey Covering FY2012 Survey Respondents ("Second Follow-up for FY2012")
FY2021		Second Follow-up Survey Covering FY2013 Survey Respondents ("Second Follow-up for FY2013")
FY2022		Second Follow-up Survey Covering FY2014 Survey Respondents ("Second Follow-up for FY2014")

2-3. Provision of support

Criteria for providing support

Respondents who fall under either of the following:

A. Those who responded "yes" to questions regarding depressive symptoms
B. Those who wrote comments indicating a need for attention and support (in the free comments entry field or other fields of the questionnaire)
   e.g., any distressing comments, needing support for child rearing, anxieties about radiation levels, poor health conditions, asking for our responses, or requesting support
   * Starting from the FY 2012 Main Survey, the free-comment field was used to broaden eligibility for the provision of support.
   * Since the First Follow-up survey for FY2013 Main Survey respondents, those who wrote comments about specific problems or issues were included as mothers requiring support.

Support methods

A. Check the content of survey responses promptly after we receive them and identify respondents who seem to need support.
B. Midwives and public health nurses of the Radiation Medical Science Center for the Fukushima Health Management Survey provide counseling and support by phone.
C. When any case requiring more specialized responses is found through telephone support, the case is referred to specialized physicians. For women for whom regional support is found to be necessary, requests are made to municipalities where they reside to ask for further responses.
D. Establish a dedicated consultation telephone and email service for pregnant and nursing mothers to provide continuous consultation and support.

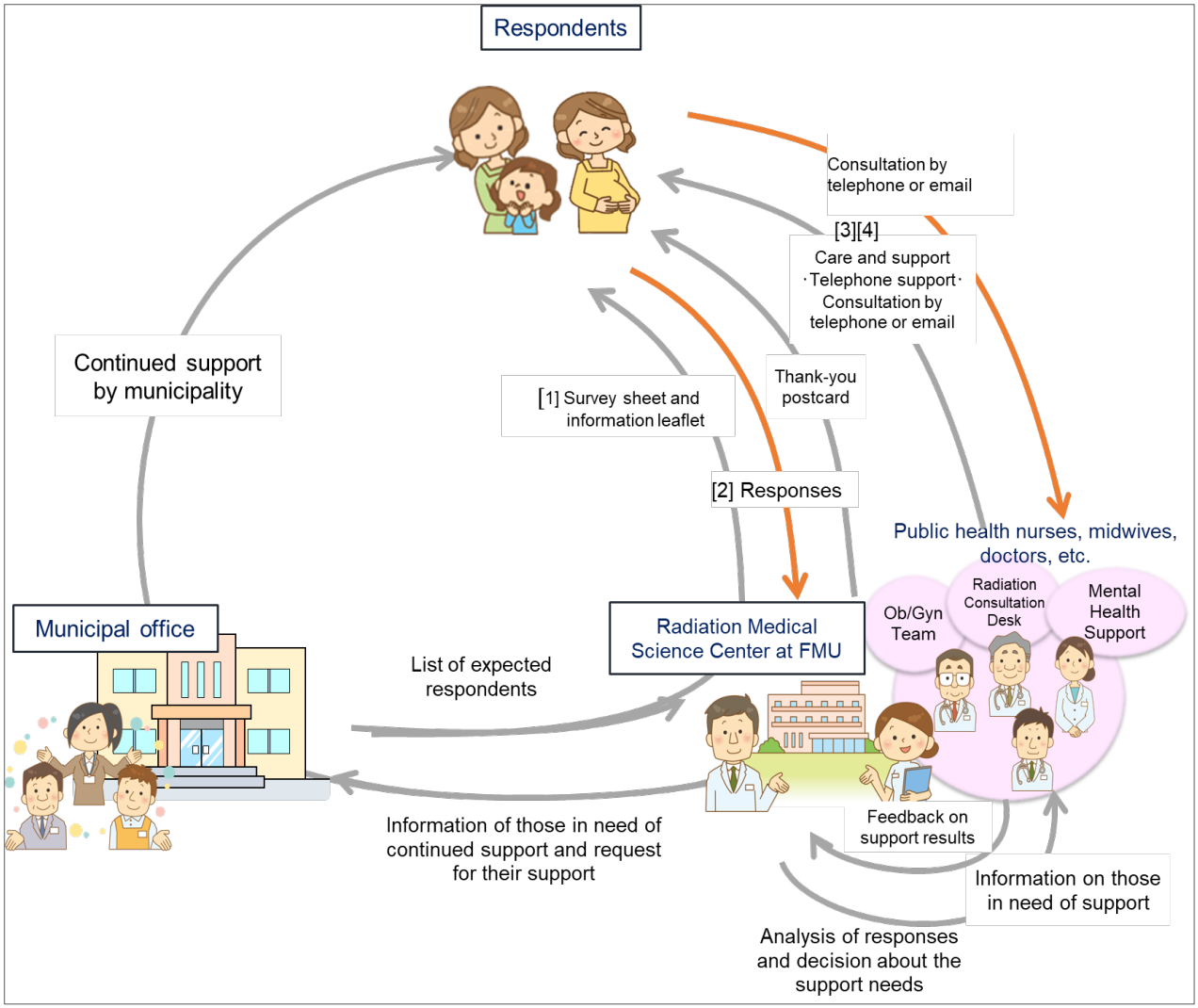


Figure 1 Flow chart of the Survey and support

3. Survey results

3-1 Number of those covered populations, responses, and response rate (refer to Figures 2 to 5)

The number of the survey population, responses, and response rate of the Main Survey are described in Figure 2.

The survey population, which temporarily decreased in FY2012, immediately after the disaster, recovered in FY2013 but has been on a decline in the same manner as the number of births nationwide.

The response rate of the Main Survey has remained at around 50% for ten years, showing a high level of people's interest (Figure 2). By district, the response rate was especially high at over 60% in Kenpoku and Soso immediately after the disaster but has shown no notable changes in all districts afterward (Figure 3).

The number of the survey population, responses, and response rate of the Follow-up Survey are described in Figure 4.

The response rate of the Follow-up Survey has been around 40% which is slightly lower than the Main Survey, and the FY2013 and FY2014 surveys showed higher response rates than those of FY2011 and FY2012. By district as well, the response rates for the last two surveys were higher than before for all regions (Figure 5).

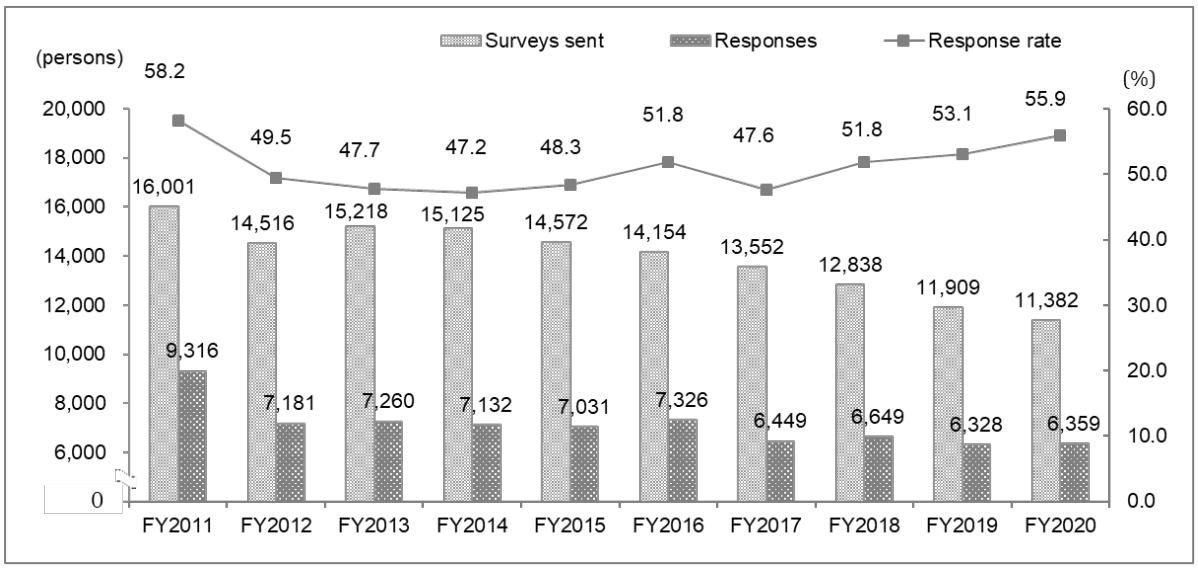
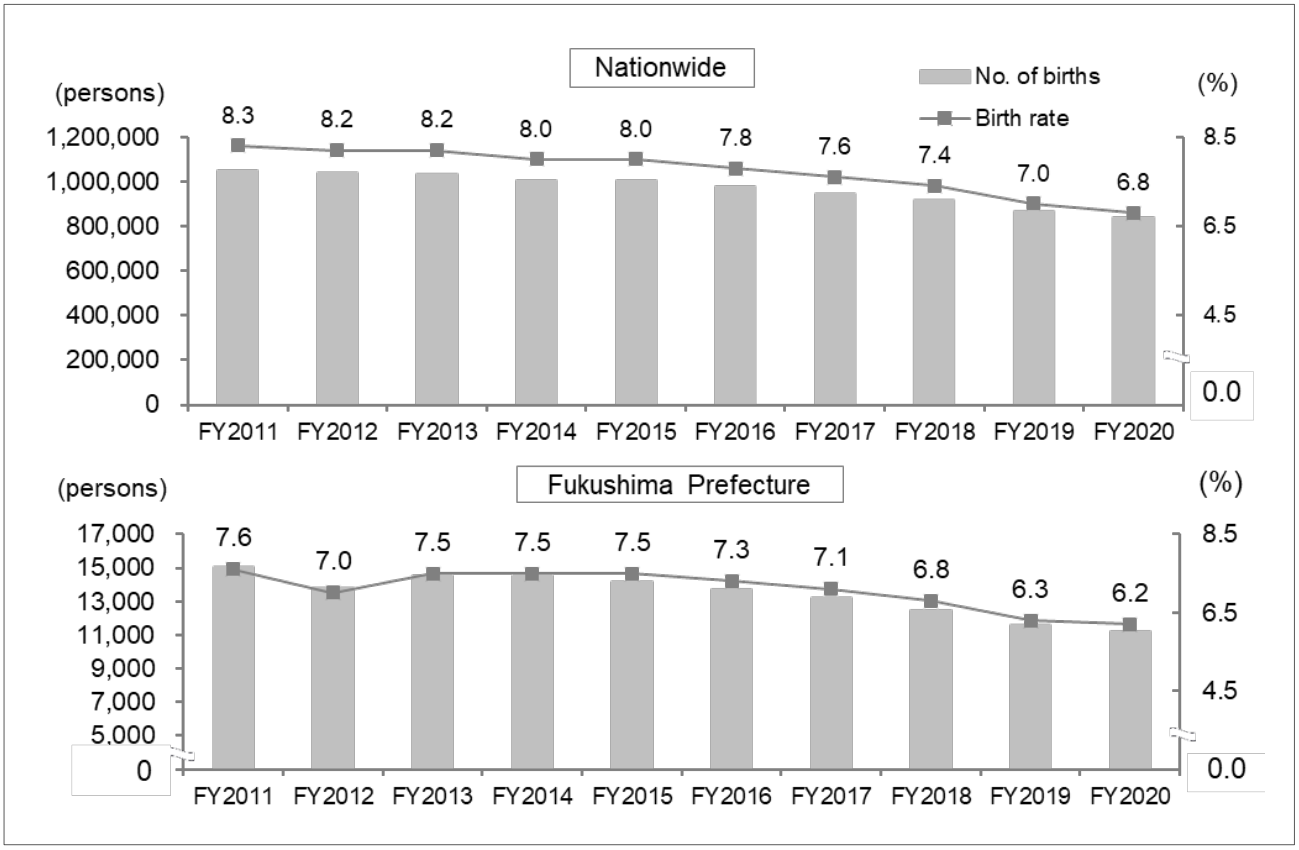


Figure 2 The survey population, responses, and response rate (the Main Survey)

(For reference) Vital statistics

(Number of Births, Birth Rate (in thousands of population), Fertility Ratio, and Total Fertility Rate by Year)



Source: Summary of 2020 Vital Statistics (final data),
List of Statistical Surveys conducted by Ministry of Health, Labour and Welfare.

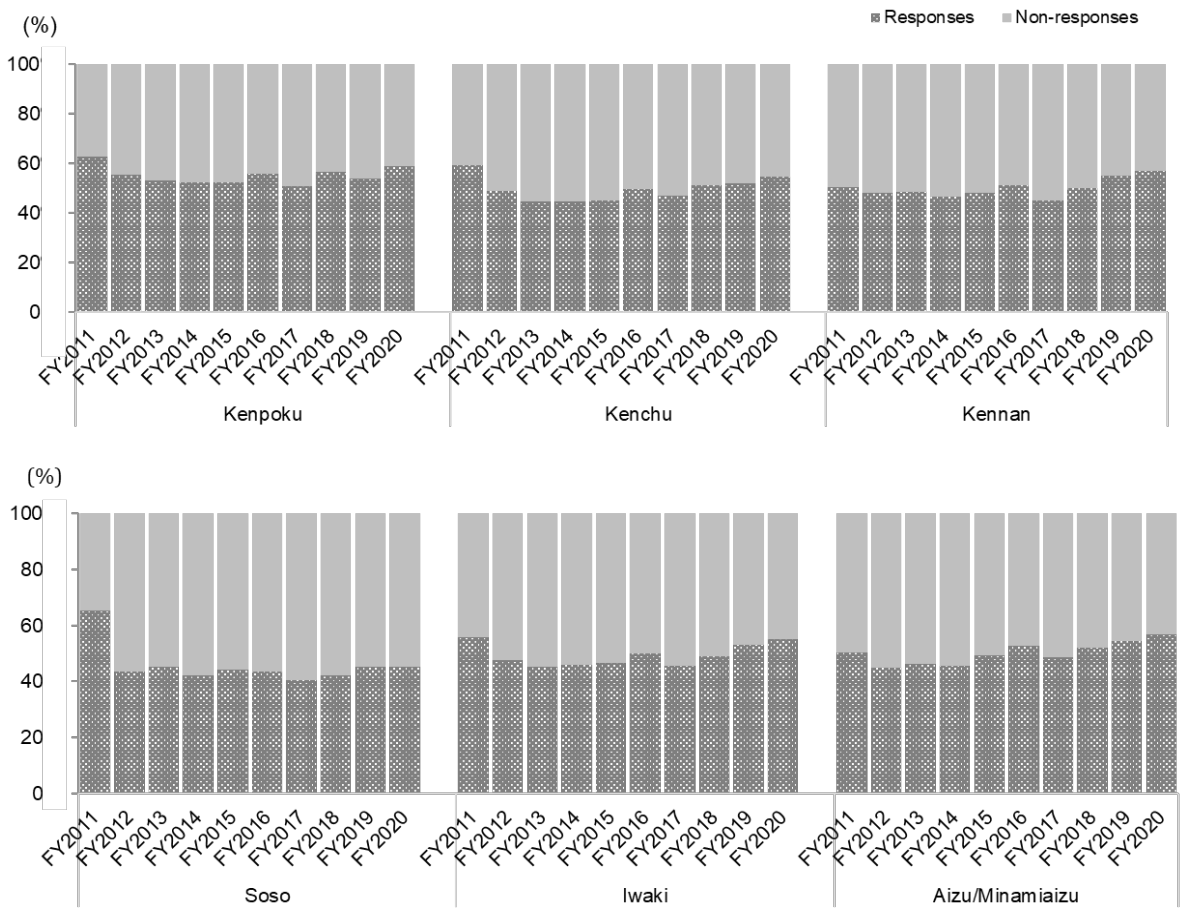


Figure 3 The response rate by region (Main Survey)

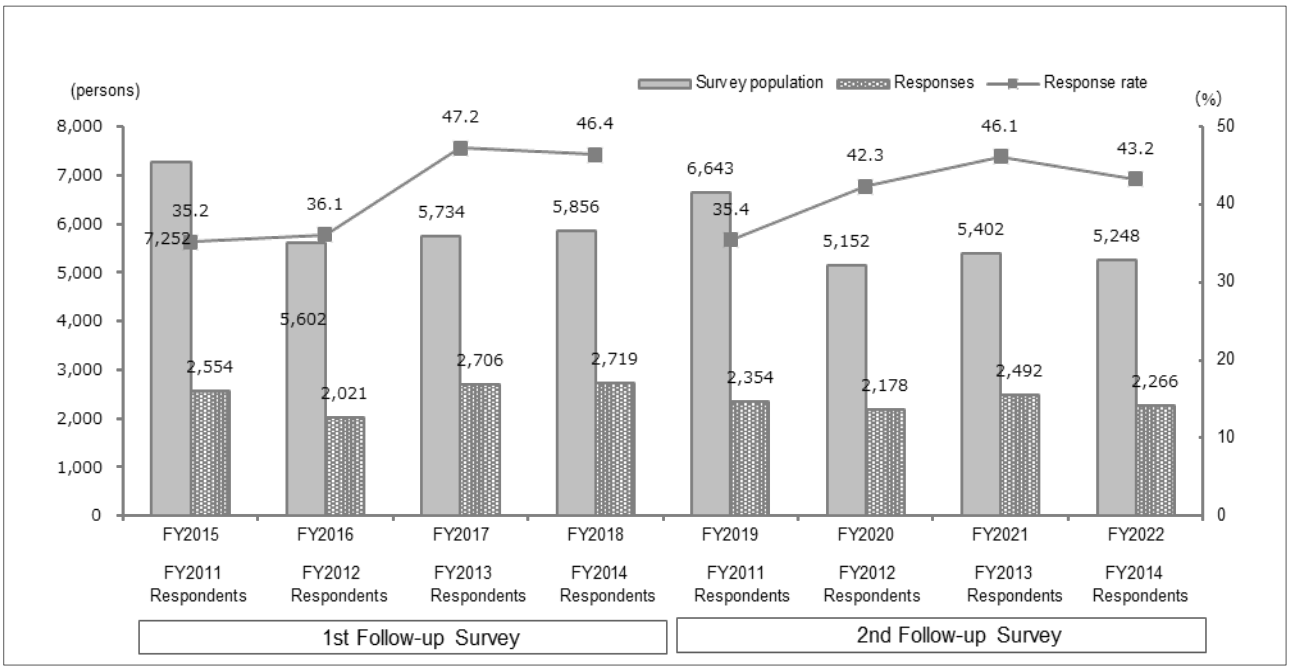


Figure 4 The survey population, responses, and response rate (Follow-up Survey)

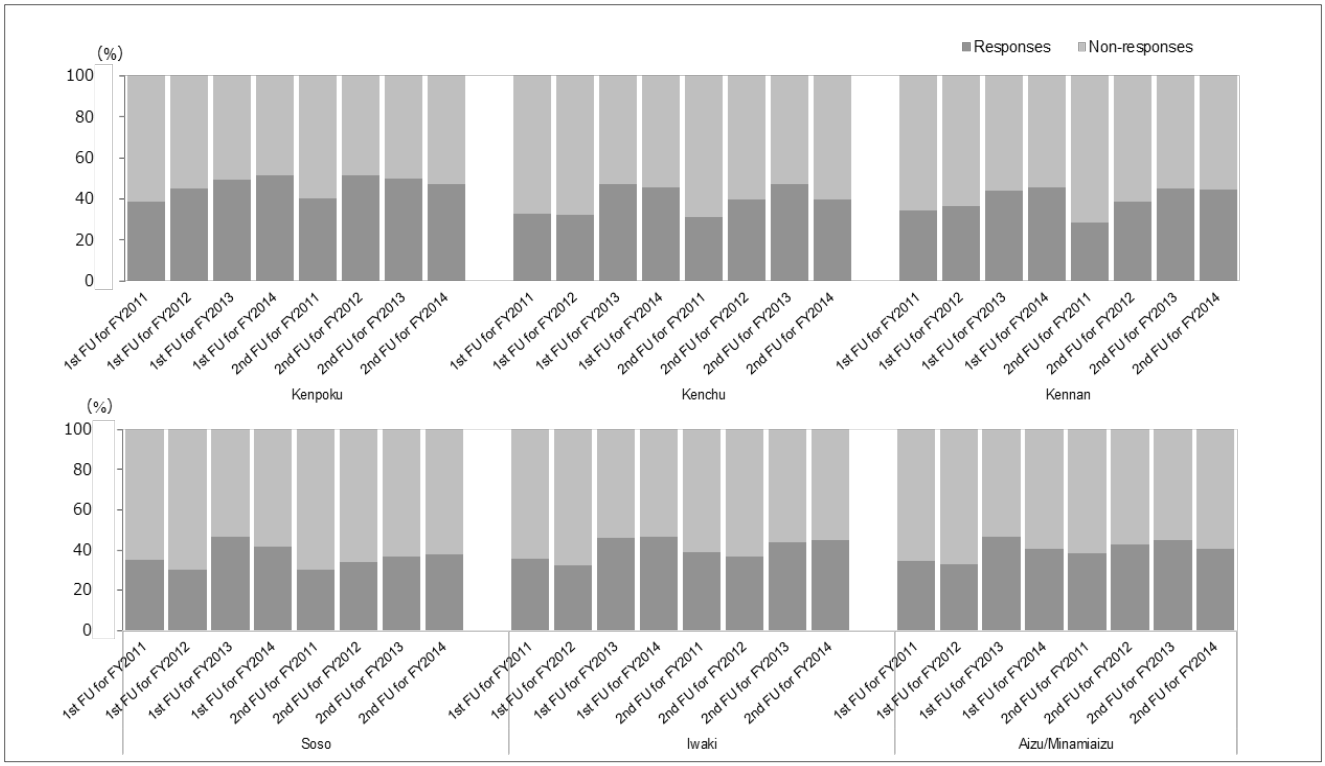


Figure 5 The response rate by region (Follow-up Survey)

3-2 Summary of responses

A. Pregnancy outcome (percentages of preterm births, low birth weight, and congenital anomalies) (Figures 6 to 9)

The results of the FY2011 survey to the FY2020 survey showed almost no differences from the government statistics data and other generally published data for each fiscal year (Figures 6 to 8). The percentages of congenital anomalies by district also showed no differences (Figure 9).

* The national average percentage of preterm births for FY2021: 5.7%
(preterm births: births at a gestational age from 22 weeks to less than 37 weeks)
* The national average percentage of low birth weight babies for FY2021: 9.4%
(low birth weight: weighing less than 2,500 grams at birth.
* The percentage of congenital fetal anomalies identifiable at the time of birth is generally 2% to 3% and the causes are diverse ("Guidelines for Obstetrical Practice in Japan: Obstetrics 2023")

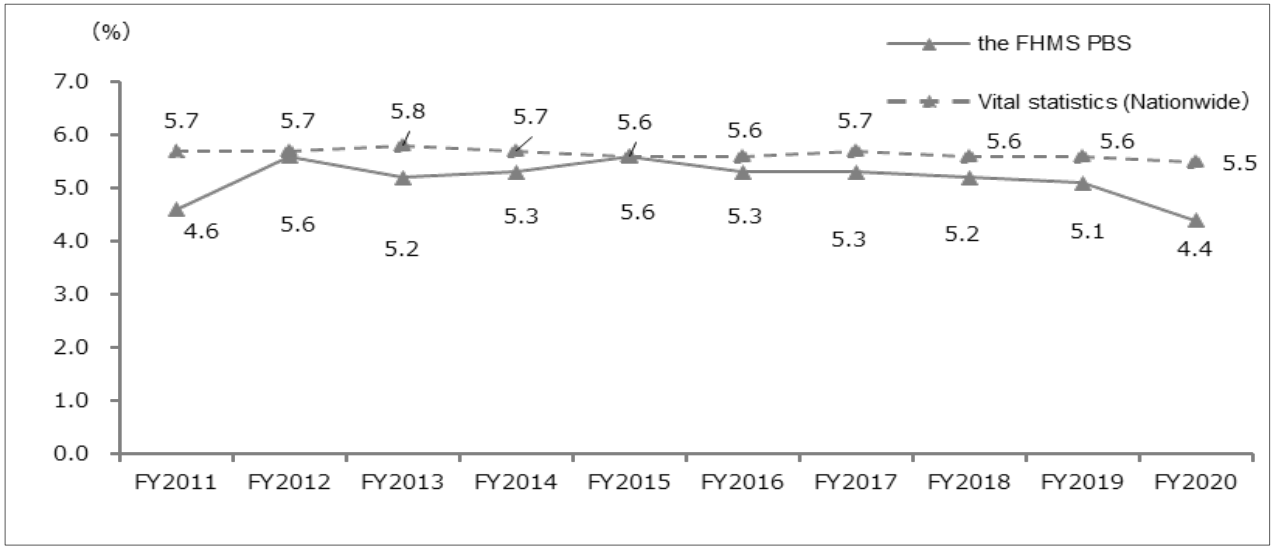


Figure 6 The preterm birth rate (Main Survey)

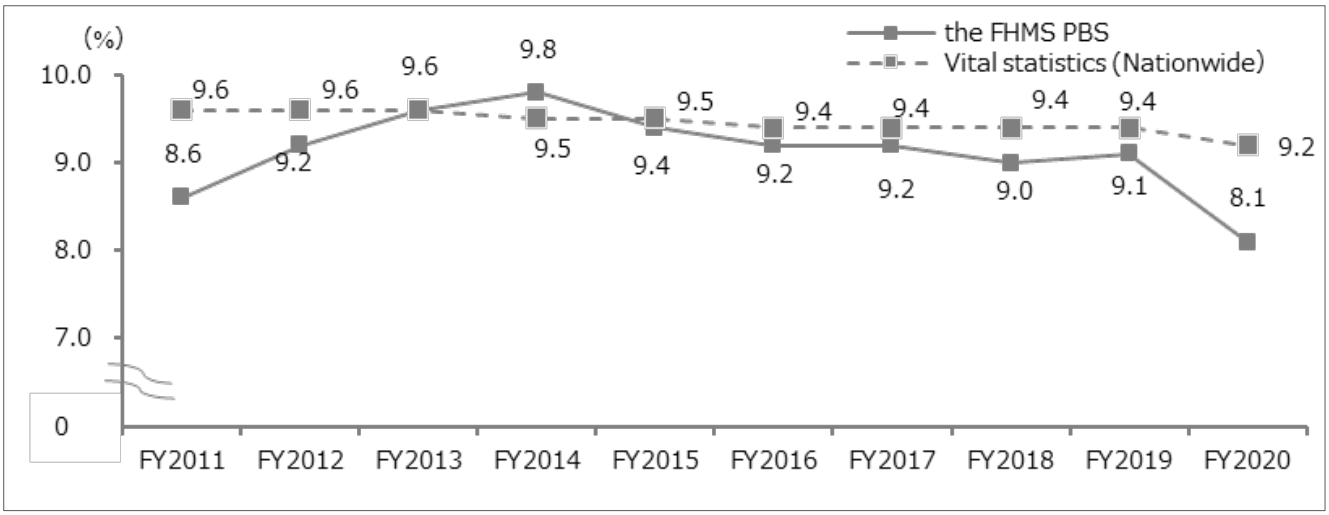
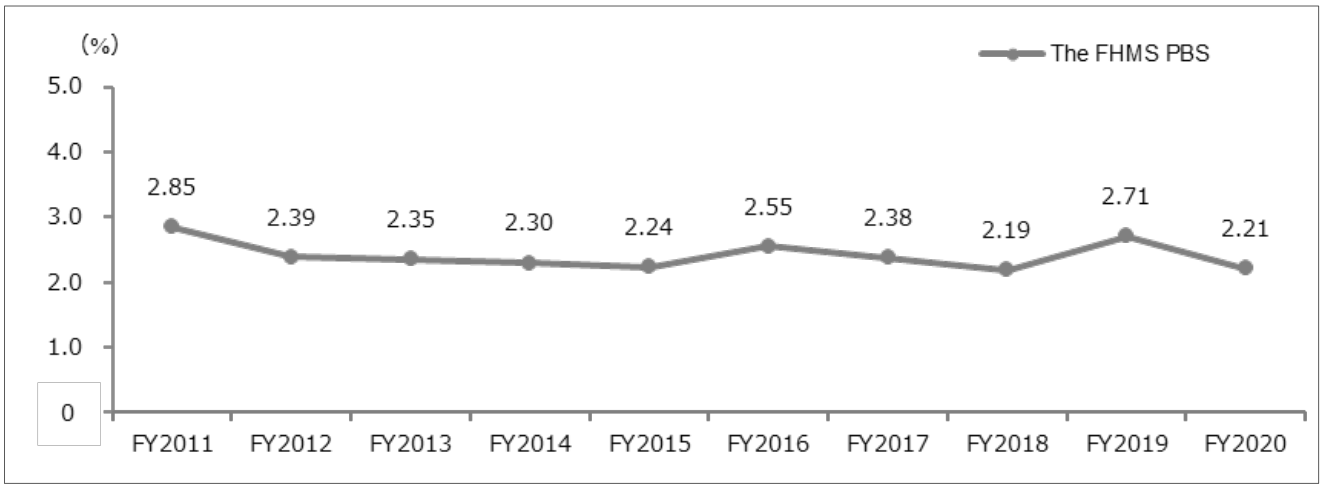


Figure 7 The percentage of low birth weight babies (Main Survey)



*The percentage of congenital anomalies identifiable at the time of birth is generally 2% to 3% (Guidelines for Obstetrical Practice in Japan: Obstetrics 2023")

Figure 8 The incidence of congenital anomalies (singleton) (Main Survey)

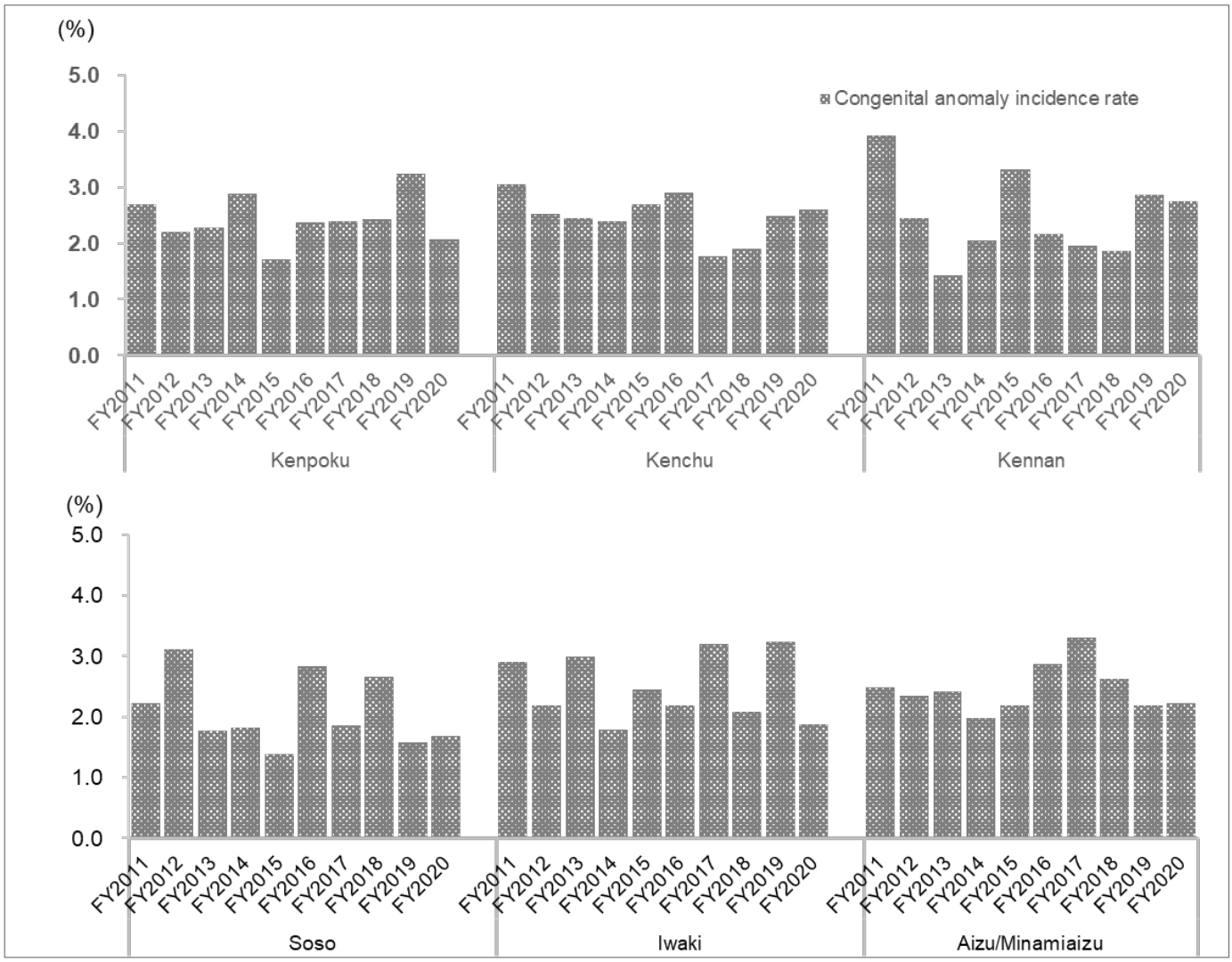


Figure 9 The incidence of congenital anomalies by region (singleton)

B. Mothers' mental health (percentage of those with depressive symptoms) (Figure 10)
The number of mothers who answered “yes” to either or both of the questions "Do you feel depressed?” and “Do you feel uninterested in things?" was rather large in the earlier surveys but has been decreasing thereafter. In the follow-up survey, the proportion with depressive tendencies was higher in the second survey than in the first among the 2012 participants.
The percentage of suspected postpartum depression cases in this survey was 13.6% in FY2011, 12.6% in FY2013, 11.1% in FY2017, and 10.0% in FY2020. (Data used for calculation: Mishina H, et al. Pediatr Int. 2009; 51: 48.)
According to the “Second Stage of Healthy Parents and Children 21 (National Campaign Plan for Maternal and Child Health),” the nationwide percentage of suspected postpartum depression assessed using the EPDS was 8.4% in FY 2013 and 9.8% in FY 2017.

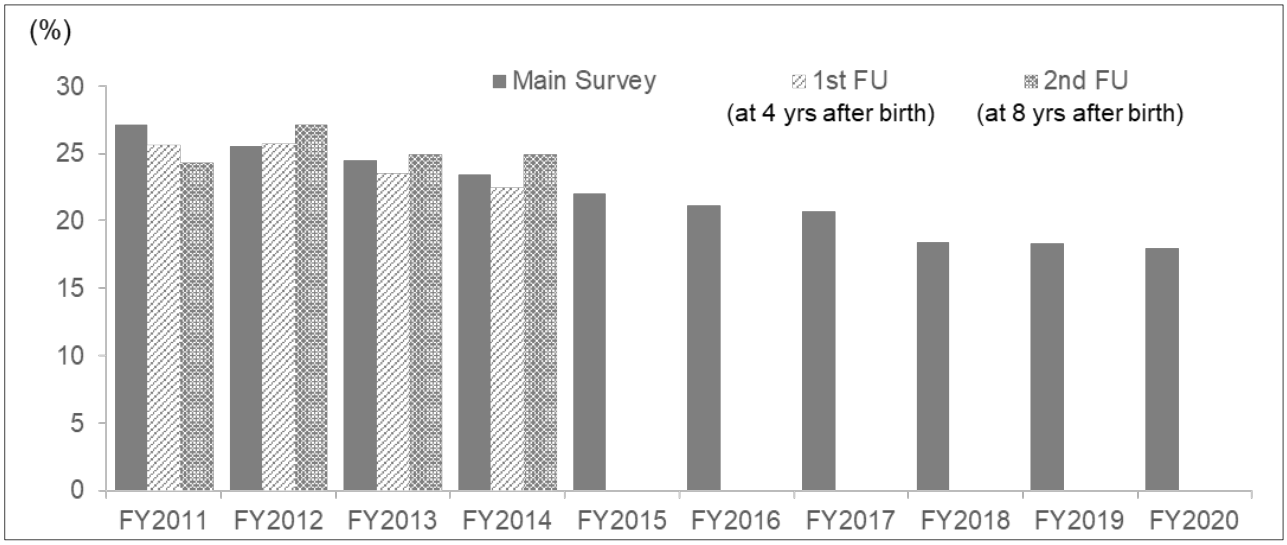


Figure 10 Changes in the percentages of those with depressive symptoms
(Main Survey and Follow-up Survey)

C. Care for pregnancy and delivery (Table 1)
The percentage of mothers unsatisfied with the perinatal care they received decreased over time after FY2012 but increased in the FY2020 survey.

Table 1 Percentage of those unsatisfied with perinatal care (Main Survey)

Survey year	Those who answered "no" or "not at all"
FY2011	Not applicable
FY2012	3.5%
FY2013	2.3%
FY2014	2.7%
FY2015	2.4%
FY2016	2.1%
FY2017	1.7%
FY2018	1.7%
FY2019	1.4%
FY2020	3.9%

D. Status of family life and child-rearing (percentages of mothers who are living as evacuees, and mothers not confident in child rearing) (Tables 2 and 3)

- The percentage of mothers who responded that they live as evacuees is decreasing yearly. (Table 2)
- The percentage of mothers who responded that they sometimes feel unconfident in child-rearing has remained slightly less than 20% since immediately after the disaster until FY2020 now. (Table 3)

Table 2 The percentage of those who live as evacuees (Main Survey)

Survey year	Those still under evacuation (in temporary and other type of housing)
FY2011	Not applicable
FY2012	7.7%
FY2013	5.5%
FY2014	4.9%
FY2015	3.8%
FY2016	3.4%
FY2017	2.3%
FY2018	1.8%
FY2019	1.6%
FY2020	1.2%

Table 3 The percentage of those who feel unconfident in child-rearing (Main Survey and Follow-up Survey)

Survey year	The Main Survey	The First Follow-up (FY2011 to FY2014)	The Second Follow-up (FY2011 to FY2014)
FY2011	Not applicable	-	-
FY2012	15.4%	-	-
FY2013	17.5%	-	-
FY2014	16.6%	-	-
FY2015	17.7%	15.8%	-
FY2016	16.6%	18.2%	-
FY2017	18.1%	16.7%	-
FY2018	17.7%	17.7%	-
FY2019	18.8%	-	19.1%
FY2020	17.5%	-	18.8%
FY2021	-	-	20.3%
FY2022	-	-	19.9%

Reference: According to the Ministry of Health, Labor and Welfare Scientific Research of 2013 “Research on the Final Evaluation and Issue Analysis of ‘Healthy Parents and Children 21’ and the Promotion of the Next National Health Campaign” (Zentaro YAMAGATA Group), the percentage of mothers who lack confidence in their parenting abilities at the 3- and 4-month checkup is 19.3%.

E. Anticipation for subsequent pregnancy and delivery (Table 4)
The percentage of mothers wishing to have another child was consistently over 50% from FY2012 to FY2020. In addition, the proportion of those who were worried about the effects of radiation as a reason for not wanting pregnancy and childbirth was below 1% from 2017 onwards.

Table 4 The percentage of those who anticipate another pregnancy and delivery (Main Survey)

Survey year	Those anticipating another pregnancy	Those not anticipating another pregnancy due to worries about radiation effects
FY2011	Not applicable	Not applicable
FY2012	52.9%	14.8%
FY2013	52.8%	5.6%
FY2014	57.1%	3.9%
FY2015	53.3%	1.6%
FY2016	54.6%	1.2%
FY2017	52.4%	0.8%
FY2018	52.2%	0.5%
FY2019	51.3%	0.5%
FY2020	50.0%	0.2%

Reference: The percentage of couples who have been married for less than 10 years and are planning to have children was 60% in the 14th (2010) National Fertility Survey (51% if only those with children were included), and 57% in the 15th (2015) National Fertility Survey (50% if they already have children).

F. Worries over radiation effects (Table 5)
The percentage of mothers who check-marked at least one question regarding worries over radiation effects has been decreasing year by year, and among such mothers, the percentage of those who responded that they have worries over children's health conditions has also been decreasing year by year.

Table 5 The percentage of those who check-marked the questions regarding worries over radiation effects (Follow-up Survey)

Respondents	Those who check-marked at least one for anxiety about radiation effects		Those who check-marked for child's health	
	First Follow-up	Second Follow-up	First Follow-up	Second Follow-up
FY2011 PBS respondents	94.2%	87.2%	79.5%	68.1%
FY2012 PBS respondents	90.9%	84.0%	68.7%	62.8%
FY2013 PBS respondents	87.5%	83.5%	66.3%	60.6%
FY2014 PBS respondents	85.4%	79.5%	63.3%	58.6%

G. The free comments (percentages of mothers who wrote comments and mothers who mentioned worries over radiation effects on fetuses and children, in particular) (Tables 6 and 7)
The percentage of mothers who wrote any free comments in the Main Survey for FY2011 was over 40%, but has since decreased, and has remained at around 13% since FY2013. (Table 6)
Of the free comments entries in this survey, the percentage of mothers mentioning “the effects of radiation on fetuses and children” was about 30% when the survey started. The proportion decreased yearly, falling below 1% in 2020. (Table 7)

Table 6 The number of mothers who wrote comments (Main Survey and Follow-up Survey)

Survey year	Main Survey		First Follow-up Survey		Second Follow-up Survey	
FY2011	3,722	(42.2%)	-	-	-	-
FY2012	1,481	(20.7%)	-	-	-	-
FY2013	867	(12.0%)	-	-	-	-
FY2014	745	(10.5%)	-	-	-	-
FY2015	1,101	(15.7%)	383	(15.0%)	-	-
FY2016	965	(13.3%)	186	(9.2%)	-	-
FY2017	799	(12.4%)	208	(7.7%)	-	-
FY2018	881	(13.4%)	198	(7.3%)	-	-
FY2019	818	(13.0%)	-	-	304	(12.9%)
FY2020	871	(13.8%)	-	-	248	(11.4%)
FY2021	-	-	-	-	300	(12.0%)
FY2022	-	-	-	-	288	(12.7%)

Table 7 The percentage of mothers mentioning “the effects of radiation on fetuses and children” in the free comment entry field

Survey year	Main Survey	The First Follow-up (FY2011 to FY2014)	The Second Follow-up (FY2011 to FY2014)
FY2011	29.6%	-	-
FY2012	26.4%	-	-
FY2013	12.9%	-	-
FY2014	9.5%	-	-
FY2015	5.2%	13.8%	-
FY2016	6.1%	12.4%	-
FY2017	4.8%	11.5%	-
FY2018	1.8%	7.1%	-
FY2019	2.1%	-	17.4%
FY2020	0.5%	-	14.9%
FY2021	-	-	9.0%
FY2022	-	-	9.4%

3-3. Results of support

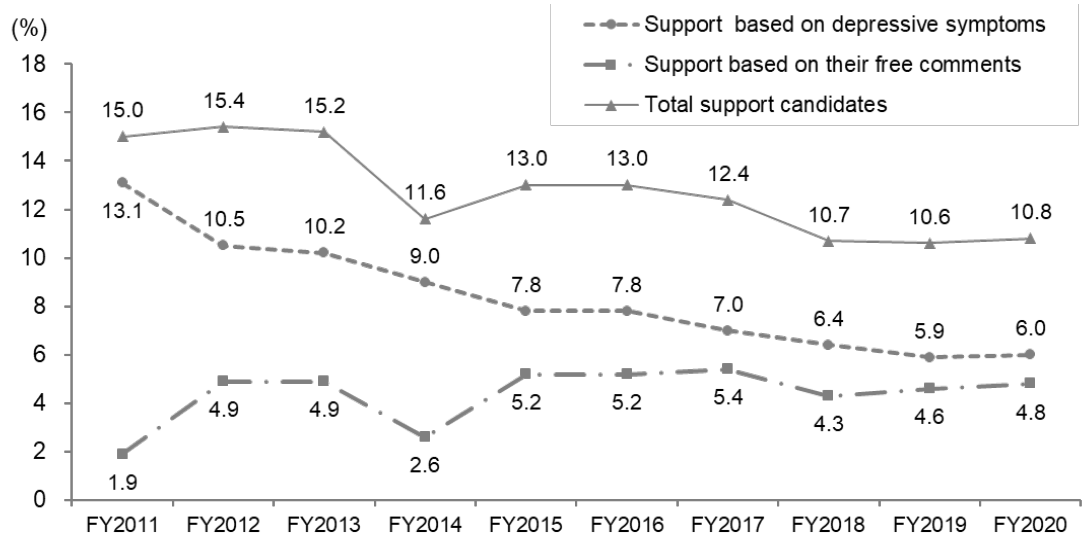
A. Support rate (Figures 11 and 12)

For those survey respondents who were identified as needing support based on the content of their responses, counseling and support were provided by dedicated midwives, public health nurses, etc., either by telephone or email.

Figure 11 shows the breakdown of the rate and number of mothers requiring support in this survey. From 2012, the scope of those eligible for support was broadened based on the free comment content. Through the end of FY2013, support was provided to more than 1,000 mothers, but after that, the rate of people requiring support in this survey generally showed a decreasing trend. In addition, the number of people needing support in the depression category in FY 2020 was 380, a decrease of about 30% from FY 2011 level.

Figure 12 shows the rate of mothers requiring support in the follow-up survey and its breakdown. The rate of people requiring support based on depression items tended to be higher in the second survey than in the first.

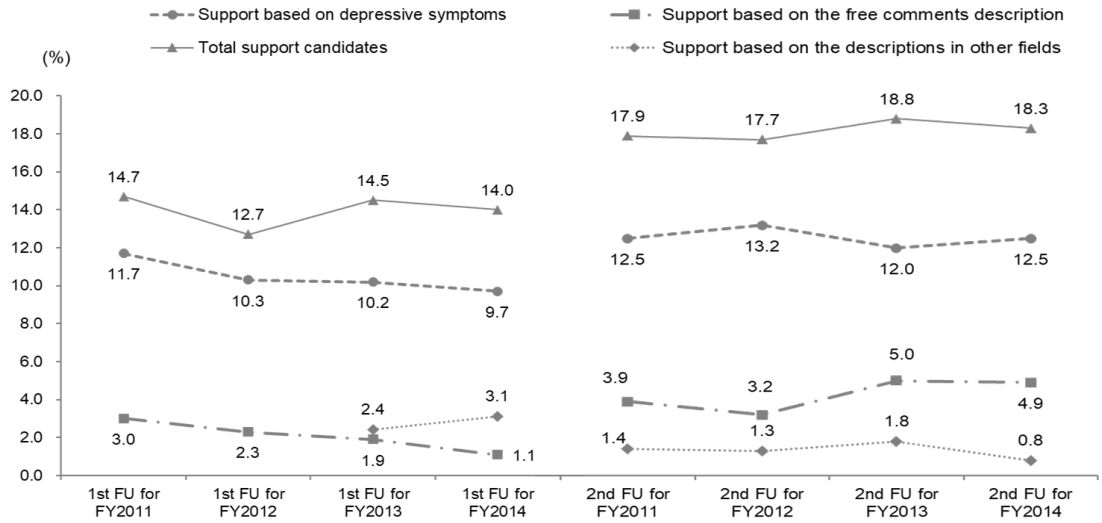
Note that, starting from the 1st Follow-up Survey of the respondents in FY 2013, those who described specific concerns in the “Other” field were also included for support and based on entries in the free comment entry field.



Survey Year		FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
Number of mothers w ho need support	based on depressive symptoms	1,224	751	744	645	549	573	449	424	376	380
	based on their free comments	177	353	357	185	364	378	350	287	292	308
	Total	1,401	1,104	1,101	830	913	951	799	711	668	688
Total respondents		9,316	7,181	7,260	7,132	7,031	7,326	6,449	6,649	6,328	6,359

*If a person fell under both the depression category and the free description category, they were counted in the number of people requiring support in the depression category

Figure 11 Percentage eligible for support provision and its breakdown (Main Survey)



		1st FU for FY2011 (in FY2015)	1st FU for FY2012 (in FY2016)	1st FU for FY2013 (in FY2017)	1st FU for FY2014 (in FY2018)	2nd FU for FY2011 (in FY2019)	2nd FU for FY2012 (in FY2020)	2nd FU for FY2013 (in FY2021)	2nd FU for FY2014 (in FY2022)
Number of mothers who need support	Based on depressive symptoms	299	209	277	265	295	287	299	284
	Based on their free comments	76	47	51	31	92	70	125	112
	Based on comments in other parts	—	—	65	84	34	29	45	18
	Total	375	256	393	380	421	386	469	414
Total respondents		2,554	2,021	2,706	2,719	2,354	2,178	2,492	2,266

*If a person fell under both the depression category and the free description category, they were counted in the number of people requiring support in the depression category

Figure 12 Percentage receiving support. and its breakdown (Follow-up Survey)

B. The details of consultations (Tables 8,9, and Figure 13)

In the Main Survey, major topics of telephone consultations varied from year to year, and in FY2011, the most common topic was “radiation effects and concerns”, but this proportion decreased over time (Table 8, Figure 13). From 2012 and onwards, the proportion of consultations regarding “the physical and mental health of mothers” and “child-rearing (related to daily life)” increased, and these topics have come to account for the majority of consultations (Table 8).

In the Follow-up Surveys, “mothers' physical and mental health” has consistently been the most common topic since the first follow-up survey for FY2011, which was launched in FY2015, and the proportion of consultations regarding “radiation effects and concerns” has decreased over time (Table 9).

Table 8 The details of telephone consultation (Min Survey)

Survey year	No. 1			Proportion of anxiety about radiation effects
	No. 1	No. 2	No. 3	
FY2011	Questions and anxiety about radiation effects 29.2%	Mother’s own physical and/or mental health 20.2%	Child rearing (daily life) 14.0%	29.2%
FY2012	Mother’s own physical and/or mental health 33.4%	Child rearing (daily life) 26.7%	Questions and anxiety about radiation effects 23.7%	23.7%
FY2013	Mother’s own physical and/or mental health 42.5%	Child rearing (daily life) 38.7%	Child’s physical and/or mental health 20.3%	17.1%
FY2014	Mother’s own physical and/or mental health 49.5%	Child rearing (daily life) 36.1%	Family life 20.5%	9.5%
FY2015	Mother’s own physical and/or mental health 53.1%	Child rearing (daily life) 40.9%	Family life 21.8%	5.9%
FY2016	Mother’s own physical and/or mental health 59.8%	Child rearing (daily life) 43.4%	Family life 19.5%	5.0%
FY2017	Mother’s own physical and/or mental health 55.6%	Child rearing (daily life) 51.8%	Family life 16.4%	4.1%
FY2018	Mother’s own physical and/or mental health 53.2%	Child rearing (daily life) 41.4%	Child’s physical and/or mental health 16.0%	3.4%
FY2019	Mother’s own physical and/or mental health 48.1%	Child rearing (daily life) 42.5%	Child’s physical and/or mental health 12.1%	1.5%
FY2020	Child rearing (daily life) 54.5%	Mother’s own physical and/or mental health 52.0%	Family life 11.2%	0.6%

*Multiple answers accepted

Table 9　The details of the telephone consultation (Follow-up Survey)

Survey Year		No. 1	No. 2	No. 3	No. 4	No. 5
First Follow-up for FY2011 (in FY2015)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 34.4%	Questions and anxiety about radiation effects 25.6%	Child rearing (daily life) 21.6%	Child's physical and/or mental health 18.1%	Family life 13.9%
First Follow-up for FY2012 (in FY2016)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 44.9%	Child rearing (daily life) 23.0%	Child's physical and/or mental health 22.7%	Questions and anxiety about radiation effects 13.3%	Family life 10.5%
First Follow-up for FY2013 (in FY2017)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 36.0%	Child rearing (daily life) 27.7%	Family life 14.6%	Questions and anxiety about radiation effects 13.1%	Child's physical and/or mental health 9.8%
	Description or comments in the other fields or spaces	Child rearing (daily life) 46.2%	Questions and anxiety about radiation effects 26.2%	Child's physical and/or mental health 9.2%	Mother's own physical and/or mental health 6.2%	Family life 3.1%
First Follow-up for FY2014 (in FY2018)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 26.4%	Child rearing (daily life) 12.2%	Family life 6.4%	Questions and anxiety about radiation effects 5.7%	Child's physical and/or mental health 5.4%
	Description or comments in the other fields or spaces	Questions and anxiety about radiation effects 22.6%	Child rearing (daily life) 10.7%	Child's physical and/or mental health 9.5%	Mother's own physical and/or mental health 4.8%	Family life 3.6%
Second Follow-up for FY2011 (in FY2019)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 29.2%	Child rearing (daily life) 17.8%	Child's physical and/or mental health 10.1%	Questions and anxiety about radiation effects 6.5%	Family life 5.2%
	Description or comments in the other fields or spaces	Child's physical and/or mental health 23.5%	Child rearing (daily life) 17.6%	Mother's own physical and/or mental health 11.8%	Questions and anxiety about radiation effects 8.8%	Family life / evacuation life 2.9%
Second Follow-up for FY2012 (in FY2020)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 33.9%	Child rearing (daily life) 19.0%	Child's physical and/or mental health 12.9%	Questions and anxiety about radiation effects 7.6%	Family life 5.6%
	Description or comments in the other fields or spaces	Mother's own physical and/or mental health 20.7%	Child rearing (daily life) 17.2%	Questions and anxiety about radiation effects 17.2%	Child's physical and/or mental health 13.8%	-
Second Follow-up for FY2013 (in FY2021)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 37.7%	Child rearing (daily life) 27.8%	Child's physical and/or mental health 14.4%	COVID-19 related issues 9.9%	Family life 7.5%
	Description or comments in the other fields or spaces	Child rearing (daily life) 31.1%	Child's physical and/or mental health 22.2%	Mother's own physical and/or mental health 15.6%	Questions and anxiety about radiation effects 11.1%	COVID-19 related issues 2.2%
Second Follow-up for FY2014 (in FY2022)	Depression-related questions and free comments entry	Mother's own physical and/or mental health 33.8%	Child rearing (daily life) 26.8%	Child's physical and/or mental health 14.4%	Family life 8.3%	COVID-19 related issues 8.1%
	Description or comments in the other fields or spaces	Mother's own physical and/or mental health 38.9%	Child's physical and/or mental health 38.9%	Child rearing (daily life) 22.2%	Questions and anxiety about radiation effects 11.1%	-

*Multiple answers accepted

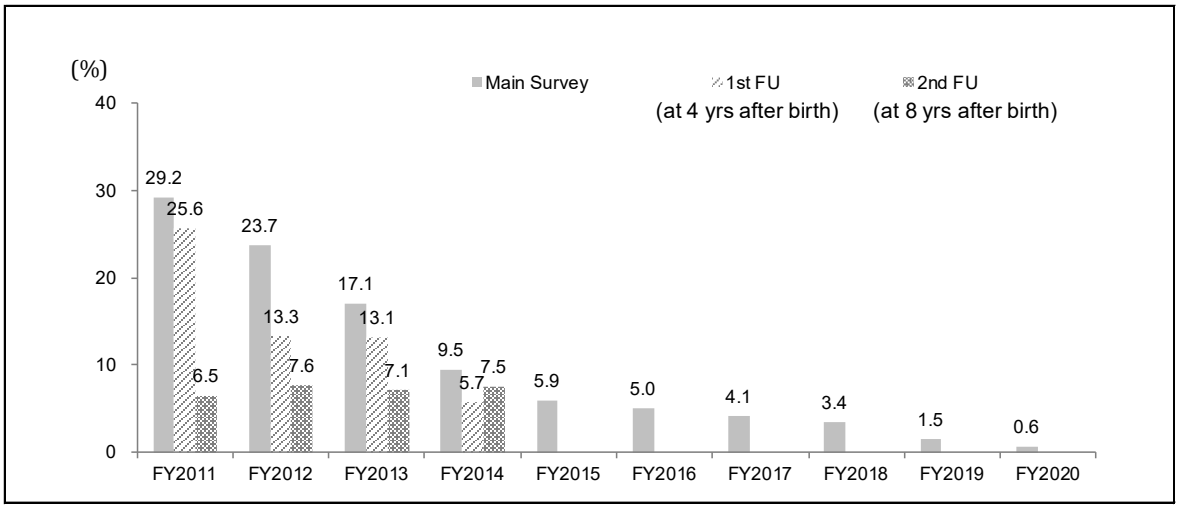


Figure 13 Consultations about radiation effects (both the Main Survey and Follow-up Survey)

C. Referral to other organizations/institutions (Table 10, Figure 14)

If the responses to the Survey indicated that there was an urgent need to connect the person with their local authorities, such as worsening mental health symptoms, difficulties in child-rearing, child abandonment, abuse or domestic violence, etc., we asked the local authorities to contact the respondents after consulting with the committee member in charge of the “Pregnancy and Birth Survey” and obtaining their consent.

Referred to:	Municipal maternal and child health section			FMU's radiation consultation desk			FMU's Mental Health Support Team			FMU's specialized physicians		
	Main	1st FU	2nd FU	Main	1st FU	2nd FU	Main	1st FU	2nd FU	Main	1st FU	2nd FU
FY2011	2	–	–	7	–	–	4	–	–	2	–	–
FY2012	6	–	–	1	–	–	14	–	–	0	–	–
FY2013	1	–	–	0	–	–	6	–	–	1	–	–
FY2014	3	–	–	0	–	–	1	–	–	0	–	–
FY2015	1	0	–	1	1	–	0	0	–	0	0	–
FY2016	8	0	–	0	0	–	5	0	–	0	0	–
FY2017	4	2	–	0	0	–	2	1	–	0	0	–
FY2018	3	0	–	0	0	–	3	3	–	1	0	–
FY2019	0	–	0	0	–	0	4	–	7	0	–	0
FY2020	2	–	0	0	–	0	7	–	4	0	–	1
FY2021	–	–	0	–	–	1	–	–	1	–	–	0
FY2022	–	–	0	–	–	0	–	–	1	–	–	0

*Main: Main Survey, FU: Follow-up Survey

*FMU's Mental Health Support Team (*KOKOKARA* Support Team): A team consists of licensed clinical psychologists and public health nurses who provide consultation and support to people who need support on mental health and lifestyle habits.

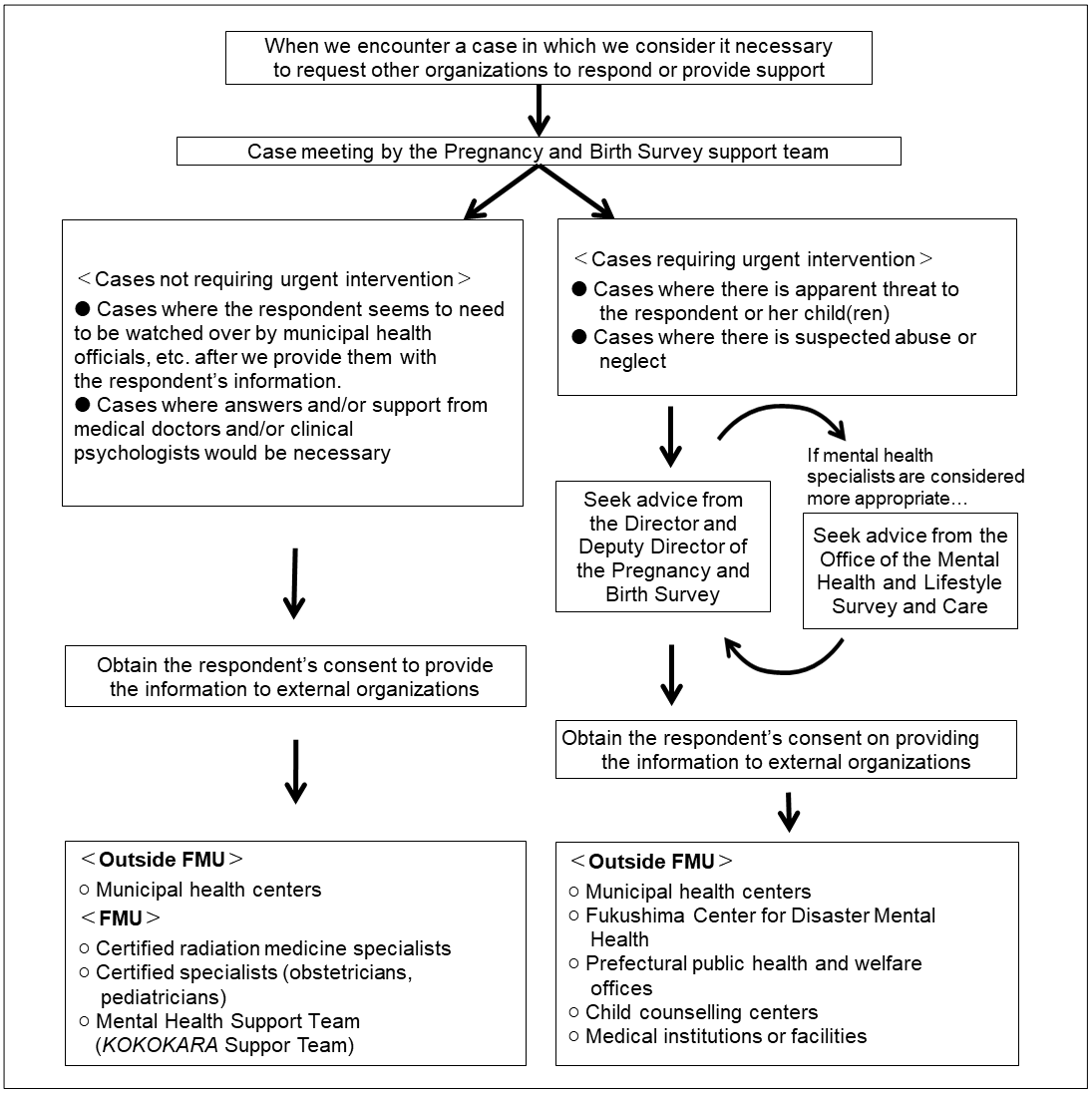


Figure 14 Flow chart for referring to other institutions or organizations

4. Publication of Survey results and feedback to communities

- The latest survey results are made available on the website of the Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University.
- From FY2014 to FY2017, we held briefing sessions to explain survey results in five regions of the prefecture (Kenpoku, Kennan, Soso, Aizu, and Iwaki). Furthermore, since FY2015, we have summarized survey results for public health nurses, etc. at meetings held by the prefectural government for personnel in charge of maternal and child health in all municipalities.
  Since FY2019, we have visited 13 municipalities regularly designated as evacuation zones after the disaster and individually reported the survey results.
- We prepared a leaflet to outline the survey and explain the outcomes and sent copies together with survey sheets to all intended survey respondents. We also delivered them to municipalities' obstetrics and gynecology clinics and other medical facilities.
- At the public symposium hosted by the Fukushima Medical Association and the "*Iki Iki Kenko Zukuri (Live with Vitality) Forum*" hosted by the FMU Health Promotion Center, we displayed panels showing the survey results and provided leaflets. In addition, the Center's X (formerly Twitter) official account has been posting summaries of survey results from pregnant and postpartum women since July 2023.
- Since 2021, leaflets containing survey results and information on radiation have been created for expectant mothers and others. These have been distributed through relevant organizations such as municipalities' obstetricians and gynecologists.

5. Initiatives to improve response rates

- To encourage non-respondents to complete the survey, we sent reminders and resent questionnaires.
- We requested municipal offices to include information about the Survey in their newsletters and PR magazines.
- In FY2014, we collaborated with one municipality in each of three areas of Fukushima Prefecture - Hamadori, Nakadori, and Aizu - to conduct a questionnaire survey at child health check venues. The survey covered approximately 100 mothers of children aged 3 to 4 months (approximately 30 to 40 mothers per municipality). The survey inquired about the volume and content of the questionnaire form, and we revised the items and reduced the burden on respondents to make it easier to complete.
- Furthermore, since FY2014, as this survey includes a question about the one-month checkup after childbirth, the response deadline was adjusted to align the timing with the one-month postpartum checkup to ensure timely completion.
- In 2016, we introduced online responses to enhance user convenience. The combination of paper and online responses led to an increase in the response rate. Both methods of response have their advantages. However, it was found that respondents who answered on paper were more likely to express their feelings and opinions more freely.

6. The roles this survey has played

6-1 Demonstrating the safety of pregnancy and childbirth in the prefecture

- The year-on-year changes in the prefecture's rates of premature birth, low birth weight, and congenital anomalies were clarified, and it was demonstrated that there is no difference between the observed data and government statistics or commonly reported data. This indicates that pregnancy and childbirth in the prefecture are safe.

6-2 Watching over the health of pregnant and nursing mothers through the survey

- By conducting the survey every year, we have helped with watching over pregnant and nursing mothers continuously in the prefecture. This has also enabled us to gain a deeper understanding of the situation of each individual, which in turn has provided us with an opportunity to provide concrete support.

6-3 Implementation of interactive support

- As a result of the survey, midwives, public health nurses, etc. reached out to individuals identified as support-requiring mothers (including those who may have difficulty acting on their own), gathered information about their current situation, and provided support tailored to their specific needs.
- We have provided an environment that made it easy to seek advice or support through a dedicated telephone line or email account, and we responded to consultations from the support-requiring mothers as needed.

6-4 The establishment of a system of collaboration and assistance with pertinent obstetrics and gynecology organizations

- We requested assistance from obstetrics-related medical institutions in distributing the survey forms. For those who required additional support beyond obstetrics and gynecology, we provided referrals to specialty physicians and related institutions, which led to ongoing support.
- The Midwives Association encouraged the intended participants to respond to the survey and in addition, we have established a consultation system for those who had experienced stillbirths.
- Furthermore, we aimed to strengthen collaboration with medical facilities by informing them of mothers' requests entered in survey sheets via the Fukushima Society of Obstetrics and Gynecology and the Fukushima Obstetrics and Gynecology Association.

6-5 **Close collaboration with municipalities**

We have referred mothers who need urgent measures or continued support. as identified from their survey responses or the results of support by phone to responsible personnel in their respective municipalities and have collaborated with municipal staff to provide support.

6-6 **Information sharing on the current status of and issues related to maternal and child health (with the prefecture, municipalities, and related organizations)**

- From 2014, the survey results were presented by doctors at meetings to report the results of the survey and at prefecture-sponsored conferences for those in charge of maternal and child health services in municipalities, targeting public health nurses, nurses, and other relevant agencies in Fukushima Prefecture. In addition, from 2019, periodic meetings with relevant departments of 13 municipalities in the Hamadori area were held to explain the specific situation of each municipality, share information, and exchange opinions.
- Upon requests from municipalities, we provided survey results for the respective municipalities separately.

6-7 **Response to anxieties about radiation**

- From the first Main Survey in FY2011 until the FY2013 Main Survey, we prepared a support book to help children and their parents/guardians maintain good physical and mental health and sent copies to the intended survey respondents.
- From the FY2014 main and follow-up surveys, a leaflet was prepared to provide an overview of the surveys and explain the results. Copies were sent out together with the survey sheets. We also sent copies to cooperative medical facilities and relevant organizations in the prefecture to disseminate the survey results.
- Since FY2021, we have been creating leaflets that summarize the survey, present the results, and provide information on radiation. These are distributed to pregnant women and others expecting to give birth through municipalities, Obstetrics and Gynecology-related medical institutions, and other relevant organizations.

6-8 **Support to supporters**

To further improve the skills of the midwives or public health nurses who provide telephone support, and to respond to the concerns and questions of those seeking support, we held regular training sessions to provide specialized knowledge and case studies on telephone support, as well as training sessions on timely topics such as radiation, the thyroid, and COVID-19 infection, to respond to a wide range of consultations.

6-9 **Noteworthy achievements**

- In terms of pregnancy outcomes, the prefecture's rates of premature birth, low birth weight, and congenital anomalies did not differ from government statistics or commonly reported data. This indicates the safety of pregnancy and childbirth in the prefecture.
- We have been able to maintain high response rates. There were criticisms about the survey, but there were also words of thanks and encouraging remarks. We have simplified questions introduced an online response system and secured enough space for free comments entry since the first survey. Additionally, we have provided support by phone or by email. All these efforts are considered to have contributed to gaining people's approval for the survey.
- By participating in periodic meetings of 13 municipalities in the Hamadori area including those designated as evacuation zones, and meeting face-to-face with the relevant municipal officials to explain the survey results directly, we were able to raise awareness of the survey. This also led to closer collaboration with the municipalities. We received valuable feedback from maternal and child health care workers from the participating municipalities including, "It was helpful to understand the current situation in Fukushima Prefecture," or "I can use this information when responding to childcare consultations, telephone consultations, occasional consultations at health check-ups, or home visits.

7. Other remark

Concerning the surveys conducted in FY2020, and after the second follow-up survey covering respondents from FY2012, it is necessary to note that the spread of COVID-19 infections may have influenced the responses.

Summary of published articles

1 The percentages of stillbirths (0.25%), preterm births (4.4%), low birth-weight babies (8.7%), and congenital anomalies (2.72%) were almost the same as the national averages of those percentages in Japan.
Pregnancy and Birth Survey after the Great East Japan Earthquake and Fukushima Daiichi Nuclear Power Plant Accident in Fukushima Prefecture
Fujimori K, et al. Fukushima Journal of Medical Science. 2014;60(1):75-81.

2 Mothers found to have depressive symptoms accounted for 28% throughout the prefecture. The percentage was high for mothers in the Soso district and those who changed obstetric care facilities, but was low for mothers in the Iwaki and Aizu districts.
Immediate effects of the Fukushima nuclear power plant disaster on depressive symptoms among mothers with infants: A prefectural-wide cross-sectional study from the Fukushima Health Management Survey
Goto A, et al. BMC Psychiatry. 2015 Mar 26;15:59.

3 In Fukushima, depressive symptoms were observed more frequently among mothers who experienced a miscarriage or stillbirth than among those who had a live birth.
IMMEDIATE MENTAL CONSEQUENCES OF THE GREAT EAST JAPAN EARTHQUAKE AND FUKUSHIMA NUCLEAR POWER PLANT ACCIDENT ON MOTHERS EXPERIENCING MISCARRIAGE, ABORTION, AND STILLBIRTH: THE FUKUSHIMA HEALTH MANAGEMENT SURVEY
Komiya H, et al. Fukushima Journal of Medical Science.. 2015;61(1):66-71.

4 Changes in obstetric care facilities due to medical reasons often result in preterm births. However, no association was observed between preterm births and changes in obstetric care facilities by mothers by themselves.
Effect of medical institution change on gestational duration after the Great East Japan Earthquake: The Fukushima Health Management Survey
Suzuki K, et al. Journal of Obstetrics and Gynecology Research. 2016 Dec;42(12):1704-1711.

5 No influence of the earthquake was observed in the growth of one-month-old babies. In the Soso area, the percentage of mothers using powdered milk showed an increasing trend over time after the earthquake.
Impact of the Great East Japan Earthquake on feeding methods and newborn growth at 1 month postpartum: results from the Fukushima Health Management Survey.
Kyozuka H, et al. Radiation and Environmental Biophysics. 2016 May;55(2):139-46.

6 A significantly larger percentage of mothers who used to live in the evacuation zone and who could not receive prenatal health checks as scheduled used powdered milk due to worries over radioactive contamination.
Factors Associated with Infant Feeding Methods after the Nuclear Power Plant Accident in Fukushima: Data from the Pregnancy and Birth Survey for the Fiscal Year 2011 Fukushima Health Management Survey.
Ishii K, et al. Maternal and Child Health Journal. 2016 Aug;20(8):1704-12.

7 Women who became pregnant within six months after the earthquake showed higher percentages of preterm births and low birth-weight babies, and cases of respiratory diseases and mental disorders increased.
Obstetric outcomes in women in Fukushima prefecture during and after the Great East Japan Earthquake and Fukushima nuclear power plant accident: The Fukushima Health Management Survey
Hayashi M, et al. Open Journal of Obstetrics and Gynecology, 2016 Nov;6(12):705-713

8 A significantly larger percentage of mothers who were forced to change prenatal health checks and obstetric care facilities, those with high-risk pregnancies, those who had a Caesarean, and those who gave birth to their first babies are receiving support by phone. They use powdered milk more often than those who do not receive support, worrying about radiation effects.
Characteristics of Mothers in Need of Support by Phone after the Accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station and the Details of Consultations – Based on the Pregnancy and Birth Survey, Fukushima Health Management Survey in FY2011 – Kayoko Ishii, et al., Japan Society of Maternal Health. 2017;57(4):652-659.

9 Mothers whose babies were SGA (small-for-gestational-age) accounted for 5.6%. Areas where they lived at the time of the accident at the NPS and the timing of getting pregnant did not exert any influence on the occurrence of SGA.

Influence of the Great East Japan Earthquake and the Fukushima Daiichi Nuclear Disaster on the Birth Weight of Newborns in Fukushima Prefecture: Fukushima Health Management Survey.
Yasuda S, et al. Journal of Maternal-Fetal & Neonatal Medicine. 2017 Dec;30(24):2900-2904

10 The use of ART temporarily decreased in Fukushima immediately after the Great East Japan Earthquake but no long-term influence of the earthquake has been observed.

Impact of the Great East Japan Earthquake and Fukushima nuclear power plant accident on assisted reproductive technology in Fukushima prefecture: The Fukushima Health Management Survey
Hayashi M, et al. Journal of Clinical Medicine Research. 2017 Sep;9(9):776-781.

11 A refugee life and worries over radiation were associated with depressive symptoms but were not related to low confidence in child-rearing.

The Fukushima Nuclear Accident Affected Mothers' Depression but Not Maternal Confidence.
Goto A, et al. Asia Pacific Journal of Public Health. 2017 Mar;29(2_suppl):139S-150S.

12 The percentages of those aged 30 or older and those with depressive symptoms were higher among mothers who wrote any free comments in the survey sheet than those who did not. Mothers' concerns shifted from radiation-related problems to their own physical and mental health.

Fukushima mothers' concerns and associated factors after the Fukushima nuclear power plant disaster: analysis of qualitative data from the Fukushima Health Management Survey 2011–2013
Ito S, et al. Asia Pacific Journal of Public Health. 2017 Mar;29(2_suppl):151S-160S.

13 Major research papers based on the results of the surveys for four years were compiled.

Pregnancy and Birth Survey of the Fukushima Health Management Survey: Review of four surveys conducted annually after the disaster
Ishii K, et al. Asia Pacific Journal of Public Health. 2017 Mar;29(2_suppl):56S-62S. Review.

14 41.2% of the surveyed mothers felt worries due to prejudice and discrimination and their such worries are especially associated with their age, whether they have depressive symptoms, whether they received prenatal health checks as scheduled, and whether they have developed any new diseases or symptoms after the earthquake.

Overview of the Pregnancy and Birth Survey section of the Fukushima Health Management Survey: Focusing on mothers' anxieties toward radioactive exposure
Ito S, et al. Journal of the National Institute of Public Health 2018 67 (1) 59-70

15 Mothers who used to live in the evacuation zone and those still living a refugee life are more likely to show depressive tendencies significantly. In particular, mothers who are living a refugee life separately from some of their family members and those who did not respond that they have good communication with their family members showed a higher percentage of having depressive symptoms.

Consideration of Refugee Life and Mental Health of Pregnant Women Caused by the Great East Japan Earthquake
Ota Misao, et al., Journal of the Japan Maternal and Infant Caring Association, 2019;12(2):21-31.

16 Pregnant women who were in later pregnancy at the time of the earthquake showed increased risks of hypertensive disorders of pregnancy.

The effect of the Great East Japan Earthquake on Hypertensive Disorders during pregnancy: A study from the Fukushima Health Management Survey
Kyozuka H, et al. Journal of Maternal-Fetal & Neonatal Medicine. 2020 Dec;33(24):4043-4048.

17 In the case of mothers having only one child, worries over radiation are associated with their reluctance to have another child.

Factors associated with intention of future pregnancy among women affected by the Fukushima Nuclear Accident: Analysis of Fukushima Health Management Survey Data from 2012 to 2014
Goto A, et al. Journal of Epidemiology. 2019 Aug 5;29(8):308-314

18 The response rate has been raised by combining a paper-based and an online survey. Respondents to the paper-based survey generally expressed their feelings and opinions more clearly.
Development and Implementation of an Internet Survey to Assess Community Health in the Face of a Health Crisis: Data from the Pregnancy and Birth Survey of the Fukushima Health Management Survey, 2016
Nakano H, et al. International Journal of Environmental Research and Public Health. 2019 Jun 1;16(11). pii: E1946.

19 Over the past 7 years, no significant differences were seen in the incidence of stillbirths. preterm births, low birth weight babies, and congenital anomalies between the observed data and national data of government statistics.
Trends in pregnancy and birth after the Great East Japan Earthquake and Fukushima Daiichi nuclear power plant accident in the Fukushima prefecture: A 7-year survey
Fujimori K, et al. Health Effects of the Fukushima Nuclear Disaster 2022, Pages 81- 98.

20 While there was an association between mothers' concerns about radiation and their tendency to be depressed, there was no change in their confidence in parenting. Mothers who felt anxious about the COVID-19 pandemic took preventive measures.
A mother's work is to worry: Accepting maternal concerns during a health crisis
Goto A, et al. Health Effects of the Fukushima Nuclear Disaster 2022, Pages 319-329.

21 Although there were significant differences in the incidence of preterm birth and low birth weight babies depending on the region within Fukushima Prefecture, there were no observed changes over time in the incidence of preterm birth, low birth weight babies, or birth defects in newborns in Fukushima Prefecture.
The Effects of the Great East Japan Earthquake on Perinatal Outcomes: Results of the Pregnancy and Birth Survey in the Fukushima Health Management Survey
Kyozuka H, et al. Journal of Epidemiology. 2022;32(Suppl12):S57-S63.

22 The findings from eight years of the Main Survey and the subsequent Follow-up Survey four years after childbirth showed that the rate of depression among mothers decreased over time.
Postpartum Mental Health of Mothers in Fukushima: Insights From the Fukushima Health Management Survey's 8-year Trends
Ishii K, et al. Journal of Epidemiology. 2022;32(Suppl12):S64-S75.

23 External exposure doses due to the Fukushima Daiichi Nuclear Power Plant accident were not found to be related to the occurrence of congenital anomalies, low birth weight babies, fetal growth retardation, or preterm births.
Effects of External Radiation Exposure on Perinatal Outcomes in Pregnant Women After the Fukushima Daiichi Nuclear Power Plant Accident: the Fukushima Health Management Survey
Yasuda S, et al. Journal of Epidemiology. 2022;32(Suppl12):S104-S114.

24 Among mothers who previously smoked, 13.1% of them relapsed from pregnancy to early parenthood. Regardless of the timing of smoking cessation, younger age was associated with smoking relapse.
Factors Associated With Smoking Relapse Among Women in Japan From Pregnancy to Early Parenthood
Mori M, et al. Journal of Obstetric, Gynecologic & Neonatal Nursing. 2022 Jul;51(4):428-440.

25 Although a notable difference was observed in certain regions of Fukushima Prefecture, there was no significant trend in the incidence of preterm births, low birth weight babies, or congenital anomalies in Fukushima Prefecture as a whole.
Eight-Year Trends in the Effect of the Great East Japan Earthquake on Obstetrics Outcomes: A Study from the Fukushima Health Management Survey
Kyozuka H, et al. Life (Basel). 2023 Aug;13(8):1702.