

Basic Survey (Radiation Dose Estimates)

1. Response Rates and Radiation Dose Estimates

1.1 Response Rates

The overall effective response rate to the Basic Survey (radiation dose estimates), which targeted the entire population of Fukushima Prefecture, was 23.2% (477,121/2,056,994) as of 31 January 2013. Although the response rate was higher (56.7%) in the preceding survey, which targeted high-priority areas (Yamakiya of Kawamata, Namie and Iitate), the response rate of the full-scale survey was 22.7% (Table 1). Regional variations in response rates were also observed, ranging from 13%–15% in Aizu and Minami-aizu to 40% in Soso area (Fig 1).

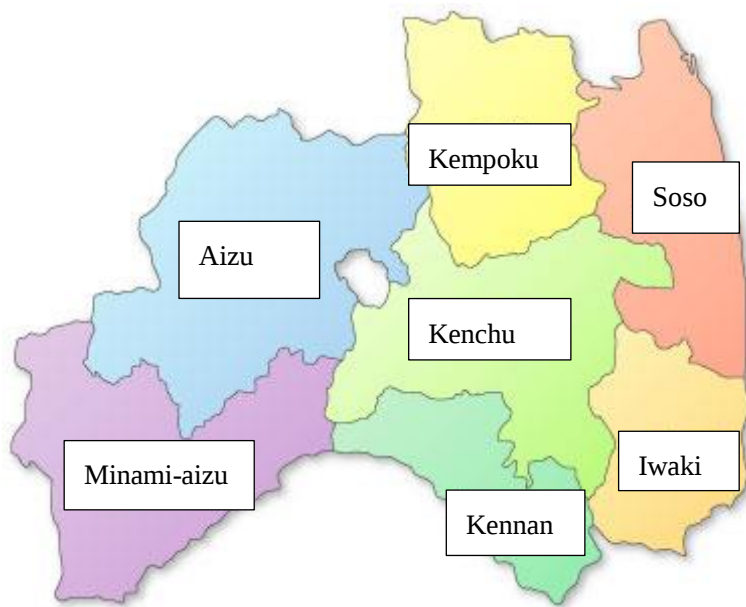
1.2 Radiation Dose Estimates

Recorded movements of respondents are converted to digital data, and effective external cumulative doses are calculated using the dose calculation system developed by the National Institute of Radiological Sciences. Doses have been estimated for 394,369/477,121 respondents (82.7%) as of 31 January 2013 (Table 1), and the results have been returned to 361,752 respondents.

Table 1		Response rates to the Basic Survey					As of 31 January 2013	
		Target population	Response	Response rate	Completed dose estimation	Proportion	Returned results	Proportion
		a	b	c=b/a	d	e=d/b	f	g=f/b
Preceding survey	Yamakiya of Kawamata, Namie and Iitate	29,044	16,473	56.7%	15,934	96.7%	15,844	96.2%
Full-scale survey	Kempoku	504,291	132,249	26.2%	112,731	85.2%	103,151	78.0%
	Kenchu	560,116	115,177	20.6%	96,364	83.7%	88,873	77.2%
	Kennan	152,776	26,680	17.5%	22,195	83.2%	20,826	78.1%
	Aizu	267,696	40,215	15.0%	31,642	78.7%	26,185	65.1%
	Minami-aizu	30,831	4,126	13.4%	3,143	76.2%	3,044	73.8%
	Soso	168,409	68,879	40.9%	51,054	74.1%	47,900	69.5%
	Iwaki	343,831	73,322	21.3%	61,306	83.6%	55,929	76.3%
Sub total		2,027,950	460,648	22.7%	378,435	82.2%	345,908	75.1%
Total		2,056,994	477,121	23.2%	394,369	82.7%	361,752	75.8%

* Areas covered by the preceding survey (Kawamata of Kempoku, Namie and Iitate of Soso) are not included in the full scale survey.

Fig 1. Fukushima Prefecture Area Map



1.3 Response Rates (Visitors)

The survey questionnaire was distributed upon request to non-residents who were visiting or staying in Fukushima Prefecture at the time of the accident. Of 2,036 responses, doses have been estimated for 1,474 respondents (72.4%), and the results shall be returned accordingly (Table 2).

Table 2		Response rates to the Basic Survey (visitors)			As of 31 January 2013	
Number of request	Response	Response rates	Completed dose estimation	Proportion	Returned results	Proportion
a	b	c=b/a	d	e=d/b	f	g=f/b
3,771	2,036	54.0%	1,474	72.4%	3	0.1%

1.4 Responses which require following-up accounted for 76,000 (16%) of the total number of responses.

2. Results of Radiation Dose Estimates (Preceding Survey and Full-Scale Survey)

Radiation doses for a total of 394,369 residents have been estimated to date. The results for 386,572 respondents (excluding radiation workers) suggested that the doses for more than 90% of the respondents were <2 mSv in Kempoku and Kenchu areas. The doses for approximately 91% of the respondents in Kennan area and more than 99% of those in Aizu and Minami-aizu were <1 mSv. Doses for 78% of respondents in Soso area and more than 99% of respondents in Iwaki were also <1 mSv (Table 3).

Table 3		Estimated external radiation doses in the first four months (preceding survey and full-scale survey)																	As of 31 January 2013	
Effective Dose (mSv)	Total	Excluding radiation workers				By region (excluding radiation workers)														
						Kempoku *		Kenchu		Kennan		Aizu		Minami-aizu		Soso **		Iwaki		
<1	261,352	256,281	66.3%	95.0%	99.8%	36,550	32.6%	56,899	59.7%	20,073	91.4%	31,217	99.7%	3,097	99.4%	48,734	77.9%	59,711	99.3%	
1-2	112,831	110,894	28.7%			65,061	58.0%	33,306	34.9%	1,882	8.6%	84	0.3%	19	0.6%	10,125	16.2%	417	0.7%	
2-3	17,019	16,726	4.3%			10,096	9.0%	4,926	5.2%	8	0.0%	0	-	0	-	1,677	2.7%	19	0.0%	
3-4	1,239	1,181	0.3%			346	0.3%	218	0.2%	0	-	1	0.0%	0	-	613	1.0%	3	0.0%	
4-5	564	532	0.1%	0.2%		0.2%	34	0.0%	3	0.0%	0	-	0	-	0	-	495	0.8%	0	-
5-6	438	394	0.1%				18	0.0%	1	0.0%	0	-	0	-	0	-	375	0.6%	0	-
6-7	246	220	0.1%				5	0.0%	0	-	0	-	0	-	0	-	215	0.3%	0	-
7-8	136	111	0.0%				1	0.0%	0	-	0	-	0	-	0	-	110	0.2%	0	-
8-9	102	76	0.0%				0	-	0	-	0	-	0	-	0	-	76	0.1%	0	-
9-10	57	39	0.0%				0	-	0	-	0	-	0	-	0	-	39	0.1%	0	-
10-11	62	40	0.0%	0.0%	0.0%		0	-	0	-	0	-	0	-	0	-	40	0.1%	0	-
11-12	40	29	0.0%				1	0.0%	0	-	0	-	0	-	0	-	28	0.0%	0	-
12-13	34	16	0.0%				0	-	0	-	0	-	0	-	0	-	16	0.0%	0	-
13-14	29	11	0.0%				0	-	0	-	0	-	0	-	0	-	11	0.0%	0	-
14-15	26	10	0.0%			0	-	0	-	0	-	0	-	0	-	10	0.0%	0	-	
>15	194	12	0.0%	0.0%		0	-	0	-	0	-	0	-	0	-	12	0.0%	0	-	
Total	394,369	386,572	100.0%	100.0%		100.0%	112,112	100%	95,353	100%	21,963	100%	31,302	100%	3,116	100%	62,576	100%	60,150	100%
Max	55mSv	25mSv					11mSv		5.3mSv		2.5mSv		3.6mSv		1.6mSv		25mSv		3.9mSv	
* Including Yamakiya of Kawamata																				
** Including Namie and Iitate																				

3. Evaluation of the results

The latest effective radiation dose estimates showed similar trends to those observed so far. Since previous epidemiological studies indicate no significant health effects at doses <100 mSv, we concluded that radiation doses estimated so far are unlikely to cause adverse effects on health, although this conclusion is based on effective doses estimated only for the first four months following the accident.

Appendix 1

Response rates to the Basic Survey by district

Preceding and full-scale surveys

As of 31 January 2013

Area	District	Target population	Response	Response rates	Completed dose	Proportion	Returned results	Proportion
		a	b	c=b/a	d	e=d/b	f	g=f/b
Kempoku	Fukushima	296,421	82,592	27.9%	71,267	86.3%	65,373	79.2%
	Nihonmatsu	60,967	14,438	23.7%	12,054	83.5%	10,831	75.0%
	Date	67,854	15,782	23.3%	13,022	82.5%	12,001	76.0%
	Motomiya	31,874	7,443	23.4%	6,287	84.5%	5,486	73.7%
	Kori	13,293	3,550	26.7%	3,051	85.9%	2,797	78.8%
	Kunimi	10,342	2,682	25.9%	2,288	85.3%	2,219	82.7%
	Kawatama	15,916	4,910	30.8%	4,162	84.8%	4,091	83.3%
	Otama	8,872	1,610	18.1%	1,320	82.0%	1,069	66.4%
	Subtotal	505,539	133,007	26.3%	113,451	85.3%	103,867	78.1%
Kenchu	Koriyama	341,841	73,831	21.6%	62,175	84.2%	56,799	76.9%
	Sukagawa	80,425	13,372	16.6%	11,323	84.7%	10,812	80.9%
	Tamura	41,805	9,841	23.5%	7,899	80.3%	7,207	73.2%
	Kagamiishi	13,172	2,422	18.4%	1,963	81.0%	1,721	71.1%
	Tenei	6,481	943	14.6%	709	75.2%	514	54.5%
	Ishikawa	17,518	3,396	19.4%	2,760	81.3%	2,476	72.9%
	Tamakawa	7,385	1,275	17.3%	1,042	81.7%	940	73.7%
	Hirata	7,088	1,386	19.6%	1,109	80.0%	1,098	79.2%
	Asakawa	7,200	1,225	17.0%	1,027	83.8%	1,020	83.3%
	Furudono	6,349	1,089	17.2%	861	79.1%	855	78.5%
	Miharu	19,086	4,254	22.3%	3,651	85.8%	3,615	85.0%
	Ono	11,766	2,143	18.2%	1,845	86.1%	1,816	84.7%
	Subtotal	560,116	115,177	20.6%	96,364	83.7%	88,873	77.2%
Kennan	Shirakawa	65,542	11,610	17.7%	9,661	83.2%	9,157	78.9%
	Nishigo	20,137	4,058	20.2%	3,465	85.4%	3,263	80.4%
	Izumizaki	7,025	1,135	16.2%	893	78.7%	778	68.5%
	Nakajima	5,316	713	13.4%	554	77.7%	484	67.9%
	Yabuki	18,509	3,325	18.0%	2,758	82.9%	2,598	78.1%
	Tanagura	15,416	2,300	14.9%	1,976	85.9%	1,927	83.8%
	Yamatsuri	6,494	1,169	18.0%	944	80.8%	886	75.8%
	Hanawa	10,125	1,712	16.9%	1,436	83.9%	1,245	72.7%
	Samekawa	4,212	658	15.6%	508	77.2%	488	74.2%
	Subtotal	152,776	26,680	17.5%	22,195	83.2%	20,826	78.1%
Aizu	Aizuwakamatsu	128,052	20,953	16.4%	16,704	79.7%	13,982	66.7%
	Kitakata	53,270	6,669	12.5%	5,303	79.5%	4,724	70.8%
	Kitashiobara	3,283	414	12.6%	319	77.1%	289	69.8%
	Nishiaizu	7,732	1,152	14.9%	873	75.8%	675	58.6%
	Bandai	3,897	555	14.2%	437	78.7%	409	73.7%
	Inawashiro	16,328	2,777	17.0%	2,249	81.0%	1,990	71.7%
	Aizubange	17,914	2,263	12.6%	1,674	74.0%	768	33.9%
	Yukawa	3,524	426	12.1%	304	71.4%	251	58.9%
	Yanaizu	4,081	523	12.8%	395	75.5%	368	70.4%
	Mishima	2,048	313	15.3%	227	72.5%	214	68.4%
	Kaneyama	2,549	526	20.6%	390	74.1%	377	71.7%
	Showa	1,570	316	20.1%	229	72.5%	176	55.7%
	Aizumisato	23,448	3,328	14.2%	2,538	76.3%	1,962	59.0%
	Subtotal	267,696	40,215	15.0%	31,642	78.7%	26,185	65.1%
Minamiaizu	Shimogo	6,656	895	13.4%	672	75.1%	641	71.6%
	Hinoemata	618	97	15.7%	72	74.2%	72	74.2%
	Tadami	5,038	787	15.6%	584	74.2%	573	72.8%
	Minami-aizu	18,519	2,347	12.7%	1,815	77.3%	1,758	74.9%
	Subtotal	30,831	4,126	13.4%	3,143	76.2%	3,044	73.8%
Soso	Soma	37,511	12,160	32.4%	9,968	82.0%	9,605	79.0%
	Minami-soma	70,326	28,927	41.1%	20,114	69.5%	18,796	65.0%
	Hirono	5,141	2,015	39.2%	1,345	66.7%	1,267	62.9%
	Naraha	8,052	3,789	47.1%	2,608	68.8%	2,463	65.0%
	Tomioka	15,794	8,211	52.0%	6,964	84.8%	6,467	78.8%
	Kawauchi	3,039	1,430	47.1%	1,177	82.3%	963	67.3%
	Oguma	11,500	5,512	47.9%	3,779	68.6%	3,541	64.2%
	Futaba	7,140	3,763	52.7%	2,960	78.7%	2,730	72.5%
	Namie	21,249	12,458	58.6%	12,044	96.7%	11,993	96.3%
	Katsurao	1,545	648	41.9%	339	52.3%	322	49.7%
	Shinchi	8,361	2,424	29.0%	1,800	74.3%	1,746	72.0%
	litate	6,547	3,257	49.7%	3,170	97.3%	3,135	96.3%
	Subtotal	196,205	84,594	43.1%	66,268	78.3%	63,028	74.5%
Iwaki	Iwaki	343,831	73,322	21.3%	61,306	83.6%	55,929	76.3%
Total		2,056,994	477,121	23.2%	394,369	82.7%	361,752	75.8%

* Including Yamakiya of Kawamata, Namie and litate

Basic Survey, Fukushima Health Management Survey

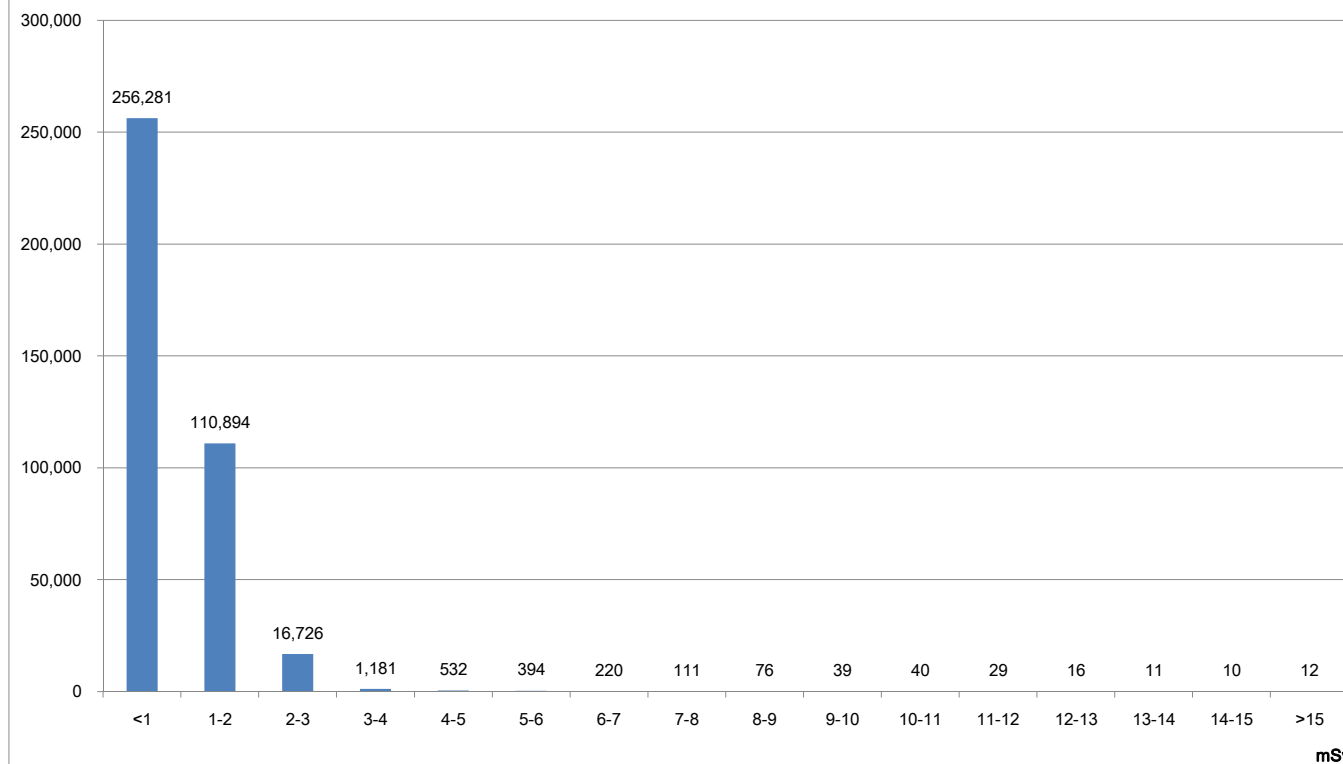
Estimated external radiation doses

Preceding survey and full-scale survey

Estimated external radiation doses by region in the first four months

Effective Dose (mSv)	Total	Excluding radiation workers	By region							Proportion (%) excluding radiation workers		
			Kempoku	Kenchu	Kennan	Aizu	Minami-aizu	Soso	Iwaki			
<1	261,352	256,281	36,550	56,899	20,073	31,217	3,097	48,734	59,711	66.3	95.0	99.8
1-2	112,831	110,894	65,061	33,306	1,882	84	19	10,125	417	28.7		
2-3	17,019	16,726	10,096	4,926	8	0	0	1,677	19	4.3	4.6	
3-4	1,239	1,181	346	218	0	1	0	613	3	0.3		
4-5	564	532	34	3	0	0	0	495	0	0.1	0.2	
5-6	438	394	18	1	0	0	0	375	0	0.1		0.2
6-7	246	220	5	0	0	0	0	215	0	0.1	0.1	
7-8	136	111	1	0	0	0	0	110	0	0.0		
8-9	102	76	0	0	0	0	0	76	0	0.0	0.0	
9-10	57	39	0	0	0	0	0	39	0	0.0		
10-11	62	40	0	0	0	0	0	40	0	0.0	0.0	0.0
11-12	40	29	1	0	0	0	0	28	0	0.0		
12-13	34	16	0	0	0	0	0	16	0	0.0	0.0	
13-14	29	11	0	0	0	0	0	11	0	0.0		
14-15	26	10	0	0	0	0	0	10	0	0.0	0.0	
>15	194	12	0	0	0	0	0	12	0	0.0	0.0	0.0
Total	394,369	386,572	112,112	95,353	21,963	31,302	3,116	62,576	60,150	100.0	100.0	100.0
Max	55	25	11	5.3	2.5	3.6	1.6	25	3.9			

Estimated external radiation doses in the first four months



As of 9 January 2013

Estimated external radiation dose by sex in the first four months (excluding radiation workers)

Effective Dose (mSv)	By sex				Total	Proportion (%)
	Male	Proportion (%)	Female	Proportion (%)		
<1	111,529	64.8	144,752	67.5	256,281	66.3
1-2	50,235	29.2	60,659	28.3	110,894	28.7
2-3	8,936	5.2	7,790	3.6	16,726	4.3
3-4	713	0.4	468	0.2	1,181	0.3
4-5	283	0.2	249	0.1	532	0.1
5-6	201	0.1	193	0.1	394	0.1
6-7	125	0.1	95	0.0	220	0.1
7-8	61	0.0	50	0.0	111	0.0
8-9	40	0.0	36	0.0	76	0.0
9-10	24	0.0	15	0.0	39	0.0
10-11	28	0.0	12	0.0	40	0.0
11-12	17	0.0	12	0.0	29	0.0
12-13	8	0.0	8	0.0	16	0.0
13-14	8	0.0	3	0.0	11	0.0
14-15	6	0.0	4	0.0	10	0.0
>15	10	0.0	2	0.0	12	0.0
Total	172,224	100.0	214,348	100.0	386,572	100.0

As of 9 January 2013

Estimated external radiation dose by age group in the first four months (excluding radiation workers)

Effective Dose (mSv)	Age at the time of the disaster									Total
	0 - 9	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 -	
<1	29,150	24,243	18,380	29,382	24,929	31,656	41,812	33,483	23,246	256,281
1-2	13,264	11,571	7,844	14,582	13,661	15,523	17,101	10,973	6,375	110,894
2-3	3,125	1,742	816	1,787	1,744	2,348	2,760	1,657	747	16,726
3-4	142	108	68	123	124	204	194	147	71	1,181
4-5	23	53	36	38	77	104	84	74	43	532
5-6	17	18	23	33	46	91	81	59	26	394
6-7	4	7	10	17	27	43	55	38	19	220
7-8	2	7	6	6	14	31	19	17	9	111
8-9	1	6	3	4	8	17	15	10	12	76
9-10	0	0	1	1	4	11	11	7	4	39
10-11	0	1	1	1	9	12	6	7	3	40
11-12	0	0	0	2	0	8	10	8	1	29
12-13	0	0	0	0	1	6	5	3	1	16
13-14	0	0	1	1	0	6	3	0	0	11
14-15	0	0	0	0	0	5	4	1	0	10
>15	0	1	0	0	2	2	6	0	1	12
Total	45,728	37,757	27,189	45,977	40,646	50,067	62,166	46,484	30,558	386,572

Basic Survey, Fukushima Health Management Survey
 Estimated external radiation doses (preceding and full-scale surveys)

Estimated external radiation doses by region in the first four months (excluding radiation workers)

Area/region		Effective Dose (mSv)																Total
		<1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	>15	
Kempoku	Fukushima	22,522	41,566	6,121	104	6	2	0	0	0	0	0	0	0	0	0	0	70,321
	Nihonmatsu	3,024	6,676	2,178	57	0	0	0	0	0	0	0	0	0	0	0	0	11,935
	Date	5,527	6,490	784	103	5	2	0	0	0	0	0	0	0	0	0	0	12,911
	Motomiya	1,551	3,981	681	14	0	0	0	0	0	0	0	0	0	0	0	0	6,227
	Kori	745	2,240	45	1	0	0	0	0	0	0	0	0	0	0	0	0	3,031
	Kunimi	1,249	1,016	10	0	0	0	0	0	0	0	0	0	0	0	0	0	2,275
	Kawatama	1,430	2,354	211	67	23	14	5	1	0	0	0	1	0	0	0	0	4,106
	Otama	502	738	66	0	0	0	0	0	0	0	0	0	0	0	0	0	1,306
Subtotal		36,550	65,061	10,096	346	34	18	5	1	0	0	0	1	0	0	0	0	112,112
Kenchu	Koriyama	26,885	29,685	4,701	209	3	1	0	0	0	0	0	0	0	0	0	0	61,484
	Sukagawa	8,991	2,069	171	4	0	0	0	0	0	0	0	0	0	0	0	0	11,235
	Tamura	7,281	480	18	2	0	0	0	0	0	0	0	0	0	0	0	0	7,781
	Kagamiishi	1,901	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,942
	Tenei	343	344	18	1	0	0	0	0	0	0	0	0	0	0	0	0	706
	Ishikawa	2,713	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,739
	Tamakawa	1,018	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1,031
	Hirata	1,081	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,105
	Asakawa	1,011	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1,024
	Furudono	844	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	853
	Miharu	3,047	559	15	2	0	0	0	0	0	0	0	0	0	0	0	0	3,623
	Ono	1,784	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,830
Subtotal		56,899	33,306	4,926	218	3	1	0	0	0	0	0	0	0	0	0	0	95,353
Kennan	Shirakawa	8,883	639	4	0	0	0	0	0	0	0	0	0	0	0	0	0	9,526
	Nishigo	2,314	1,123	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3,439
	Izumizaki	874	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	888
	Nakajima	545	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	552
	Yabuki	2,684	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,734
	Tanagura	1,931	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1,956
	Yamatsuri	933	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	939
	Hanawa	1,409	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,426
	Samekawa	500	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	503
Subtotal		20,073	1,882	8	0	0	0	0	0	0	0	0	0	0	0	0	0	21,963
Aizu	Aizuwakamatsu	16,453	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,506
	Kitakata	5,220	14	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5,235
	Kitashiobara	315	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	317
	Nishiaizu	868	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
	Bandai	429	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	433
	Inawashiro	2,230	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,231
	Aizubange	1,659	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,660
	Yukawa	303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	303
	Yanaizu	395	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	395
	Mishima	226	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	226
	Kaneyama	386	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	386
	Showa	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	228
	Aizumisato	2,505	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,514
Subtotal		31,217	84	0	1	0	0	0	0	0	0	0	0	0	0	0	0	31,302
Minami-aizu	Shimogo	669	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	670
	Hinoemata	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
	Tadami	577	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	580
	Minami-aizu	1,780	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,795
Subtotal		3,097	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,116
Soso	Soma	9,430	331	69	9	4	0	0	0	0	0	0	0	0	0	0	0	9,843
	Minami-soma	14,880	4,276	320	55	24	3	4	4	0	0	0	0	0	0	0	0	19,566
	Hirono	1,237	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,270
	Naraha	2,313	87	12	0	0	0	0	0	0	0	0	0	0	0	0	0	2,412
	Tomioka	5,176	909	84	10	2	1	0	2	0	0	0	0	0	0	0	0	6,184
	Kawauchi	824	270	15	0	0	0	0	0	0	0	0	0	0	0	0	0	1,109
	Oguma	2,373	866	74	7	7	3	3	0	0	1	0	0	0	1	0	0	3,335
	Futaba	2,220	359	64	14	2	3	1	4	2	1	0	0	0	0	0	0	2,670
	Namie	7,902	2,310	476	103	47	27	27	18	12	6	13	8	5	4	4	9	10,971
	Katsurao	247	70	13	1	0	0	0	0	0	0	0	0	0	0	0	0	331
	Shinchi	1,766	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1,779
	Iitate	366	602	549	414	409	338	180	82	62	31	27	20	11	6	6	3	3,106
Subtotal		48,734	10,125	1,677	613	495	375	215	110	76	39	40	28	16	11	10	12	62,576
Iwaki	Iwaki	59,711	417	19	3	0	0	0	0	0	0	0	0	0	0	0	0	60,150
Total		256,281	110,894	16,726	1,181	532	394	220	111	76	39	40	29	16	11	10	12	386,572
Proportion (%)		66.3	28.7	4.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
		95.0		4.6		0.2		0.1		0.0		0.0		0.0		0.0		100.0
			99.8					0.2				0.0					0.0	100.0
Visitors		1,230	208	15	2	1	0	0	1	0	0	0	0	0	0	0	0	1,457
Total + Visitors		257,511	111,102	16,741	1,183	533	394	220	112	76	39	40	29	16	11	10	12	388,029

Including Yamakiya of Kawamata, Namie and Iitate

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination (Thyroid Screening) in 2012/2013

Thyroid Screening Participation Rates between 14 May 2012 and 25 January 2013

	Target population	Number of participants	Participation rates (%)	Number of participants by age ¹⁾				Participants from outside Fukushima ⁴⁾	Proportion (%)
				%					
				0 – 5	6 – 10	11 – 15	16 – 18		
Screening 2012/2013	128,082	111,546	87.1	28,167	37,545	34,226	11,608	2,934	2.6
				84.2 ²⁾	96.7	92.4	62.4		
				25.2 ³⁾	33.7	30.7	10.4		
Screening 2011/2012	47,766	38,114	79.8	9,902	10,662	11,466	6,084	5,183	13.6
				78.1	84.9	84.5	67.8		
				26.0	28.0	30.1	15.9		
Total	175,848	149,660	85.1	38,069	48,207	45,692	17,692	8,117	5.4
				82.5	93.9	90.2	64.2		
				25.5	32.2	30.5	11.8		

1) Age at the time of the disaster on 11 March 2011

2) Number of participants/Number in the target population age group

3) Number of participants in the age group/Number of participants

4) Screening for participants from outside Fukushima was carried out at a medical institute outside Fukushima

Thyroid Screening Results

Total Number of Participants			April 2011 – March 2012			April 2012 – January 2013		
			38,114			94,975		
Results		Status	April 2011–March 2012			April 2012 – January 2013		
			Number	%		Number	%	
A	A1	No nodules/cysts	24,469	64.2	99.5	53,028	55.8	99.4
	A2	Nodules ≤5.0 mm or cysts ≤20.0 mm	13,459	35.3		41,398	43.6	
B		Nodules ≥5.1 mm or cysts ≥20.1 mm	186	0.5		548	0.6	
C		Immediate need for secondary examination	0	0.0		1	0.001	

- Those with A1 and A2 screening test results will undergo complete thyroid examinations scheduled in 2014
- Those with B and C screening test results will undergo a secondary examination
- Some A2 test results may be classified as B results when clinically indicated
- Results of April 2012 – January 2013 screening include confirmed test results obtained by 21 January 2013

Test results		April 2011 – March 2012			April 2012 – January 2013		
		Number	%	Total (%)	Number	%	Total (%)
Nodules*	≥ 5.1 mm	184	0.48	385 (1.01)	538	0.57	951 (1.00)
	≤ 5.0 mm	201	0.53		413	0.43	
Cysts	≥ 20.1 mm	1	0.003	13,383 (35.11)	6	0.006	41,439 (43.63)
	≤ 20.0 mm	13,382	35.11		41,433	43.63	

* Mixed cystic-solid nodule is included in the category of ‘nodule’.

Thyroid Screening Results

1. Test results by age group and sex

April 2011 – March 2012

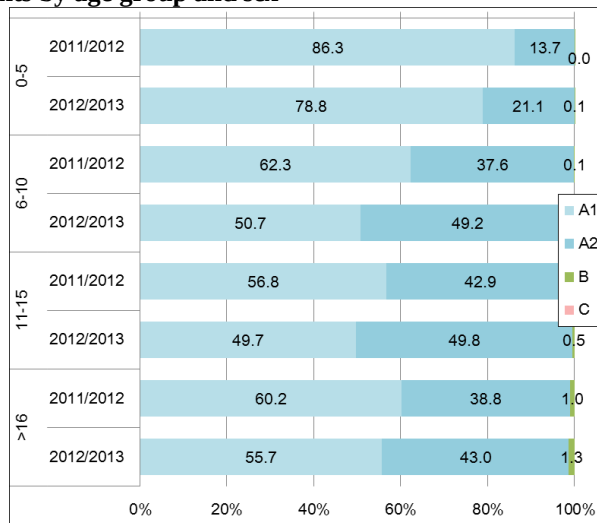
	A									B			C			Total		
	A1			A2														
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 5	4,332	4,194	8,526	685	682	1,367	5,017	4,876	9,893	2	7	9	0	0	0	5,019	4,883	9,902
6 - 10	3,406	2,985	6,391	2,052	2,202	4,254	5,458	5,187	10,645	6	11	17	0	0	0	5,464	5,198	10,662
11 - 16	3,262	2,838	6,100	2,466	2,834	5,300	5,728	5,672	11,400	18	48	66	0	0	0	5,746	5,720	11,466
16 - 18	1,782	1,670	3,452	1,150	1,388	2,538	2,932	3,058	5,990	31	63	94	0	0	0	2,963	3,121	6,084
Total	12,782	11,687	24,469	6,353	7,106	13,459	19,135	18,793	37,928	57	129	186	0	0	0	19,192	18,922	38,114

April 2012 – January 2013

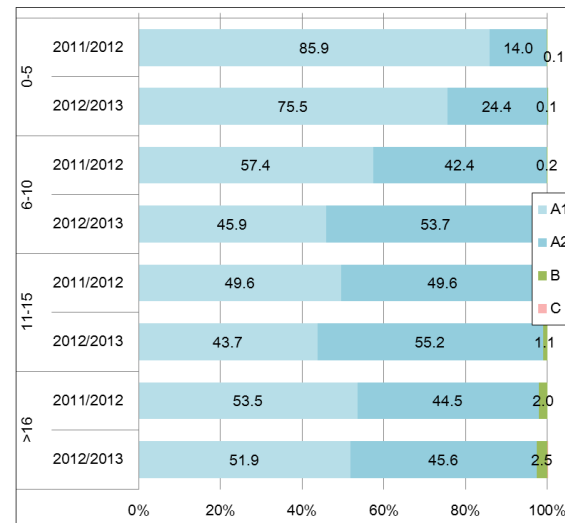
	A									B			C			Total		
	A1			A2														
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 5	9,972	9,003	18,975	2,670	2,906	5,576	12,642	11,909	24,551	8	6	14	0	0	0	12,650	11,915	24,565
6 - 10	7,107	5,983	13,090	6,895	7,004	13,899	14,002	12,987	26,989	22	48	70	0	0	0	14,024	13,035	27,059
11 - 15	8,359	7,178	15,537	8,385	9,056	17,441	16,744	16,234	32,978	92	175	267	0	0	0	16,836	16,409	33,245
16 - 18	2,679	2,747	5,426	2,066	2,416	4,482	4,745	5,163	9,908	64	133	197	0	1	1	4,809	5,297	10,106
Total	28,117	24,911	53,028	20,016	21,382	41,398	48,133	46,293	94,426	186	362	548	0	1	1	48,319	46,656	94,975

2. Test results by age group and sex

Male



Female



Thyroid Screening Results: Cysts (April 2012 – January 2013)

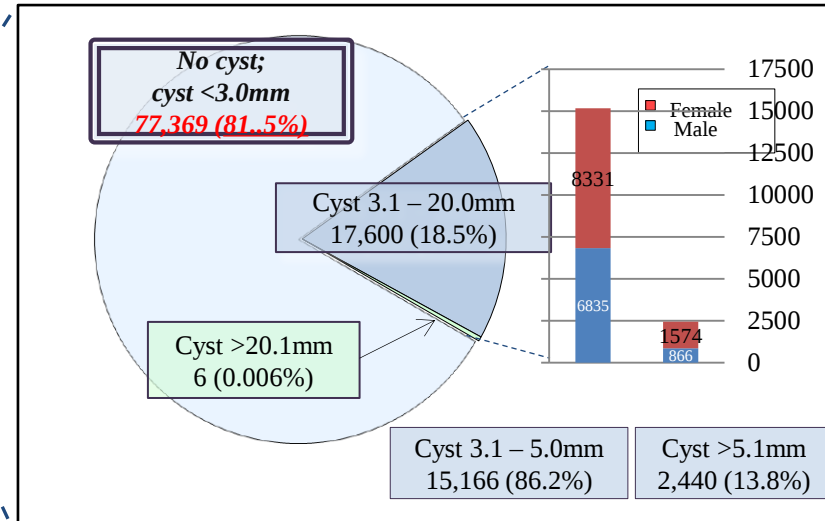
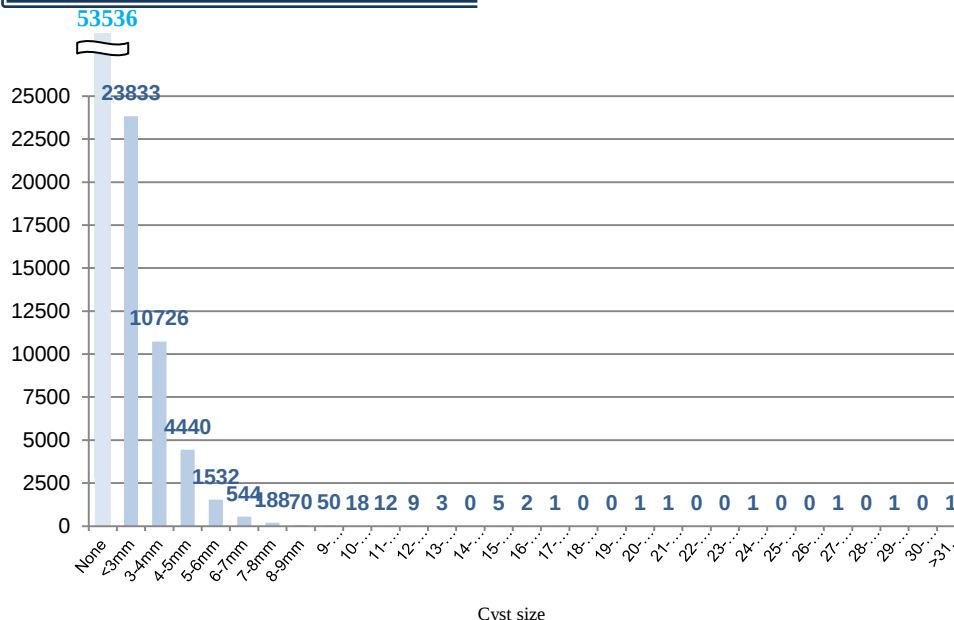
Cysts found during thyroid screening from April 2012 to January 2013

Cyst size	Total	Male	Female	Class	%
None	53,536	28,308	25,228	A1 (56.4%)	81.5%
<3.0mm	23,833	12,310	11,523	A2 (43.6%)	18.5%
3.1 - 5.0mm	15,166	6,835	8,331		
5.1 - 10.0mm	2,384	847	1,537		
10.1 - 15.0mm	42	16	26		
15.1 - 20.0mm	8	2	6		
20.1 - 25.0mm	3	0	3	B	0.006%
25.1mm<	3	1	2		
Total	94,975	48,319	46,656		

Classification based solely on cyst size

Cysts <3.0 mm are included in 'None' according to the generally accepted classification

Number of children with thyroid cysts by cyst size



Thyroid Screening Results

Cysts were found in 41,439 (43.6%) of 94,975 who underwent thyroid screening between April 2012 and January 2013 (the proportion was 35.1% in 2011/2012).

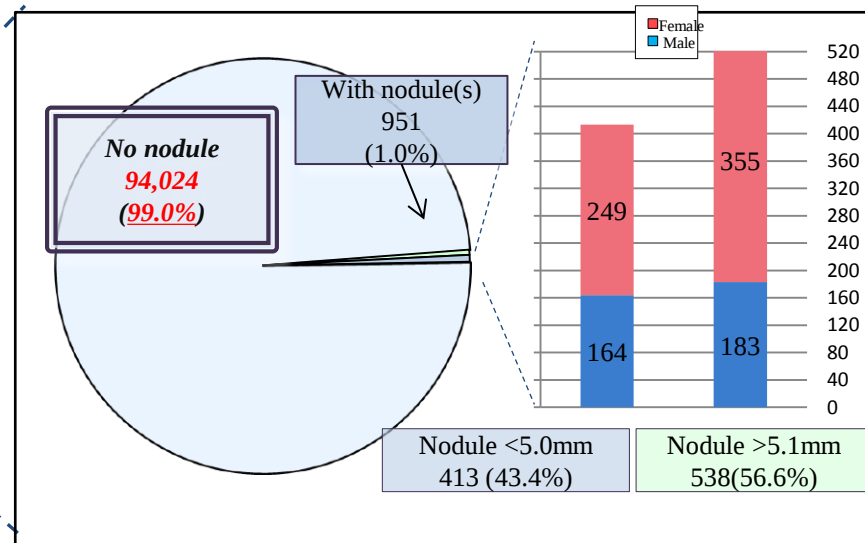
Children with cysts ≤ 3.0 mm (23,833) accounted for 23,833. Children with cysts ≥ 3.1 mm accounted for 17,606, which is 18.5% of the total number screened (the proportion was 16.7% in 2011/2012).

Cysts ≥ 3.1 mm were more frequently found in females (proportion of those with cysts ≥ 3.1 mm was 43.7% in males and 56.3% in females).

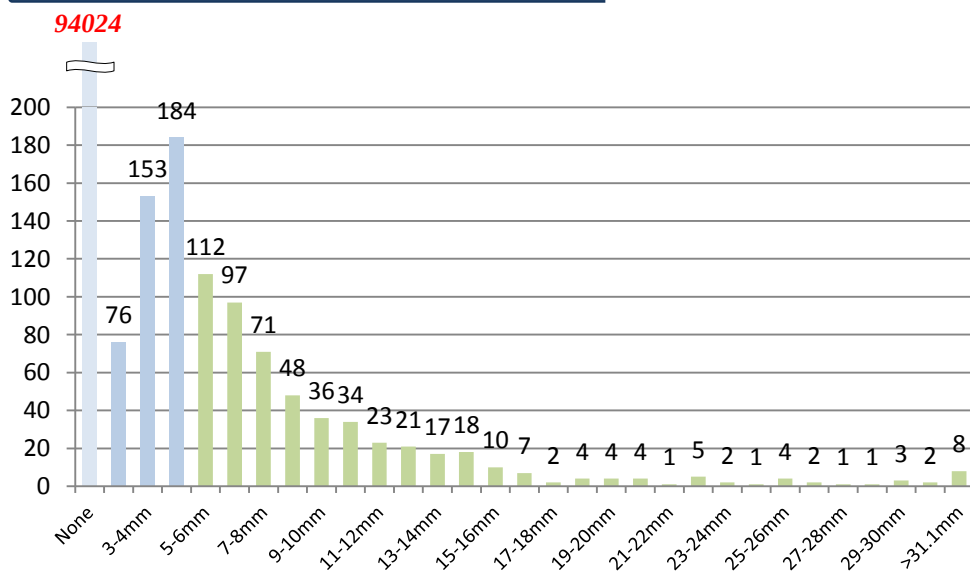
Thyroid Screening Results: Nodules (April 2012–January 2013)

1. Nodules found during thyroid screening from April 2012–January 2013

Nodule size	Total	Gender		Class	%
		Male	Female		
None	94,024	47,972	46,052	A1	99.0%
<3.0mm	76	35	41	A2	0.4%
3.1-5.0mm	337	129	208		
5.1-10.0mm	364	133	231	B, C	0.6%
10.1-15.0mm	113	31	82		
15.1-20.0mm	27	7	20		
20.1-25.0mm	13	5	8		
25.1mm<	21	7	14		
Total	94,975	48,319	46,656		



2. Number of children with thyroid nodules by nodule size



Thyroid Screening Results

Nodules were observed in 951 children (1.0%) of 94,975 who had been screened between April 2012 and January 2013 (the same proportion with 2011/2012).

Among 951 children with thyroid nodules, 538 required a secondary examination because of nodule size, which was 0.6% of the total number screened (the proportion was 0.5% in 2011/2012).

Nodules between 5.1 mm and 10.0 mm were found in 364 (67.7%) of 538 children who required a secondary examination (the proportion was 68.5% in 2011/2012).

Nodules >10.0 mm were found in 174 children, which was 0.18% of the total number screened (the proportion was 0.15% in 2011/2012).

Confirmatory Examination (April 2012–January 2013)

■ Procedure of the confirmatory examination

- Confirmatory examinations (advanced ultrasound examination, blood test, urine test, and aspiration biopsy cytology) were conducted at FMU Hospital.
- Those with A2 test results but classified as B were advised to undergo the secondary examination as clinically indicated.
- Priority for secondary examination is given to those in urgent clinical need.
- The FMU Radiation Medical Science Center contacted residents who required a further examination, and the secondary examination was conducted at an agreed venue on an agreed date.
- Results of the secondary examination were provided directly to the patient with a detailed explanation.

■ Target

- The number of children with test results B or C between April 2012 and January 2013 was 549.

■ Results of Secondary Examinations as of 28 January 2013

	Number who required secondary examinations	Number who underwent secondary examinations	Proportion (%)	Under examination	Number of children whose secondary examinations were completed	*		** Advised to be regularly monitored		
						A1	A2		with aspiration biopsy cytology	without aspiration biopsy cytology
2011/2012	186	162	87.1	11	151	11	22	118	76	42
2012/2013	549	56	10.2	20	36	0	12	24	9	15
Total	735	218	29.7	31	187	11	34	142	85	57

*Nothing abnormal was detected (to be tested again from April 2014).

**Either biannual or annual follow-up was recommended.

Thyroid Ultrasound Examination in 2013/2014

Thyroid Screening in 2013/2014

1. Schedule

- From mid-April 2013 to March 2014 (Last fiscal year for Thyroid Screening)

2. Target

- Children aged 0 – 18 (born between 2 April 1992 and 1 April 2011) residing Fukushima Prefecture at the time of disaster (11 March 2011)
- Priority is given to towns and villages* with high environmental doses in March 2011
- 34 target towns and villages

Aizu-wakamatsu; Iwaki; Sukagawa; Kitakata; Soma; Kagamiishi; Shimogo; Hinoemata; Tadami; Minami-aizu; Kitashiobara; Nishi-aizu; Bandai; Inawashiro; Aizubange; Yukawa; Yanaizu; Mishima; Kaneyama; Showa; Aizumisato; Nakajima; Yabuki; Tanagura; Yamatsuri; Hanawa; Samekawa; Ishikawa; Tamakawa; Hirata; Asakawa; Furudono; Ono; and Shinchi

- Estimated target population: 158,783 (reported number as of 22 November 2011) including 154,063 currently residing in Fukushima and 4,720 currently residing outside Fukushima.

Comprehensive Health Check 2011/2012

The Great East Japan Earthquake and the Fukushima Daiichi nuclear disaster pushed people to evacuate their hometowns with little notice, forced them to change their lifestyle to fit a completely new situation, and caused anxiety over radiation. In response to concerns about the effect these factors could have on health, the Comprehensive Health Check was implemented to support the prevention of lifestyle diseases as well as the early detection and treatment of various diseases.

The target population for 2011/2012 was former residents of areas with a Tohoku earthquake evacuation zone, emergency evacuation preparation zone, planned evacuation zone, or a specific spot recommended for evacuation as designated by the national government (hereafter 'evacuation zones'), who were officially registered residents at the time of the earthquake.

Specifically, the programme targeted registered residents of all areas of Tamura, Minami-soma, Kawamata, Hirono, Naraha, Tomioka, Kawauchi, Okuma, Futaba, Namie, Katsurao, Iitate, and part of Date (the area with a specific spot recommended for evacuation).

The total number of individuals who had a health check performed counted 74,333 (35.4% of a target population of 210,189). The high examination rate for children suggests a large degree of concern for children's health.

Results from the Comprehensive Health Check suggested that some young participants of both sexes were obese and had abnormal lipid metabolism, and prevalence of these conditions was higher in middle age.

Hyperuricemia and hepatic dysfunction were prevalent in males, and prevalence was higher compared to younger age groups. Hypertension, abnormal carbohydrate metabolism, and renal dysfunction were more common in middle age, with the highest prevalence in elderly. The 2011/2012 Fukushima Health Management Survey Comprehensive Health Check provided broad insights into the post-disaster health status of people living in evacuation zones. However, because this is the first set of health checks performed under this programme, there are no previous results from the same population to which these results may be compared, and therefore the effects that changes in environment due to the earthquake or subsequent evacuation had on health could not be evaluated.

In order to approximate the health effects of the earthquake and subsequent evacuation, results from the 2011/2012 Fukushima Health Management Survey for children conducted after the earthquake were compared to lifestyle disease prevention checks conducted before the earthquake from 2008/2009 to 2010/2011 for children, and results from the adult Comprehensive Health Check conducted after the earthquake were compared to results from special health checkups and health checks for elderly aged 75 and over that were conducted before the earthquake from 2008/2009–2010/2011. Results for children showed that, prevalence of obesity, hypertension, and abnormal lipid metabolism was higher in 2011/2012 compared to that in 2008/2009–2010/2011. Similarly, prevalence of obesity, abnormal lipid metabolism, abnormal carbohydrate metabolism, and liver dysfunction for adults was higher in 2011/2012 than in 2008/2009–2010/2011. Factors that could have caused increases in the prevalence of obesity, abnormal carbohydrate metabolism, abnormal lipid metabolism, and other health issues in both children and adults after the earthquake include decreased physical activity, changes in dietary habits, emotional stress, trouble sleeping, and other changes in overall living conditions associated with a forced evacuation. However, although this comparison was made between groups from almost the same region in almost the same age groups that fell into the same general categories, the health check methods and the period when health checks were performed differ. Furthermore, because the earthquake occurred in 2011, some confounding factors such as the increased likelihood of concerned people to have a health check are present, so these groups should not be considered comparable in the strictest sense of the term.

Building on results from the 2011/2012 Comprehensive Health Check, we will continue to conduct the Fukushima Health Management Survey in future years, and will apply it in the prevention, early detection, and early treatment of lifestyle diseases and various other diseases.