FY2011-FY2024 Implementation Status of the Comprehensive Health Check Fukushima Health Management Survey (FHMS)

1. Overview of the Comprehensive Health Check

1-1 Purpose

The Great East Japan Earthquake and the accident at TEPCO's Fukushima Daiichi Nuclear Power Plant led to a large-scale evacuation of residents. Many evacuees have since been concerned about their own health, due primarily to drastic changes in their lifestyle, such as diet and exercise habits, in addition to the loss of opportunity to undergo necessary health checks. In response to this situation, the Comprehensive Health Check (CHC) has been conducted to ascertain people's health status and use such data for the prevention of lifestyle diseases and early detection and treatment of diseases in general.

1-2 Coverage

- Residents registered in the covered area* from March 11, 2011 to April 1, 2012 (including those who moved out of the area)
- Registered residents in the covered area* as of April 1 of the examination year
- Others, as warranted, based on Basic Survey results, even if the above conditions are not met

* Covered area: municipalities designated as evacuation zones in 2011
Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Iitate Village, Minamisoma City, Tamura City, Kawamata Town, and a part of Date City (specifically recommended for evacuation)

1-3 Health check items

Health check items differ according to age groups as follows.

Age group	Health check items
0-6 years old (preschool children and infants)	Height, weight [Following items are optional - applicants only] CBC (red blood cell count, hematocrit, hemoglobin, platelet count, white blood cell count and differential)
7-15 years old (from 1st to 9th grade)	Height, weight, blood pressure, CBC (red blood cell count, hematocrit, hemoglobin, platelet count, white blood cell count and differential) [Following items are optional - applicants only] Blood biochemistry (AST, ALT, γ-GT, TG, HDL-C, LDL-C, HbA1c, plasma glucose, serum creatinine, uric acid)
16 years old and older	Height, weight, abdominal circumference (BMI), blood pressure, CBC (red blood cell count, hematocrit, hemoglobin, platelet count, white blood cell count and differential), urinalysis (urine sugar, urine protein, urine occult blood), blood biochemistry (AST, ALT, γ-GT, TG, HDL-C, LDL-C, HbA1c, plasma glucose, serum creatinine, estimated glomerular filtration rate [eGFR], uric acid) *The underlined values are not routinely measured during specific health checks.

2. Implementation Status for FY2011 to FY2023

2-1 Methods

Health check venues are arranged as follows for the convenience of eligible persons.

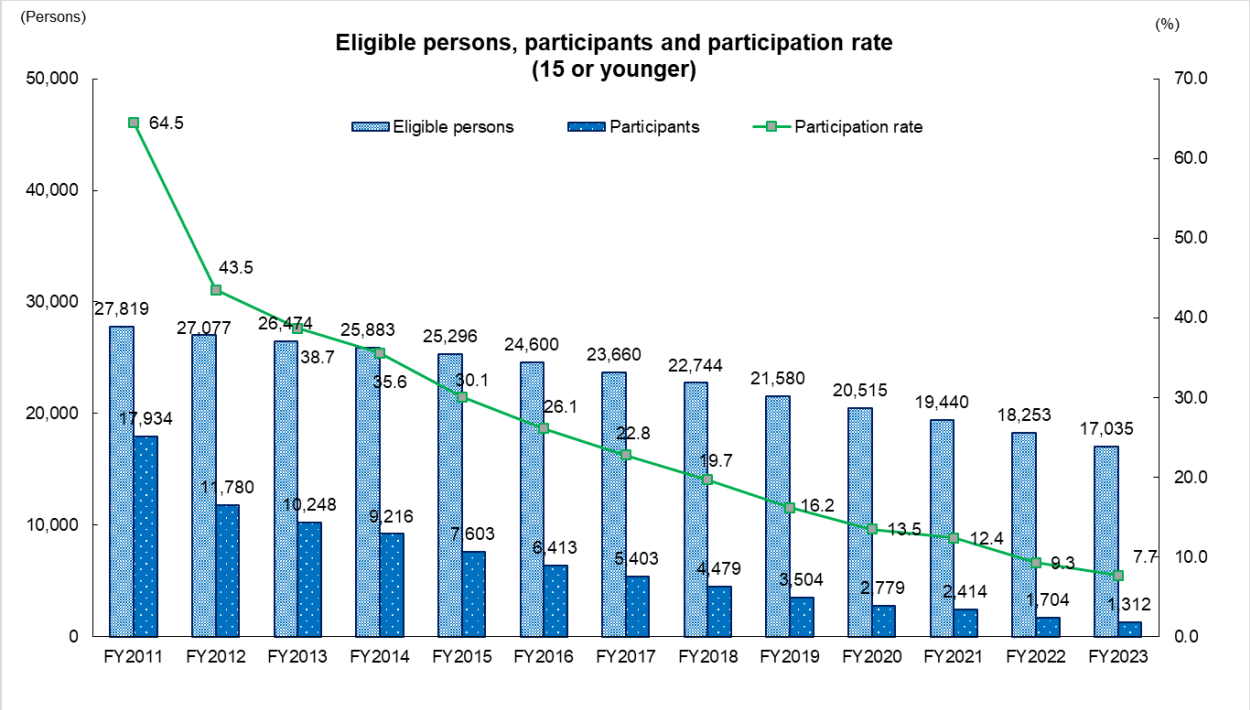
<table>
<tr><th>Age group</th><th>Place of residence</th><th>Implementation method</th><th>Number of cooperating medical facilities in FY2023</th><th>Tabulation category</th></tr>
<tr><td rowspan="2">15 and younger</td><td>Those living in Fukushima prefecture</td><td>Pediatric health checks at designated health check facilities in the prefecture</td><td>80</td><td>Pediatric health check in the prefecture</td></tr>
<tr><td>Those living outside the prefecture</td><td>Pediatric health checks at designated health check facilities outside of the prefecture</td><td>251 (of which 149 facilities also accept those aged 16 or older)</td><td>Pediatric health check outside the prefecture</td></tr>
<tr><td rowspan="5">16 and older</td><td rowspan="3">Those living in Fukushima prefecture</td><td rowspan="2">Additional health check items are added to specific health checks or general health checks conducted by municipalities.</td><td rowspan="2">—</td><td>Municipal general health check in the prefecture</td></tr>
<tr><td>Other *1</td></tr>
<tr><td>Individual health checks conducted at designated health check facilities in the prefecture(*)</td><td>401</td><td>Individual health check in the prefecture</td></tr>
<tr><td>Group health checks conducted by FMU(*)</td><td>29 venues in the prefecture (conducted 46 times)</td><td>Group health check in the prefecture</td></tr>
<tr><td rowspan="2">Those living outside the prefecture</td><td>Additional health check items are added to specific health checks or general health checks conducted by municipalities.</td><td>—</td><td>Other *2</td></tr>
<tr><td>Individual health checks conducted at designated health check facilities outside of the prefecture</td><td>403 (of which 149 facilities also accept those aged 15 or younger)</td><td>Individual health check outside the prefecture</td></tr>
</table>

2-2 Participation status

A. Number of participants by method and by venue (in or outside the prefecture)

(a) Participants ages 15 or younger

The participation rate for FY2023 was 7.7%, down by 1.6 points compared to 9.3% in FY2022.

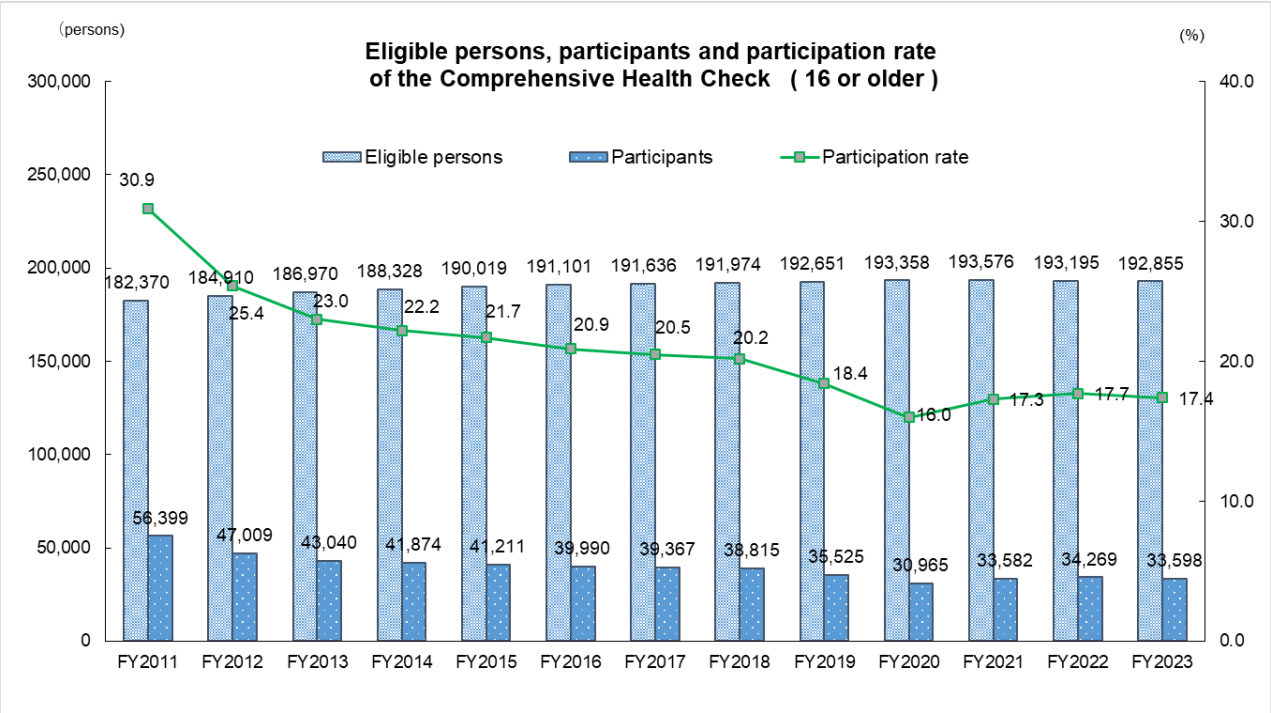


(Persons, %)

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
	Confirmed data as of Sep. 11, 2012	Confirmed data as of July 5, 2013	Confirmed data as of Sep. 1, 2014	Confirmed data as of Sep. 1, 2015	Confirmed data as of Sep. 1, 2016	Confirmed data as of Dec. 31, 2017	Confirmed data as of Mar. 31, 2018	Confirmed data as of Mar. 31, 2019	Confirmed data as of Mar. 31, 2020	Confirmed data as of Mar. 31, 2021	Confirmed data as of Mar. 31, 2022	Confirmed data as of Mar. 31, 2023	Confirmed data as of Mar. 31, 2024
Eligible persons	27,819	27,077	26,474	25,883	25,296	24,600	23,660	22,744	21,580	20,515	19,440	18,253	17,035
Pediatric health checks in Fukushima	15,002	9,534	8,432	7,432	6,206	5,193	4,474	3,648	2,857	2,335	2,037	1,426	1,115
Pediatric health checks outside Fukushima	2,949	2,283	1,822	1,792	1,403	1,226	929	834	650	444	377	278	197
Number of those who participated in both of the above	17	37	6	8	6	6	0	3	3	0	0	0	0
Total (excluding those who participated in both)	17,934	11,780	10,248	9,216	7,603	6,413	5,403	4,479	3,504	2,779	2,414	1,704	1,312
Participation rate (%)	64.5%	43.5%	38.7%	35.6%	30.1%	26.1%	22.8%	19.7%	16.2%	13.5%	12.4%	9.3%	7.7%

(b) Participants ages 16 or older

The participation rate for FY2023 was 17.4%, down by 0.3% compared to 17.7% in FY2022.



(Persons, %)

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
	Confirmed data as of Sep. 11, 2012	Confirmed data as of July 5, 2013	Confirmed data as of Sep. 1, 2014	Confirmed data as of Sep. 1, 2015	Confirmed data as of Sep. 1, 2016	Confirmed data as of Dec. 31, 2017	Confirmed data as of Mar. 31, 2018	Confirmed data as of Mar. 31, 2019	Confirmed data as of Mar. 31, 2020	Confirmed data as of Mar. 31, 2021	Confirmed data as of Mar. 31, 2022	Confirmed data as of Mar. 31, 2023	Confirmed data as of Mar. 31, 2024
Eligible persons	182,370	184,910	186,970	188,328	190,019	191,101	191,636	191,974	192,651	193,358	193,576	193,195	192,855
Participants in municipal general health checks in the prefecture	8,798	23,907	25,604	25,913	26,195	26,636	26,411	26,140	25,255	19,002	21,339	22,196	22,274
Participants in individual health checks in the prefecture	－	6,692	5,806	4,927	4,443	3,941	3,782	3,730	2,869	3,771	3,927	3,680	3,259
Participants in group health checkes in the prefecture	41,949	10,603	6,767	5,808	5,183	4,341	3,963	3,776	2,444	3,496	3,396	3,717	3,527
Participants in individual health checkes outside the prefecture	3,815	3,055	3,205	3,418	3,332	2,118	2,102	2,087	1,988	1,847	1,809	1,753	1,664
Other *1, *2	2,045	3,206	2,017	1,846	2,113	3,011	3,154	3,122	3,001	2,941	3,187	2,975	2,936
Number of those who participated in both of the above	208	454	359	38	55	57	45	40	32	92	76	52	62
Total (not double-counting those who participated in both)	56,399	47,009	43,040	41,874	41,211	39,990	39,367	38,815	35,525	30,965	33,582	34,269	33,598
Participation rate (%)	30.9%	25.4%	23.0%	22.2%	21.7%	20.9%	20.5%	20.2%	18.4%	16.0%	17.3%	17.7%	17.4%

*1 Other: Municipal health checks conducted in the prefecture by the county/municipal medical association or medical facilities
*2 Other: Municipal health checks conducted outside the prefecture by cooperating facilities

B. Number of participants by age group

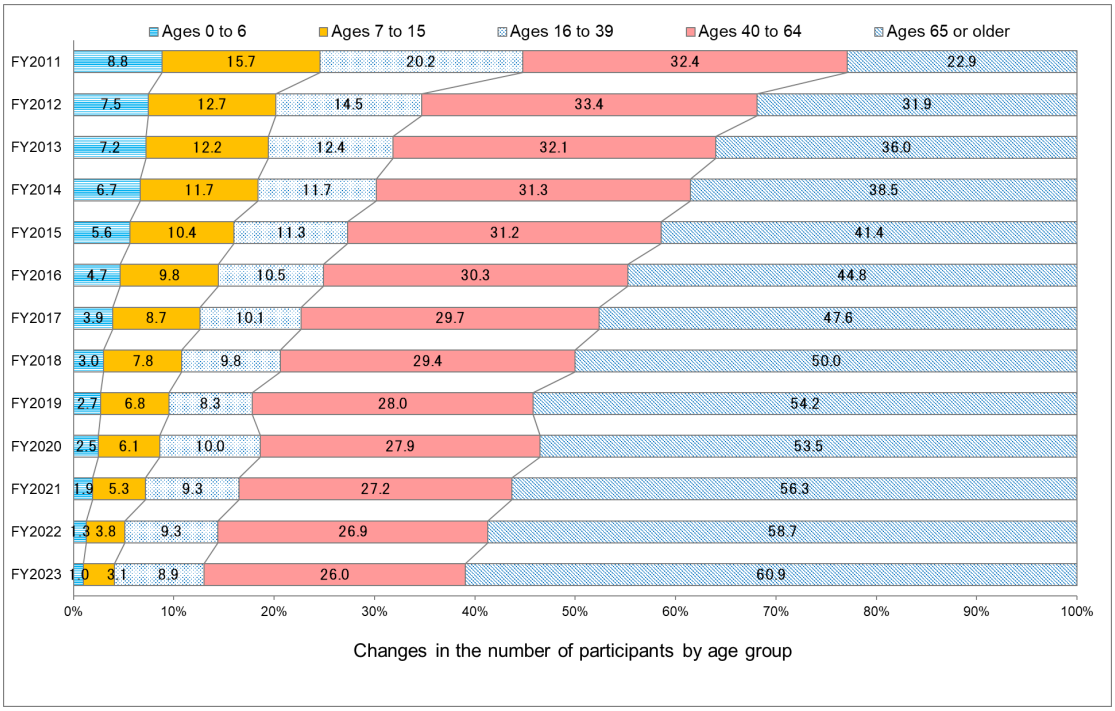
In FY2023, the number of participants decreased in all age groups.

As to the trend of participation by age group, the number of participants aged 65 or older has been increasing year by year, and in FY2023, it accounted for 60.9%.

Changes in the number of participants by age group

(persons)

	Ages 0 to 6	Ages 7 to 15	Ages 16 to 39	Ages 40 to 64	Ages 65 or older
FY2011	6,453	11,473	14,728	23,587	16,663
FY2012	4,345	7,421	8,428	19,357	18,450
FY2013	3,799	6,426	6,500	16,766	18,807
FY2014	3,325	5,835	5,838	15,573	19,159
FY2015	2,654	4,898	5,346	14,722	19,549
FY2016	2,055	4,312	4,624	13,364	19,750
FY2017	1,647	3,712	4,305	12,665	20,282
FY2018	1,220	3,166	3,973	11,928	20,329
FY2019	959	2,457	2,984	10,095	19,529
FY2020	783	1,936	3,157	8,791	16,853
FY2021	638	1,739	3,079	8,982	18,566
FY2022	434	1,246	3,025	8,761	19,145
FY2023	315	966	2,744	8,052	18,842



Changes in the number of participants by age group

*Percentages in the graph are rounded, so totals may not be 100%.

*Source: Materials for the 21st, 26th, 30th, 34th, 37th, 41st, 44th, 48th, and 50th meetings of the Oversight Committee for the Fukushima Health Management Survey (including those who have participated in at least 1 health check item).

[Reference] FY2023 Number of eligible persons by area of residence (in or outside the prefecture)*

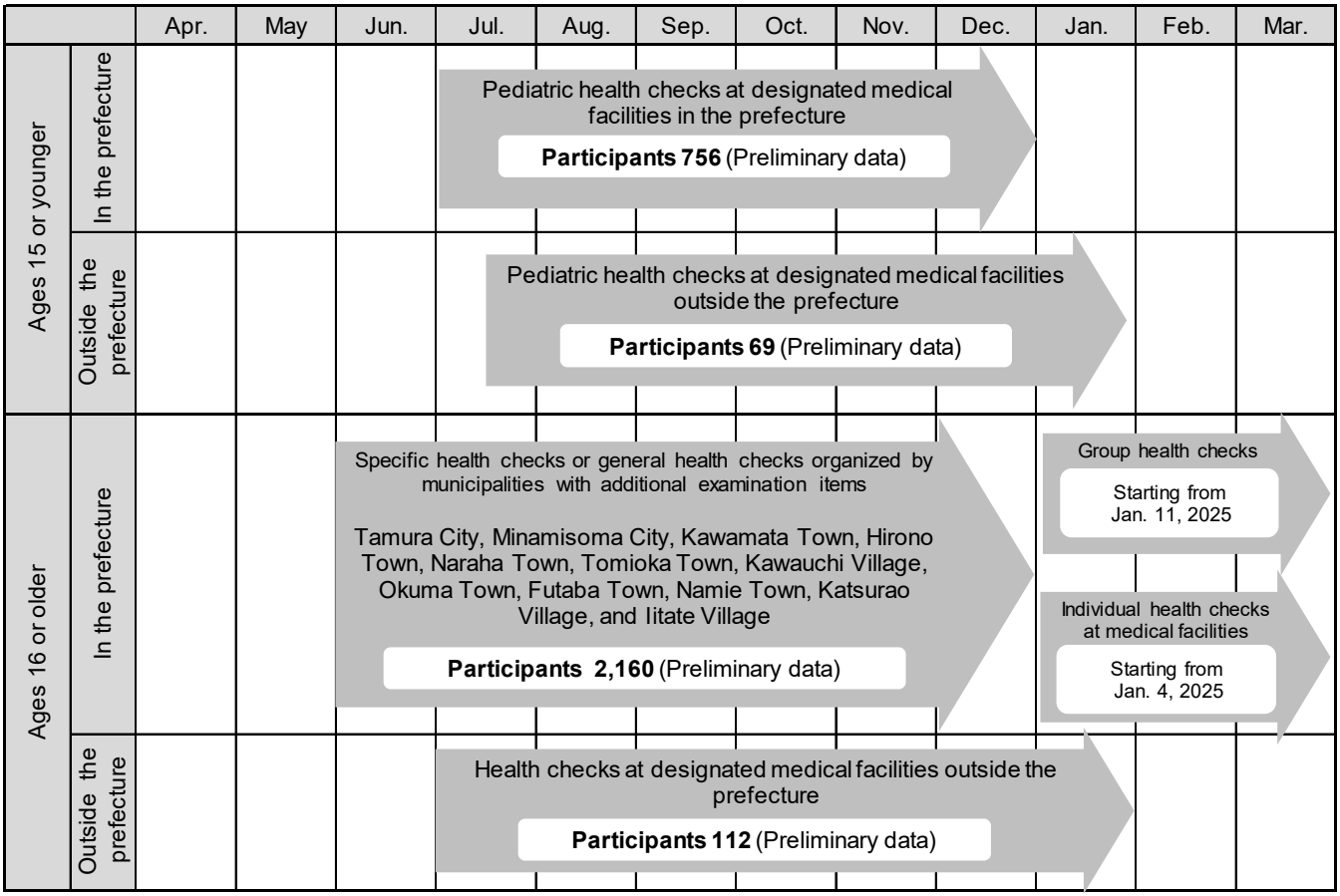
15 or younger	In the prefecture	Outside the prefecture	Total
Eligible persons	14,988	2,047	17,035
Participants	1,096	216	1,312
Participation rate	7.3%	10.6%	7.7%

16 or older	In the prefecture	Outside the prefecture	Total
Eligible persons	160,888	31,967	192,855
Participants	30,812	2,786	33,598
Participation rate	19.2%	8.7%	17.4%

*Eligible persons were divided into “in the prefecture” and “outside the prefecture” based on the mailing address to which health check invitations were sent. This method of division differs from that of dividing participants by health check type or by venue.

3. Implementation Status for FY2024 (as of December 31, 2024)

Covered population: 208,575 (ages 15 or younger: 15,952; ages 16 or older: 192,623)



3-1. Eligible persons residing in Fukushima prefecture

A. For those ages 15 or younger

In the same manner as in the previous fiscal year, pediatric health checks at designated health check facilities were conducted for a period of around six months from July to December 2024 (at 78 cooperating health check facilities).

B. For those ages 16 or older

CHC was conducted simultaneously with specific health checks and general health checks by municipalities by adding some health check items to regular health check items (hereinafter referred to as "add-on health checks") in the same manner as in the previous fiscal year in the 12 municipalities, excluding Date City.

Additionally, group health checks and individual health checks at designated health check facilities were also conducted from January 2025, covering eligible persons who could not receive “add-on health checks” (at 385 cooperating health check facilities for individual health checks).

3-2 Eligible persons residing outside the prefecture

After coordinating venues in the eligible participants’ prefectures of residence, we prepared and sent invitations for health checks starting from the end of June.

3-3 Results reports and feedback

A. Individual results reports

CHC individual results are mailed to each participant. In addition, face-to-face explanations of results are offered to those aged 15 or younger and their parents/guardians at the health check facilities

where they received health checks.

B. Preparation of a leaflet

When sending invitations for group or individual health checks to eligible persons ages 16 or older, a leaflet summarizing what has been learned from the results of the CHC has been enclosed since 2017. The leaflet theme changes every year: it was "Lifestyle Diseases" for FY2017, "Diabetes" for FY2018, "Metabolic Syndrome" for FY2019, "The Basis of Your Diet" for FY2020, and "The Importance of continuous health check participation" for FY2021, and “CKD (Chronic Kidney Disease)” for 2022, "Liver Dysfunction" for 2023, and “Hyperuricemia” for 2024, including the results of the FHMS.

Since FY2022, a leaflet has been prepared and included for pediatric health checks for children under the age of 15 in the same manner as for those over the age of 16. We have introduced tips for improving and preventing obesity and lipid abnormalities for FY2022, and obesity and abnormal glucose metabolism for FY2023. In FY2024, we have introduced the research results and paper on obesity, including the association of obesity and lifestyle disease, and prevention of obesity in an easy-to-understand manner, with illustrations.

C. Preparation of analysis reports on CHC results

We prepared CHC results analysis reports for each of the participating municipalities, showing temporal changes in their residents’ health check results so that the residents can understand their health conditions. In FY2024, we conducted an additional analysis, tabulating data by age group, which would be useful for lifestyle disease prevention measures. We then utilized the results in health seminars and other activities, in response to requests from the municipalities.

D. Holding health seminars

In order to deepen residents’ understanding of the importance of receiving health checks every year and to support them in receiving health checks, we hold seminars at events such as health check results-reporting meetings or health classes organized by municipalities. In health seminars, medical doctors give health lectures to residents of the participating municipalities, presenting results and analyses of the CHC, and specialists offer individual consultations or blood glucose level measurement.

Health seminars and sessions conducted in FY2024 as of December 31, 2024

Municipality	Name of the event	Times	Contents
Naraha Town	Frailty prevention program	20	・Individual consultation with health specialists ・Panel exhibition
	General health check	9	・Panel exhibition
	Individual health consultation session	9	・Lecture by a medical doctor ・Individual consultation with health specialists ・Blood glucose level measurement and panel exhibition
	Health check result explanatory session	3	・Lecture by a medical doctor ・Individual consultation with health specialists ・Blood glucose level measurement ・Panel exhibition
	Brushing lessons for adults	1	・Lecture by a medical doctor ・Blood glucose level measurement ・Panel exhibition and leaflet distribution
Katsurao Village	Dementia Prevention Meeting	6	・Individual consultation with health specialists ・Panel exhibition
	General health check	3	・Panel exhibition and leaflet distribution
	Health check result explanatory session	8	・Individual consultation with health specialists ・Panel exhibition
	Diabetes prevention Seminar	3	・Individual consultation with health specialists ・Panel exhibition
	Katsurao thanksgiving festival	1	・Panel exhibition
Futaba Town	Get-together salon by Social Welfare Council	1	・Individual consultation with health specialists ・Panel exhibition
	Health check result explanatory session	7	・Individual consultation with health specialists ・Panel exhibition
	HOKO-TOUCH interim measurement meeting	4	・Individual consultation with health specialists ・Exercise session
Namie Town	Locomotion and HANAMARU exercise	11	・Individual consultation with health specialists ・Panel exhibition
	General health check and fitness test	8	・Individual consultation with health specialists ・Panel exhibition
	General health check	14	・Panel exhibition
Tomioka Town	Diabetes prevention Seminar	7	・Lecture by a medical doctor ・Individual consultation with health specialists ・Excise class and blood glucose level measurement ・Panel exhibition and leaflet distribution
Minamisoma City	Specific health guidance session	1	・Individual consultation with health specialists ・Exercise class ・Panel exhibition and leaflet distribution
Okuma Town	Body composition measurement session	1	・Individual consultation with health specialists ・Panel exhibition and leaflet distribution

Total 117 seminars and sessions

3-4 Efforts to raise health awareness through the CHC

We have continuously conducted the following activities, using the CHC as an opportunity to raise residents' health awareness in the face of changing living conditions after a lapse of time since the Great East Japan Earthquake.

A. Publicity efforts

We have requested that municipal and prefectural governments run notices of the CHC in their public relations magazines to encourage as many residents as possible to receive health checks for prevention and/or treatment of diseases. We have also prepared posters and flyers to promote routine health checks and requested that medical facilities post them on the walls of their premises.

B. Use of the Fukushima KENMIN App (Healthcare application for Fukushima Residents)

The Fukushima Kenmin App is a smartphone application developed by the prefectural government to promote the health of Fukushima residents. As a part of our efforts to encourage residents to take interest in their health and improve their lifestyle habits, such as starting and continuing exercise routines using the Kenmin App, we enclose a Kenmin App flyer in invitations to individual or group health checks for those ages 16 or older and award points for the *KENMIN App** (200 points with a result report).

*Developed and provided by Fukushima prefecture, it can be used anytime, anywhere, for fun, easy participation, and continuous use, to establish healthy lifestyle habits that lead to health maintenance.
https://kenkou-fukushima.jp/appli-info

C. Securing venues for group health checks

Since the beginning of the CHC program, we have endeavored to secure health check venues in locations convenient to residents, for example, by setting up group health check venues in areas where there are many eligible residents. With the lifting of evacuation orders, we have also set up new venues in former evacuation zones and changed the locations of venues in the area where there are only a small number of eligible residents.

D. Efforts to deepen residents' understanding of health

We prepared the results of CHC and the health information of Fukushima residents into a flyer, and posted it at municipal health checkup venues to raise awareness while examinees were waiting. We also created a pamphlet titled "The Health Check is Like a Report Card for Your Body," which summarizes how to read the results and explains diseases, preventive measures, and the importance of health checks. This pamphlet was used as material for health seminars. To promote a deeper understanding of health checks, we created panels that summarized CHC results and displayed them at health seminar venues.

E. Posting and updating articles about "Health" on the Center's website

To provide the general public with easy-to-understand information on prevention methods for lifestyle-related diseases, we started to post articles on our website, and we update them on a regular basis. Currently, the following columns are available: "hypertension," "obesity," "diabetes," "liver dysfunction," "renal dysfunction," "dyslipidemia," "hyperuricemia," "blood count," "childhood obesity," "dyslipidemia in children," "radiation," "frailty, "sarcopenia and locomotion," "hyperuricemia," "relation of laughter and physical and mental health," and "cardiovascular disease." We plan to update these regularly going forward.

F. Efforts to disseminate information through the Center's official SNS account

The newly opened Center's official X (formerly Twitter) account is used to disseminate information on health check notices and the new health-related column on our website.

Report on the Results of the FY2023 Comprehensive Health Check Fukushima Health Management Survey (Participants Ages 15 or Younger)

< Supplementary Notes >

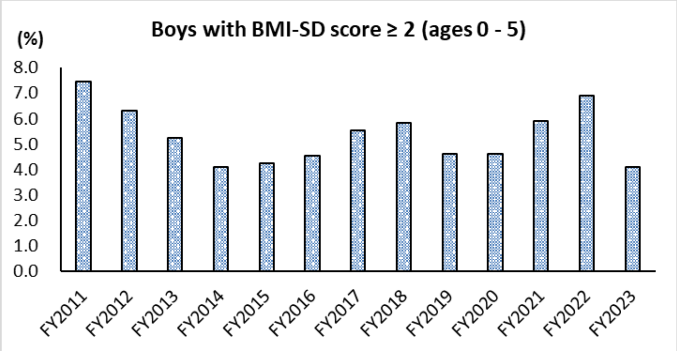
* Pediatric Health Checks were conducted during the following period.
  FY2011 : January to March 2012
  FY2012 to FY2023 : July to December of each fiscal year
* Percentages of obese participants were evaluated using BMI Standard Deviation Scores (BMI SDS), which were calculated based on heights and weights of the participants measured periodically at ages from 0 to 15, and the results from FY2011 to FY2023 were compared.
* Results of blood tests vary substantially by age, but since participants were divided broadly into two age groups, 0 to 6 years and 7 to 15 years, year-by-year comparisons are not possible, and definitive conclusions cannot be drawn.
* Rules for describing tabulation results are the same as those used for *Vital Statistics in Japan* by the Ministry of Health, Labour and Welfare, including this nomenclature:
  When there is no data: -
  When the ratio is minor (lower than 0.05): 0.0%
* Reference materials
  FY2011 to FY2014: Material 3-2 "Basic Statistics of CHC Results by Health Check Item" for the 21st Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2015: Material 3-2 "Basic Statistics of CHC Results by Health Check Item" for the 26th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2016: Material 2-3 "Basic Statistics of CHC Results by Health Check Item" for the 30th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2017: Material 2-3 "Basic Statistics of CHC Results by Health Check Item" for the 34th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2018: Material 4-4 "Tabulation Results by Health Check Item" for the 37th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2019: Material 3-4 "Tabulation Results by Health Check Item" for the 41st Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2020: Material 4-4 "Tabulation Results by Health Check Item" for the 44th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2021: Material 4-4 "Tabulation Results by Health Check Item" for the 48th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey
  FY2022: Material 4-4 "Tabulation Results by Health Check Item" for the 50th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

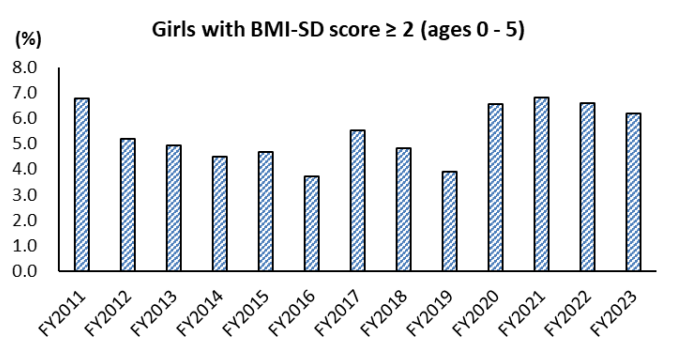
Physical Exam (percentage with obesity based on BMI SD scores):

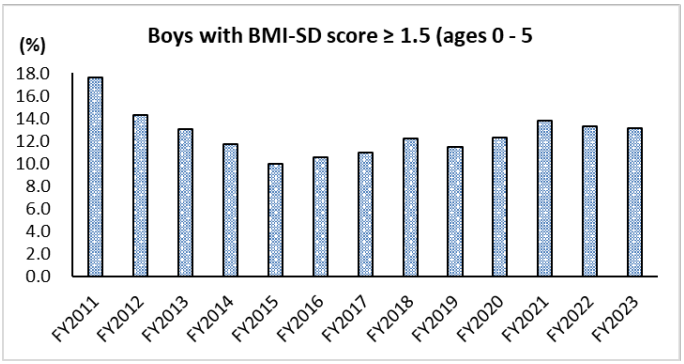
1. Results

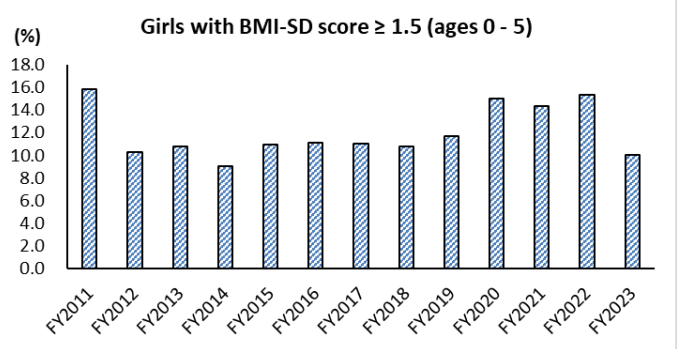
[Participants ages 0 to 5]

The percentage of obese children who were ages 0 to 5 at the time of the examination (BMI-SDS≥2 and BMI-SDS≥1.5) showed no specific trend for either boys or girls.









Boys ages 0 - 5 at the time of health check

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Participants	2,706	1,933	1,755	1,516	1,156	907	722	582	454	391	305	203	145
Average age	3.5	3.4	3.4	3.5	3.4	3.3	3.2	3.1	3.1	3.2	3.2	3.3	3.3
Average BMI-SDS	0.627	0.399	0.402	0.326	0.322	0.337	0.283	0.288	0.265	0.346	0.323	0.300	0.327
SD	1.011	1.083	1.027	1.034	0.989	1.028	1.047	1.103	1.096	1.038	1.053	1.123	1.058
SD score ≥ 2 (%)	7.5	6.3	5.2	4.1	4.2	4.5	5.5	5.8	4.6	4.6	5.9	6.9	4.1
SD score ≥ 1.5 (%)	17.6	14.3	13.0	11.7	9.9	10.6	10.9	12.2	11.5	12.3	13.8	13.3	13.1

Girls ages 0 - 5 at the time of health check

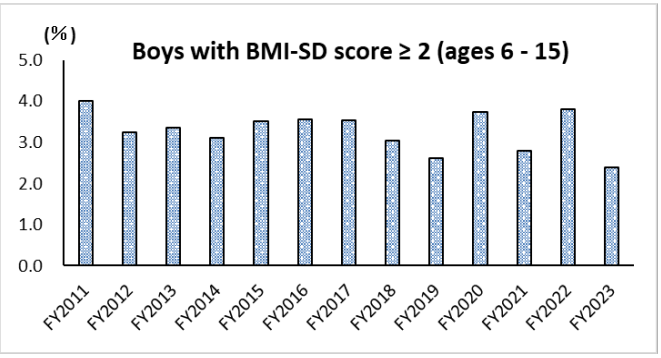
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Participants	2,685	1,946	1,666	1,465	1,180	892	741	539	437	320	279	182	130
Average age	3.5	3.3	3.4	3.5	3.5	3.4	3.3	3.3	3.2	3.2	3.3	3.1	3.0
Average BMI-SDS	0.558	0.331	0.305	0.279	0.315	0.318	0.339	0.291	0.265	0.447	0.447	0.391	0.313
SD	0.984	1.018	1.010	0.992	0.988	0.964	1.018	1.011	1.037	1.028	1.008	1.071	1.055
SD score ≥ 2 (%)	6.8	5.2	4.9	4.5	4.7	3.7	5.5	4.8	3.9	6.6	6.8	6.6	6.2
SD score ≥ 1.5 (%)	15.8	10.3	10.7	9.1	10.9	11.1	11.1	10.8	11.7	15.0	14.3	15.4	10.0

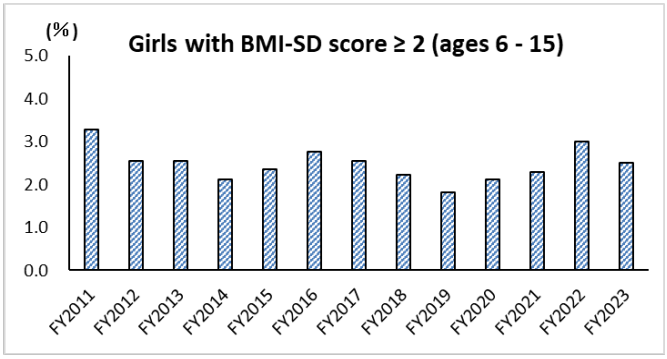
Cited file for calculation:

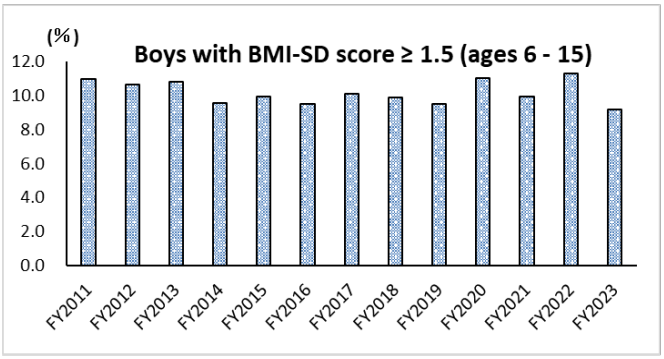
Growth Research Committee, The Japanese Association for Human Auxology/The Japanese Society for Pediatric Endocrinology: http://jspe.umin.jp/medical/chart_dl.html (accessed November 18, 2021)

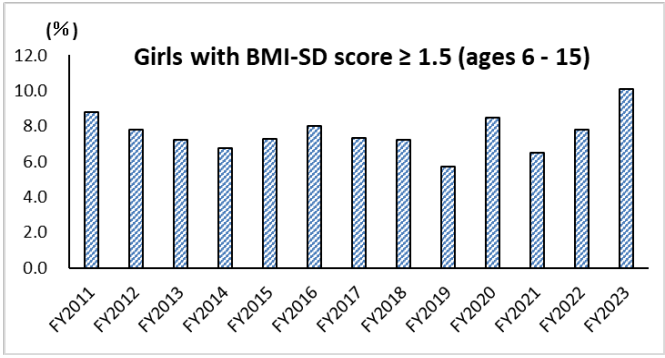
[Participants ages 6 to 15]

The percentage of obese children who were ages 6 to 15 at the time of the examination (BMI-SDS≥2 and BMI-SDS≥1.5) showed no specific trend for either boys or girls.









Boys ages 6 - 15 at the time of health check

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Participants	6,313	4,034	3,481	3,161	2,707	2,365	1,981	1,650	1,266	1,016	914	657	531
Average age	10.9	10.6	10.6	10.6	10.7	10.7	10.6	10.8	11.0	11.3	11.4	11.5	11.6
Average BMI-SDS	0.167	0.066	0.091	0.051	0.047	0.019	0.076	0.061	0.045	0.154	0.123	0.119	-0.048
SD	1.048	1.127	1.089	1.077	1.097	1.113	1.066	1.074	1.158	1.082	1.075	1.100	1.110
SD score ≥ 2 (%)	4.0	3.2	3.4	3.1	3.5	3.6	3.5	3.0	2.6	3.7	2.8	3.8	2.4
SD score ≥ 1.5 (%)	11.0	10.6	10.8	9.6	9.9	9.5	10.1	9.9	9.5	11.0	10.0	11.3	9.2

Girls ages 6 -15 at the time of health check

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Participants	6,204	3,853	3,322	3,019	2,509	2,203	1,915	1,614	1,259	992	878	638	475
Average age	11.0	10.7	10.6	10.6	10.6	10.6	10.5	10.7	11.1	11.2	11.4	11.5	11.7
Average BMI-SDS	0.135	0.004	-0.001	-0.013	0.022	0.007	0.000	-0.011	-0.070	0.019	0.001	0.014	0.024
SD	0.993	1.023	1.002	0.988	0.981	1.017	0.991	1.002	1.000	1.007	0.985	1.079	1.096
SD score ≥ 2 (%)	3.3	2.5	2.6	2.1	2.4	2.8	2.6	2.2	1.8	2.1	2.3	3.0	2.5
SD score ≥ 1.5 (%)	8.8	7.8	7.2	6.8	7.3	8.0	7.3	7.2	5.7	8.5	6.5	7.8	10.1

Cited file for calculation:

Growth Research Committee, The Japanese Association for Human Auxology/The Japanese Society for Pediatric Endocrinology: http://jspe.umin.jp/medical/chart_dl.html (accessed November 18, 2021)

2. Explanation of the Graphs

A body mass index standard deviation score (BMI SDS) was calculated from height and weight; those with a BMI-SDS of 2 or higher were classified as obese.

3. Action Threshold

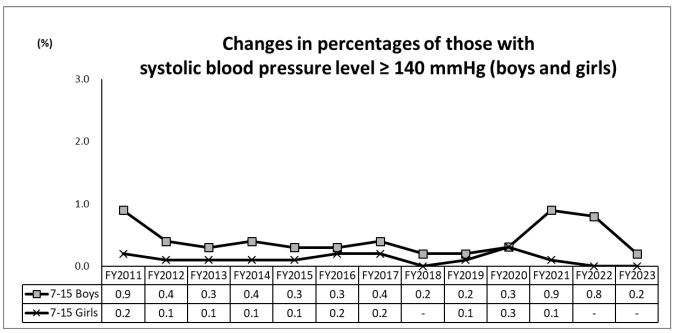
Item	Obese
BMI-SDS	≥ 2 SD

* When evaluating the physical constitution of Japanese children, it is considered appropriate to use thresholds based on anthropometric data published by the Ministry of Health, Labour and Welfare and the Ministry of Education, Culture, Sports, Science and Technology in FY2000, for standard values ("Fundamental Concept for the Evaluation of Japanese Children's Physical Constitution" prepared by the Joint Committee for Standard Values of the Japanese Society for Pediatric Endocrinology and the Japanese Association for Human Auxology).
In this report, the standard values calculated based on the FY2000 measurement results were used.

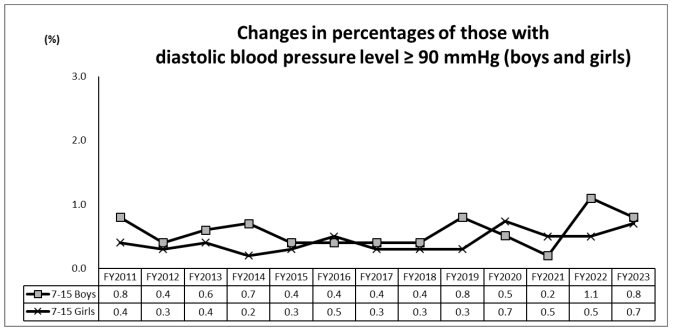
Physical Exam: Blood Pressure

1. Results

The percentage of boys with systolic blood pressures of 140 mmHg or over was the highest in FY2011 and lower thereafter, following no particular trend. No particular trend was observed in the percentage of boys with diastolic blood pressures of 90 mmHg or over. The percentage of girls with systolic blood pressures of 140 mmHg or over showed no substantial changes. The percentage of girls with diastolic blood pressures of 90 mmHg or over also showed no substantial changes.

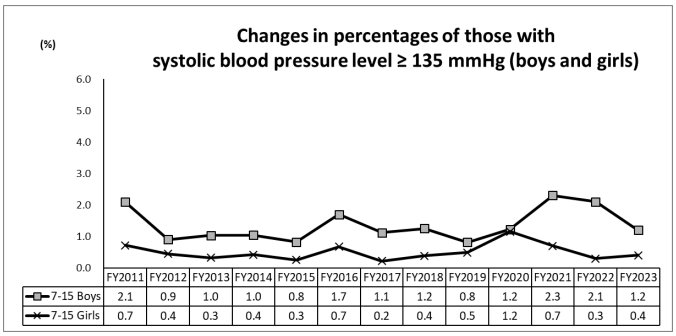


	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 Boys	0.9	0.4	0.3	0.4	0.3	0.3	0.4	0.2	0.2	0.3	0.9	0.8	0.2
7-15 Girls	0.2	0.1	0.1	0.1	0.1	0.2	0.2	-	0.1	0.3	0.1	-	-

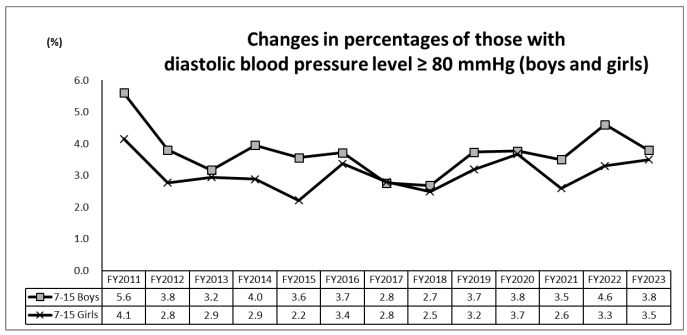


	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 Boys	0.8	0.4	0.6	0.7	0.4	0.4	0.4	0.4	0.8	0.5	0.2	1.1	0.8
7-15 Girls	0.4	0.3	0.4	0.2	0.3	0.5	0.3	0.3	0.3	0.7	0.5	0.5	0.7

The percentage of boys with systolic blood pressures of 135 mmHg or over showed no trends. The percentage of boys with diastolic blood pressures of 80 mmHg or over was the highest in FY2011, and showed no particular trend thereafter. The percentage of girls with systolic blood pressures of 135 mmHg or over showed no substantial changes from FY2011 to FY2019, showed an upward trend in FY2020, then a downward trend through FY2022. The percentage of girls with diastolic blood pressures of 80 mmHg or over was the highest in FY2011, and showed no particular trends thereafter.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 Boys	2.1	0.9	1.0	1.0	0.8	1.7	1.1	1.2	0.8	1.2	2.3	2.1	1.2
7-15 Girls	0.7	0.4	0.3	0.4	0.3	0.7	0.2	0.4	0.5	1.2	0.7	0.3	0.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 Boys	5.6	3.8	3.2	4.0	3.6	3.7	2.8	2.7	3.7	3.8	3.5	4.6	3.8
7-15 Girls	4.1	2.8	2.9	2.9	2.2	3.4	2.8	2.5	3.2	3.7	2.6	3.3	3.5

. Explanation of the Graphs

In the Guidelines for the Management of Hypertension (Japanese Society of Hypertension, 2019), systolic blood pressures of 140 mmHg or over and diastolic blood pressures of 90 mmHg or over are action values used for group and individual health checks for those ages 16 or older; systolic blood pressures of 135 mmHg or over and diastolic blood pressures of 80 mmHg or over are action values for higher-grade elementary school students.

3. Reference Intervals for Blood Pressure by Age Group and by Sex

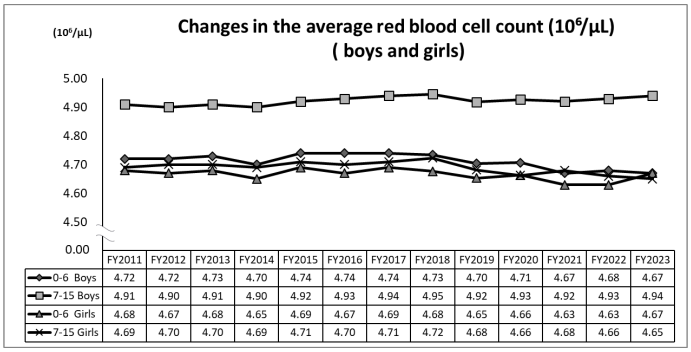
Age group	Systolic blood pressure level (mmHg)	Diastolic blood pressure level (mmHg)
Infants	≥120	≥70
Elementary school: Lower grades	≥130	≥80
Higher grades	≥135	≥80
Junior high school: Boys	≥140	≥85
Girls	≥135	≥80
High school	≥140	≥85

Source: Guidelines for the Management of Hypertension (Japanese Society of Hypertension, 2019)

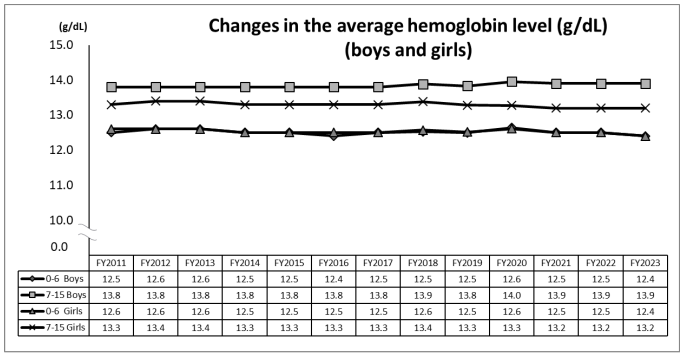
Peripheral Blood Test: Red Blood Cells, Hemoglobin, Hematocrit

1. Results

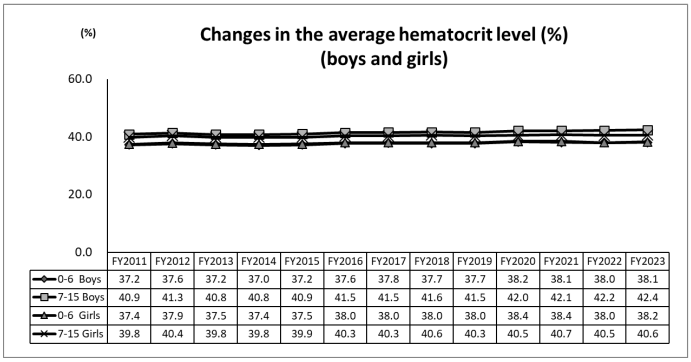
The average values of red blood cell counts, hemoglobin, or hematocrit for either boys or girls in any age group showed no substantial changes.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	4.72	4.72	4.73	4.70	4.74	4.74	4.74	4.73	4.70	4.71	4.67	4.68	4.67
7-15 Boys	4.91	4.90	4.91	4.90	4.92	4.93	4.94	4.95	4.92	4.93	4.92	4.93	4.94
0-6 Girls	4.68	4.67	4.68	4.65	4.69	4.67	4.69	4.68	4.65	4.66	4.63	4.63	4.67
7-15 Girls	4.69	4.70	4.70	4.69	4.71	4.70	4.71	4.72	4.68	4.66	4.68	4.66	4.65



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	12.5	12.6	12.6	12.5	12.5	12.4	12.5	12.5	12.5	12.6	12.5	12.5	12.4
7-15 Boys	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.9	13.8	14.0	13.9	13.9	13.9
0-6 Girls	12.6	12.6	12.6	12.5	12.5	12.5	12.5	12.6	12.5	12.6	12.5	12.5	12.4
7-15 Girls	13.3	13.4	13.4	13.3	13.3	13.3	13.3	13.4	13.3	13.3	13.2	13.2	13.2



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	37.2	37.6	37.2	37.0	37.2	37.6	37.8	37.7	37.7	38.2	38.1	38.0	38.1
7-15 Boys	40.9	41.3	40.8	40.8	40.9	41.5	41.5	41.6	41.5	42.0	42.1	42.2	42.4
0-6 Girls	37.4	37.9	37.5	37.4	37.5	38.0	38.0	38.0	38.0	38.4	38.4	38.0	38.2
7-15 Girls	39.8	40.4	39.8	39.8	39.9	40.3	40.3	40.6	40.3	40.5	40.7	40.5	40.6

2. Explanation of the Graphs

The graphs show changes in the average values of red blood cell counts, hemoglobin, and hematocrit.

3. Reference Intervals

Age	Red blood cells ($\times 10^{12}$/L)	Hemoglobin (g/dL)	Hematocrit (%)
At birth	5.25±0.40	16.6±1.5	53±4.5
1 day old	5.14±0.60	19.0±2.0	58±5.5
1 week old	4.86±0.60	17.9±1.5	56±6.0
1 month old	4.10±0.60	14.2±2.0	43±6.0
3 months old	3.70±0.35	11.3±1.0	33±3.0
6 months old	4.60±0.35	12.3±1.0	36±3.0
12 months old	4.60±0.40	11.6±0.75	36±1.5
Ages 1 – 4	4.70±0.35	12.6±0.5	38±1.5
Ages 4 – 12	4.80±0.30	13.0±1.0	40±2.5
Adult males	5.40±0.35	16.0±1.0	47±3.0
Adult females	48.0±0.30	14.0±1.0	42±2.5

* Average value ± standard deviation

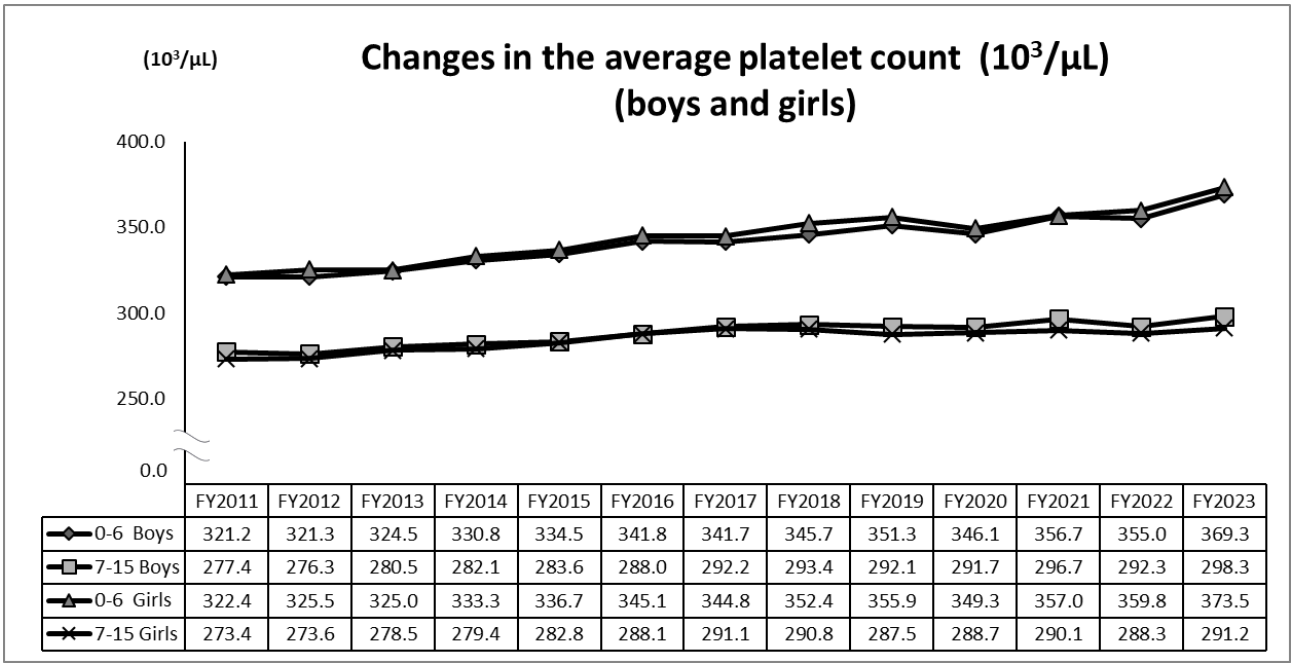
* By international consensus, red blood cell counts are expressed as numbers $\times 10^{12}$/L or $\times 10^{6}$/μL).

Source: Clinical Management of Laboratory Data in Pediatrics 2017 (2nd edition)

Peripheral Blood Test: Platelet Counts

1. Results

There were no substantial changes in average platelet counts for either boys or girls in any age group.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	321.2	321.3	324.5	330.8	334.5	341.8	341.7	345.7	351.3	346.1	356.7	355.0	369.3
7-15 Boys	277.4	276.3	280.5	282.1	283.6	288.0	292.2	293.4	292.1	291.7	296.7	292.3	298.3
0-6 Girls	322.4	325.5	325.0	333.3	336.7	345.1	344.8	352.4	355.9	349.3	357.0	359.8	373.5
7-15 Girls	273.4	273.6	278.5	279.4	282.8	288.1	291.1	290.8	287.5	288.7	290.1	288.3	291.2

2. Explanation of the Graph

The graph shows changes in the average values of platelet counts.

3. Reference Interval

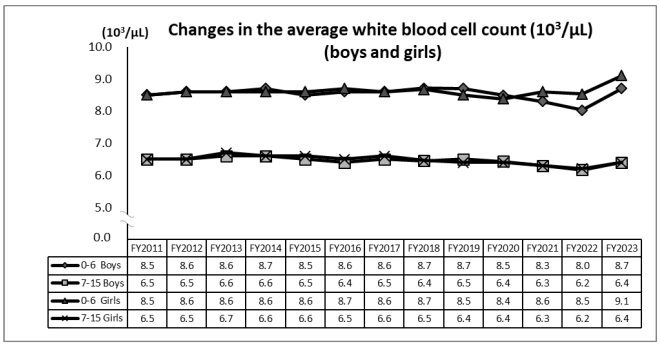
Item	Reference interval
Number of blood platelets ($\times 10^9$/L)	150 - 400

*By international consensus, platelet counts are expressed as numbers $\times 10^9$/L or $\times 10^3$/μL.
Source: Clinical Management of Laboratory Data in Pediatrics 2017 (3rd edition)

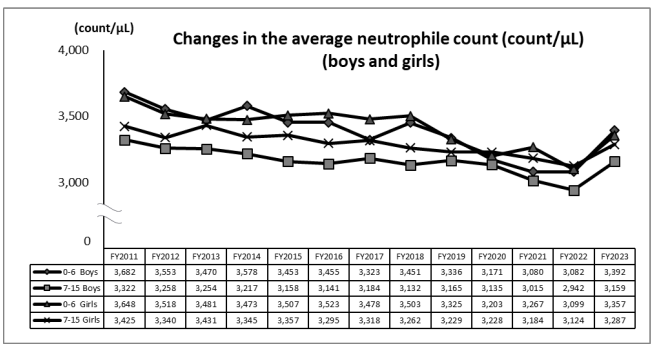
Peripheral Blood Test: White Blood Cell Counts and Differentials

1. Results

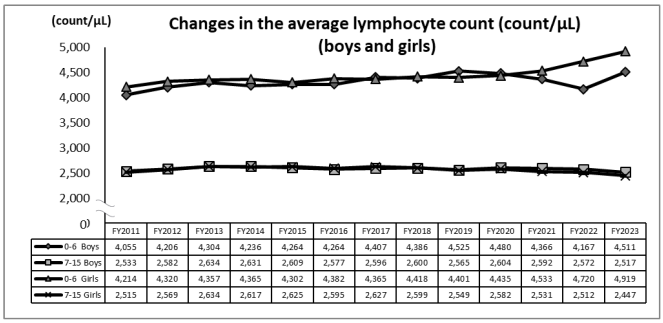
There were no substantial changes in white blood cell counts or differentials for either boys or girls in any age group.



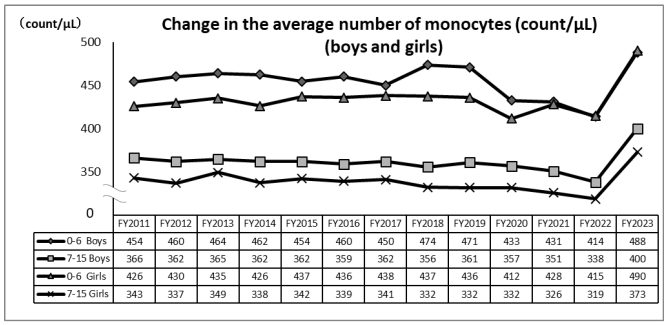
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	8.5	8.6	8.6	8.7	8.5	8.6	8.6	8.7	8.7	8.5	8.3	8.0	8.7
7-15 Boys	6.5	6.5	6.6	6.6	6.5	6.4	6.5	6.4	6.5	6.4	6.3	6.2	6.4
0-6 Girls	8.5	8.6	8.6	8.6	8.6	8.7	8.6	8.7	8.5	8.4	8.6	8.5	9.1
7-15 Girls	6.5	6.5	6.7	6.6	6.6	6.5	6.6	6.5	6.4	6.4	6.3	6.2	6.4



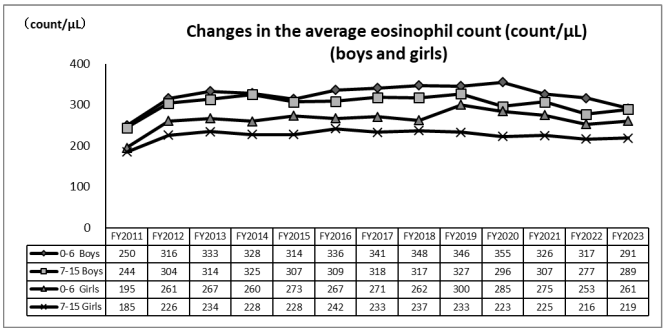
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	3,682	3,553	3,470	3,578	3,453	3,455	3,323	3,451	3,336	3,171	3,080	3,082	3,392
7-15 Boys	3,322	3,258	3,254	3,217	3,158	3,141	3,184	3,132	3,165	3,135	3,015	2,942	3,159
0-6 Girls	3,648	3,518	3,481	3,473	3,507	3,523	3,478	3,503	3,325	3,203	3,267	3,099	3,357
7-15 Girls	3,425	3,340	3,431	3,345	3,357	3,295	3,318	3,262	3,229	3,228	3,184	3,124	3,287



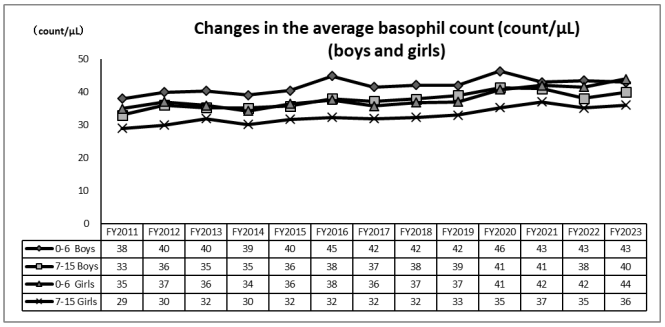
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	4,055	4,206	4,304	4,236	4,264	4,264	4,407	4,386	4,525	4,480	4,366	4,167	4,511
7-15 Boys	2,533	2,582	2,634	2,631	2,609	2,577	2,596	2,600	2,565	2,604	2,592	2,572	2,517
0-6 Girls	4,214	4,320	4,357	4,365	4,302	4,382	4,365	4,418	4,401	4,435	4,533	4,720	4,919
7-15 Girls	2,515	2,569	2,634	2,617	2,625	2,595	2,627	2,599	2,549	2,582	2,531	2,512	2,447



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	454	460	464	462	454	460	450	474	471	433	431	414	488
7-15 Boys	366	362	365	362	362	359	362	356	361	357	351	338	400
0-6 Girls	426	430	435	426	437	436	438	437	436	412	428	415	490
7-15 Girls	343	337	349	338	342	339	341	332	332	332	326	319	373



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	250	316	333	328	314	336	341	348	346	355	326	317	291
7-15 Boys	244	304	314	325	307	309	318	317	327	296	307	277	289
0-6 Girls	195	261	267	260	273	267	271	262	300	285	275	253	261
7-15 Girls	185	226	234	228	228	242	233	237	233	223	225	216	219



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
0-6 Boys	38	40	40	39	40	45	42	42	42	46	43	43	43
7-15 Boys	33	36	35	35	36	38	37	38	39	41	41	38	40
0-6 Girls	35	37	36	34	36	38	36	37	37	41	42	42	44
7-15 Girls	29	30	32	30	32	32	32	32	33	35	37	35	36

2. Explanation of the Graphs

The graphs show changes in the average values of white blood cell counts and differentials.

3. Reference Intervals

Total number of white blood cells ($\times 10^9$/L)

Age	Average	Range	Age	Average	Range
At birth	18.1	9.0-30.0	Ages 1	11.4	6.0-17.5
12 hours old	22.8	13.0-38.0	Ages 2	10.6	6.0-17.0
1 day old	18.9	9.4-34.0	Ages 4	9.1	5.5-15.5
1 week old	12.2	5.0-21.0	Ages 6	8.5	5.0-14.5
2 weeks old	11.4	5.0-20.0	Ages 8	8.3	4.5-13.5
1 month old	10.8	5.0-19.5	Ages 10	8.1	4.5-13.5
6 months old	11.9	6.0-17.5	Ages 16	7.8	4.5-13.0
			Ages 21	7.4	4.5-11.0

* By international consensus, white blood cell counts are expressed as numbers $\times 10^9$/L or $\times 10^3$/μL).
Source: Clinical Management of Laboratory Data in Pediatrics 2017 (3rd edition)

Neutrophil, lymphocyte, monocyte, and eosinophil counts and percentages

($x10^3/\mu L$; Range is the 95% confidence interval.)

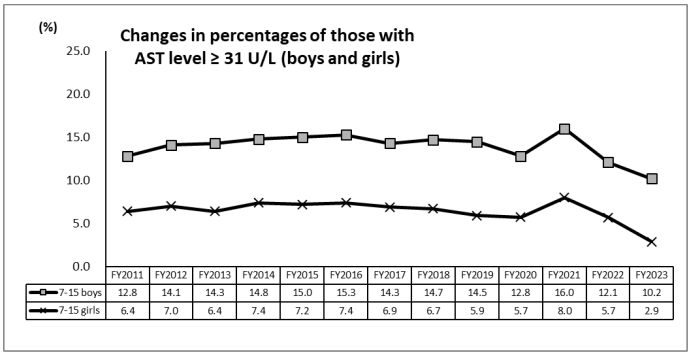
Age	Neutrophil count			Lymphocyte count			Monocyte count		Eosinophil count	
	Average	Range	%	Average	Range	%	Average	%	Average	%
At birth	11.0	6.0-26.0	61	5.5	2.0-11.0	31	1.1	6	0.4	2
12 hours old	15.5	6.0-28.0	68	5.5	2.0-11.0	24	1.2	5	0.5	2
1 day old	11.5	5.0-21.0	61	5.8	2.0-11.5	31	1.1	6	0.5	2
1 week old	5.5	1.5-10.0	45	5.0	2.0-17.0	41	1.1	9	0.5	4
2 weeks old	4.5	1.0-9.5	40	5.5	2.0-17.0	48	1.0	9	0.4	3
1 month old	3.8	1.0-8.5	35	6.0	2.5-16.5	56	0.7	7	0.3	3
6 months old	3.8	1.0-8.5	32	7.3	4.0-13.5	61	0.6	5	0.3	3
Ages 1	3.5	1.5-8.5	31	7.0	4.0-10.5	61	0.6	5	0.3	3
Ages 2	3.5	1.5-8.5	33	6.3	3.0-9.5	59	0.5	5	0.3	3
Ages 4	3.8	1.5-8.5	42	4.5	2.0-8.0	50	0.5	5	0.3	3
Ages 6	4.3	1.5-8.0	51	3.5	1.5-7.0	42	0.4	5	0.2	3
Ages 8	4.4	1.5-8.0	53	3.3	1.5-6.8	39	0.4	4	0.2	2
Ages 10	4.4	1.8-8.5	54	3.1	1.5-6.5	38	0.4	4	0.2	2
Ages 16	4.4	1.8-8.0	57	2.8	1.2-5.2	35	0.4	5	0.2	3
Ages 21	4.4	1.8-7.7	59	2.5	1.0-4.8	34	0.3	4	0.2	3

Source: Clinical Management of Laboratory Data in Pediatrics (3rd edition)

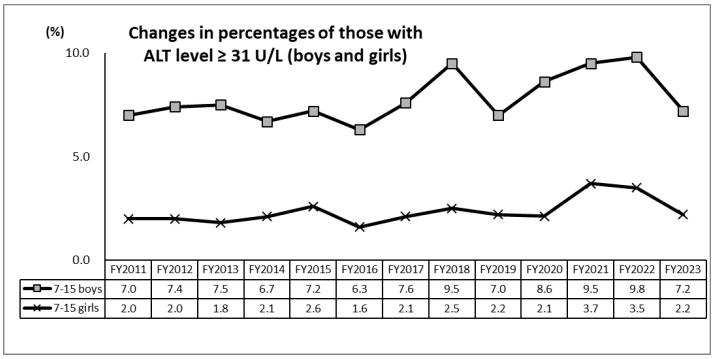
Liver Function: AST, ALT, γ-GT

1. Results

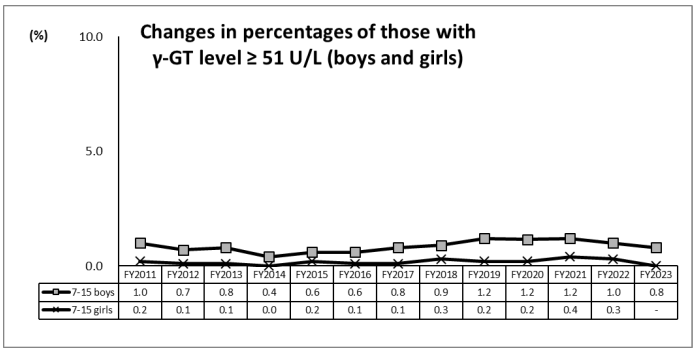
Liver dysfunction was found more often among boys than among girls in all fiscal years. The percentages showed no substantial changes for either boys or girls.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	12.8	14.1	14.3	14.8	15.0	15.3	14.3	14.7	14.5	12.8	16.0	12.1	10.2
7-15 girls	6.4	7.0	6.4	7.4	7.2	7.4	6.9	6.7	5.9	5.7	8.0	5.7	2.9



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	7.0	7.4	7.5	6.7	7.2	6.3	7.6	9.5	7.0	8.6	9.5	9.8	7.2
7-15 girls	2.0	2.0	1.8	2.1	2.6	1.6	2.1	2.5	2.2	2.1	3.7	3.5	2.2



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	1.0	0.7	0.8	0.4	0.6	0.6	0.8	0.9	1.2	1.2	1.2	1.0	0.8
7-15 girls	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.3	0.2	0.2	0.4	0.3	-

2. Explanation of the Graphs

An AST level of 31 U/L or over, an ALT level of 31 U/L or over, and a γ-GT level of 51 U/L or over are action values used for group and individual health checks for those ages 16 or older.

3. Reference Intervals

AST (GOT) (U/L)

Age	Male		Female	
	Lower limit	Upper limit	Lower limit	Upper limit
At birth	19.9	62.0	19.9	62.0
1 month	21.0	64.0	21.0	64.0
2 months	22.0	65.0	22.0	65.0
3 months	22.3	66.0	22.3	66.0
4 months	23.0	67.0	23.0	67.0
5 months	24.0	68.0	24.0	68.0
6 months	24.5	68.0	24.5	68.0
7 months	25.0	67.5	25.0	67.5
8 months	24.5	66.5	24.5	66.5
9 months	24.0	65.5	24.0	65.5
10 months	23.5	63.9	23.5	63.9
11 months	23.0	61.5	23.0	61.5
1 year old	23.0	56.5	24.0	57.0
2 years old	24.0	49.0	24.0	50.0
3 years old	24.0	43.0	24.0	44.0
4 years old	24.0	40.8	24.0	41.5

Age	Male		Female	
	Lower limit	Upper limit	Lower limit	Upper limit
5 years old	24.0	38.7	24.0	39.0
6 years old	24.0	37.5	24.0	37.5
7 years old	24.0	36.0	24.0	35.5
8 years old	22.5	34.8	22.5	33.5
9 years old	19.0	33.0	18.5	32.0
10 years old	17.0	32.0	17.0	31.0
11 years old	16.0	31.5	16.0	30.0
12 years old	15.0	31.0	15.0	29.5
13 years old	14.5	31.0	14.0	29.0
14 years old	14.0	30.0	13.5	28.0
15 years old	14.0	30.0	13.0	28.0
16 years old	14.0	30.0	12.5	28.0
17 years old	14.0	30.0	12.0	28.0
18 years old	14.0	30.0	12.0	28.0
19 years old	14.0	31.0	12.0	27.5
20 years old	14.0	32.0	12.0	27.0

ALT (GPT) (U/L)

Age	Male		Female		Age	Male		Female	
	Lower limit	Upper limit	Lower limit	Upper limit		Lower limit	Upper limit	Lower limit	Upper limit
At birth	11.0	45.0	11.0	45.0	5 years old	9.0	28.0	9.0	27.0
1 month	11.7	50.0	11.7	50.0	6 years old	9.0	28.0	9.0	27.0
2 months	12.5	54.5	12.5	54.5	7 years old	9.0	28.0	9.0	27.0
3 months	13.0	56.0	13.0	56.0	8 years old	9.0	28.5	9.0	27.0
4 months	13.0	56.0	13.0	56.0	9 years old	9.0	29.0	9.0	27.0
5 months	12.9	55.5	12.9	55.5	10 years old	9.0	30.0	9.0	27.0
6 months	12.5	54.5	12.5	54.5	11 years old	9.0	31.0	9.0	27.5
7 months	12.3	53.0	12.3	53.0	12 years old	9.0	32.0	9.0	28.0
8 months	12.0	50.5	12.0	50.5	13 years old	9.0	33.0	9.0	28.0
9 months	11.5	48.0	11.5	48.0	14 years old	9.0	34.0	9.0	28.5
10 months	10.5	45.0	10.5	45.0	15 years old	9.0	35.0	9.0	29.0
11 months	9.5	42.0	9.5	42.0	16 years old	9.0	36.0	9.0	29.5
1 year old	9.4	38.4	9.4	38.4	17 years old	9.0	37.0	9.0	30.0
2 years old	9.0	34.0	9.0	34.0	18 years old	9.0	38.0	9.0	30.5
3 years old	9.0	30.0	9.0	30.0	19 years old	9.0	39.0	9.0	31.0
4 years old	9.0	28.0	9.0	28.0	20 years old	9.0	41.0	9.0	32.0

γ—GT(U/L)

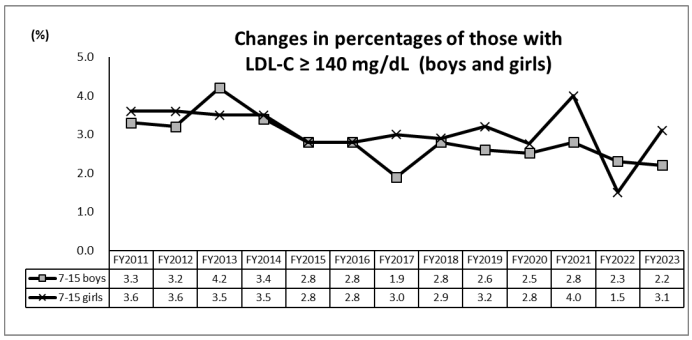
	Males	Females
Adults	0-50	0-30
From children to young adults	γ-GT levels normally reach adult values 5 to 6 months after birth.	
Newborns	5 to 6 times the normal upper limit	

Source: Clinical Management of Laboratory Data in Pediatrics (3rd edition)

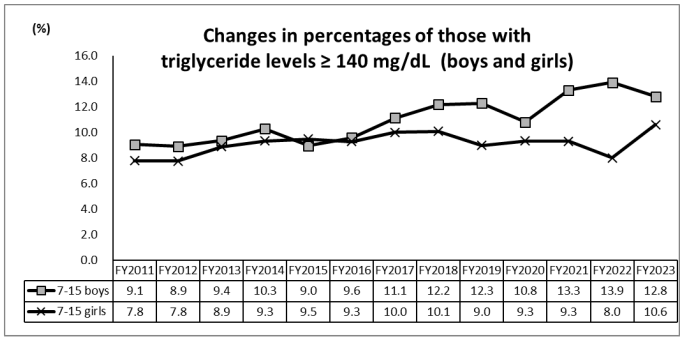
Lipids: LDL Cholesterol, Triglycerides, HDL Cholesterol

1. Results

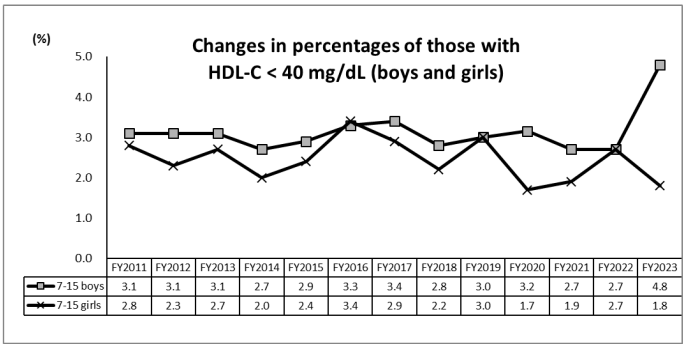
The percentage of both boys and girls with LDL-C levels of 140 mg/dL or over showed no particular trends.
The percentage of boys with triglyceride levels of 140 mg/dL or over showed a gradual upward trend. For girls, there were no substantial changes.
There were no particular trends in the percentage of either boys or girls with HDL-C levels lower than 40 mg/dL.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	3.3	3.2	4.2	3.4	2.8	2.8	1.9	2.8	2.6	2.5	2.8	2.3	2.2
7-15 girls	3.6	3.6	3.5	3.5	2.8	2.8	3.0	2.9	3.2	2.8	4.0	1.5	3.1



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	9.1	8.9	9.4	10.3	9.0	9.6	11.1	12.2	12.3	10.8	13.3	13.9	12.8
7-15 girls	7.8	7.8	8.9	9.3	9.5	9.3	10.0	10.1	9.0	9.3	9.3	8.0	10.6



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	3.1	3.1	3.1	2.7	2.9	3.3	3.4	2.8	3.0	3.2	2.7	2.7	4.8
7-15 girls	2.8	2.3	2.7	2.0	2.4	3.4	2.9	2.2	3.0	1.7	1.9	2.7	1.8

2. Explanation of the Graphs

Determination of hyperlipidemia was based on the following reference intervals.

3. Reference intervals for diagnosing hyperlipidemia in children (ages 15 and younger, fasting blood sampling)

LDL cholesterol（LDL-C）	≥140 mg / dL
Triglycerides (TG)	≥140 mg / dL
HDL cholesterol（HDL-C）	< 40 mg / dL

Source: Japan Atherosclerosis Society (JAS) Guidelines for Prevention of Atherosclerotic Cardiovascular Diseases 2022

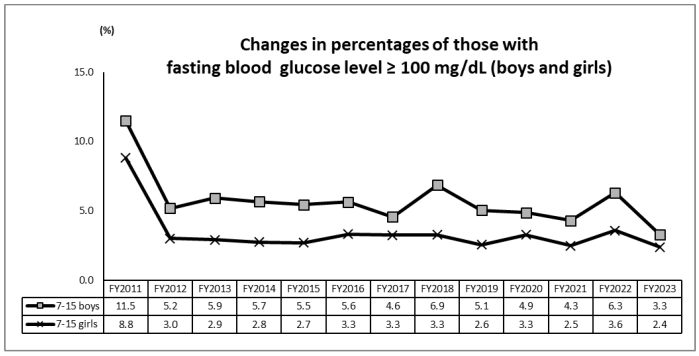
Blood Glucose: Fasting Blood Glucose, HbA1c

1. Results

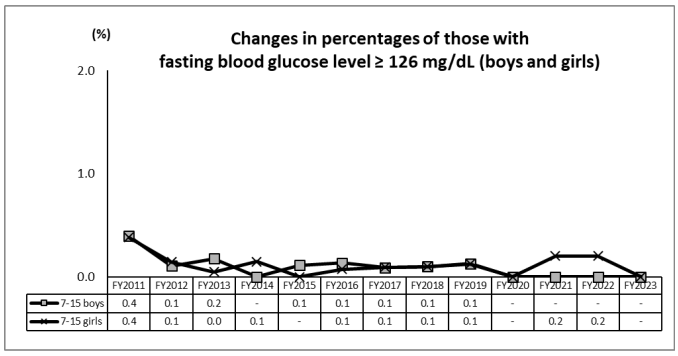
Both for boys and girls, the percentages of those whose fasting blood glucose level was 100 mg/dL or over hit a peak in FY2011, decreased through FY2012, and maintained almost the same levels thereafter. There were no substantial changes in the percentage of those with fasting blood glucose level of 126 mg/dL or over for either boys or girls.

The percentage of those with HbA1c levels of 5.6% or over showed no particular trends for either boys or girls.

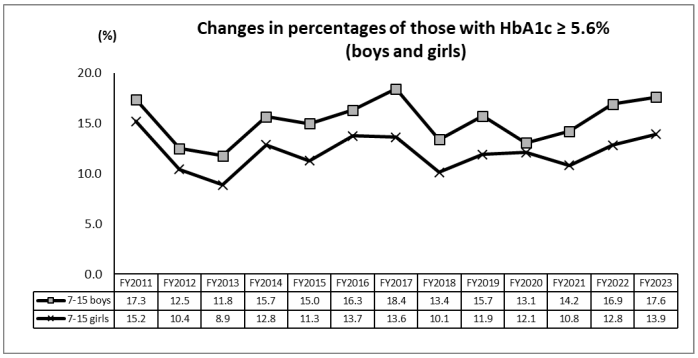
There were also no substantial differences in the percentages of those whose HbA1c level was 6.5% or over between boys and girls, and the percentages remained unchanged both for boys and girls.



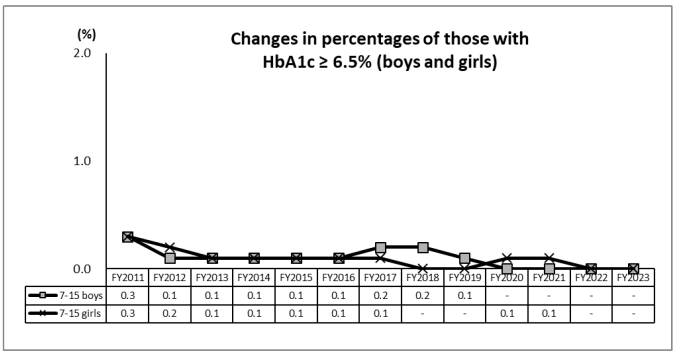
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	11.5	5.2	5.9	5.7	5.5	5.6	4.6	6.9	5.1	4.9	4.3	6.3	3.3
7-15 girls	8.8	3.0	2.9	2.8	2.7	3.3	3.3	3.3	2.6	3.3	2.5	3.6	2.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	0.4	0.1	0.2	-	0.1	0.1	0.1	0.1	0.1	-	-	-	-
7-15 girls	0.4	0.1	0.0	0.1	-	0.1	0.1	0.1	0.1	-	0.2	0.2	-



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	17.3	12.5	11.8	15.7	15.0	16.3	18.4	13.4	15.7	13.1	14.2	16.9	17.6
7-15 girls	15.2	10.4	8.9	12.8	11.3	13.7	13.6	10.1	11.9	12.1	10.8	12.8	13.9



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	-	-	-	-
7-15 girls	0.3	0.2	0.1	0.1	0.1	0.1	0.1	-	-	0.1	0.1	-	-

2. Explanation of the Graphs

Determinations of the existence of a high blood glucose level (fasting blood glucose level of 100 mg/dL or over and HbA1c level of 5.6% or over) and diabetes (fasting blood glucose level of 126 mg/dL or over and HbA1c level of 6.5% or over) were based on the following reference intervals, applicable to children and adults.

3. Reference Intervals

Classification and determination criteria based on fasting blood glucose level and through 75g OGTT

	Measurement time			Classification
	Fasting		2-hours postprandial	
Blood glucose (venous plasma level)	126 mg/dL or over	◀ or ▶	200 mg/dL or over	Diabetes
	Intermediate values, neither diabetic nor normal			Borderline
	Lower than 110 mg/dL	◀ and ▶	Lower than 140 mg/dL	Normal

(i) Early morning fasting blood glucose level: 126 mg/dL or over
(ii) Blood glucose level after 2-hour 75g OGTT: 200 mg/dL or over
(iii) Casual blood glucose level: 200 mg/dL or over
(iv) HbA1c level: 6.5% or over

Blood glucose levels matching any of (i) to (iv) are diagnostic of diabetes.

(v) Early morning fasting blood glucose level: Lower than 110 mg/dL
(vi) Blood glucose level after 2-hour 75g OGTT: Lower than 140 mg/dL

Blood glucose levels matching (v) and (vi) rule out a diagnosis of diabetes.

- Intermediate blood glucose values indicate a “borderline” condition that is neither diabetic nor normal.

*Source: "Treatment Guide for Diabetes 2022-2023"

*In this report, based on the “Epidemiological study: To estimate the frequency of diabetes mellitus,” ‘diabetes mellitus’ can be substituted for the determination of ‘diabetic type’ from a single examination. In this case, HbA1c of 6.5% (HbA1c (JDS)≥6.1%) alone can be defined as diabetes mellitus. Source: Report of the Committee on the classification and diagnostic criteria of diabetes mellitus 2012 (by the Japan Diabetes Society) ‘diabetic type’ is deemed ‘diabetes mellitus.’

Criteria for conducting a detailed health check (additional check items based on a doctor's judgment)

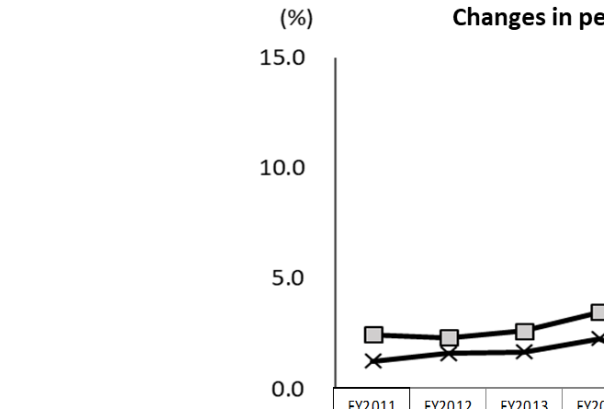
Blood glucose level	Fasting blood glucose level of 100 mg/dL or over and HbA1c level (NGSP level) of 5.6% or over, or casual blood glucose level of 100 mg/dL or over

Source: "Guidelines for Smooth Implementation of Specified Health Checkups and Health Guidance (4.1 Edition) 2024" by the Ministry of Health, Labour and Welfare

Renal Function (Serum Creatinine)

1. Results

The percentage of children having stage 2 or higher chronic kidney disease showed no particular trend for either boys or girls.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 7-15 boys	2.5	2.3	2.6	3.5	2.6	3.0	2.6	2.0	2.9	5.0	3.1	3.5	4.4
Ages 7-15 girls	1.3	1.6	1.7	2.3	1.0	2.2	1.6	1.8	1.9	3.1	2.8	0.8	1.3
Stage 2 CKD boys / participants	137/5584	86/3685	82/3114	102/2910	65/2497	66/2190	47/1841	31/1561	35/1212	48/952	27/865	22/620	22/499
Stage 2 CKD girls / participants	70/5509	57/3511	50/2978	64/2789	23/2286	44/2022	28/1780	28/1534	23/1202	29/942	24/846	5/601	6/453

2. Explanation of the Graph

The graph shows the percentages of children who were diagnosed as having stage 2 or higher chronic kidney disease, based on their serum creatinine levels and the following reference intervals.

3. Reference Intervals

Table for determining chronic kidney disease (CKD) stages based on serum creatinine levels (mg/dL)

Age	Stage 2	Stage 3	Stage 4	Stage 5
7	0.50-	0.75-	1.49-	2.97-
8	0.54-	0.81-	1.61-	3.21-
9	0.55-	0.83-	1.65-	3.29-
10	0.55-	0.83-	1.65-	3.29-
11	0.61-	0.91-	1.81-	3.61-

Age	Stage 2		Stage 3		Stage 4		Stage 5	
Sex	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
12	0.71-	0.70-	1.07-	1.05-	2.13-	2.09-	4.25-	4.17-
13	0.79-	0.71-	1.19-	1.07-	2.37-	2.13-	4.73-	4.25-
14	0.87-	0.78-	1.31-	1.17-	2.61-	2.33-	5.21-	4.65-
15	0.91-	0.75-	1.37-	1.13-	2.73-	2.25-	5.45-	4.49-

Source: “Child Chronic Kidney Disease: Guidelines for Renal Impairment Diagnosis and Renal Function Assessment for Children” (2019) by the Guidelines Editorial Board

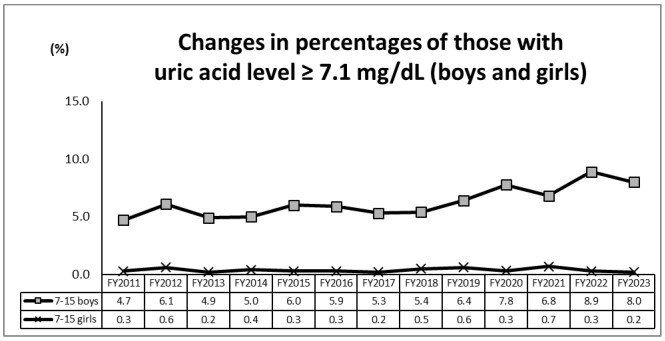
Uric Acid

1. Results

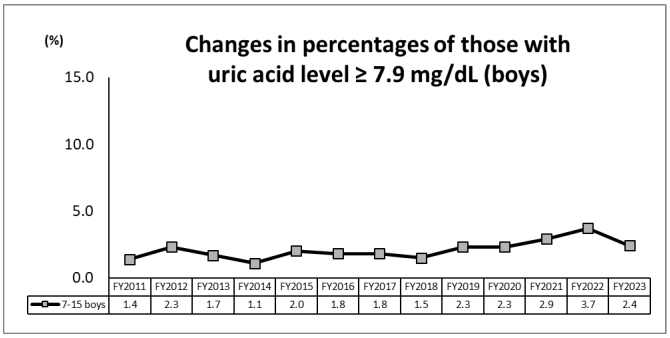
The percentage of boys with uric acid of 7.1 mg/dL or over showed an increasing tendency from FY2011 through FY2023. The percentage of girls with uric acid of 7.1 mg/dL or over showed no substantial changes.

There were no substantial changes in the percentage of boys with uric acid of 7.9 mg/dL or over.

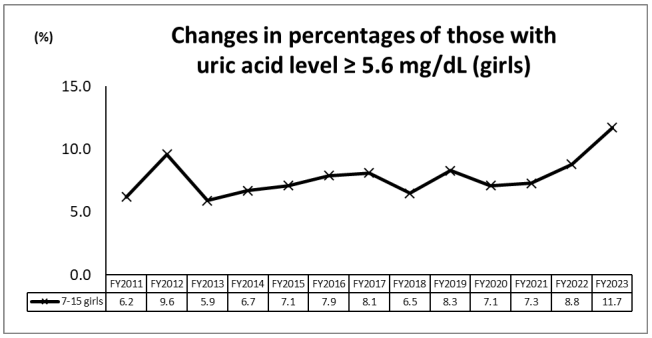
The percentage of girls with uric acid of 5.6 mg/dL or over showed a slight increasing trend after FY2022.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	4.7	6.1	4.9	5.0	6.0	5.9	5.3	5.4	6.4	7.8	6.8	8.9	8.0
7-15 girls	0.3	0.6	0.2	0.4	0.3	0.3	0.2	0.5	0.6	0.3	0.7	0.3	0.2



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 boys	1.4	2.3	1.7	1.1	2.0	1.8	1.8	1.5	2.3	2.3	2.9	3.7	2.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
7-15 girls	6.2	9.6	5.9	6.7	7.1	7.9	8.1	6.5	8.3	7.1	7.3	8.8	11.7

2. Explanation of the Graphs

Determination of hyperuricemia was based on the following reference intervals.

3. Reference Intervals

Definition of hyperuricemia in the "Guidelines for the Management of Hyperuricemia and Gout" by the Japanese Society of Gout and Uric & Nucleic Acids.	Uric acid: 7.1 mg/dL or higher
Values exceeding the upper limits of the common reference intervals established by the Japanese Committee for Clinical Laboratory Standards	Uric acid Boys: 7.9 mg/dL or higher Girls: 5.6 mg/dL or higher

Report on the Results of the FY2023 Comprehensive Health Check Fukushima Health Management Survey (Participants Ages 16 or Older)

< Supplementary Notes >

* Participants ages 16 or older were divided into three age groups: 16 to 39 years, 40 to 64 years, and 65 years or older, with results compiled and shown accordingly.
* Because individuals shift from one age group to another, year-by-year comparisons are difficult, and definitive conclusions cannot be drawn.
* Rules for describing tabulation results are the same as those used for Vital Statistics in Japan by the Ministry of Health, Labour and Welfare.
  When there is no data: -
  When the ratio is minor (lower than 0.05): 0.0%

* Reference materials

FY2011 to FY2014 : Material 3-2 "Basic Statistics of CHC Results by Health Check Item" for the 21st Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2015: Material 3-2 "Basic Statistics of CHC Results by Health Check Item" for the 26th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2016: Material 2-3 "Basic Statistics of CHC Results by Health Check Item" for the 30th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2017: Material 2-3 "Basic Statistics of CHC Results by Health Check Item" for the 34th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2018: Material 4-4 "Tabulation Results by Health Check Item" for the 37th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2019: Material 3-4 "Tabulation Results by Health Check Item" for the 41st Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2020: Material 4-4 "Tabulation Results by Health Check Item" for the 44th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

FY2021: Material 4-4 "Tabulation Results by Health Check Item" for the 48th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

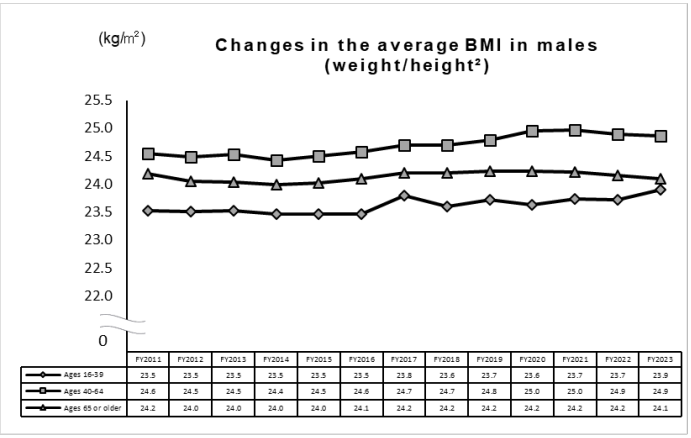
FY2022: Material 4-4 "Tabulation Results by Health Check Item" for the 50th Prefectural Oversight Committee Meeting for the Fukushima Health Management Survey

Physical Exam: BMI

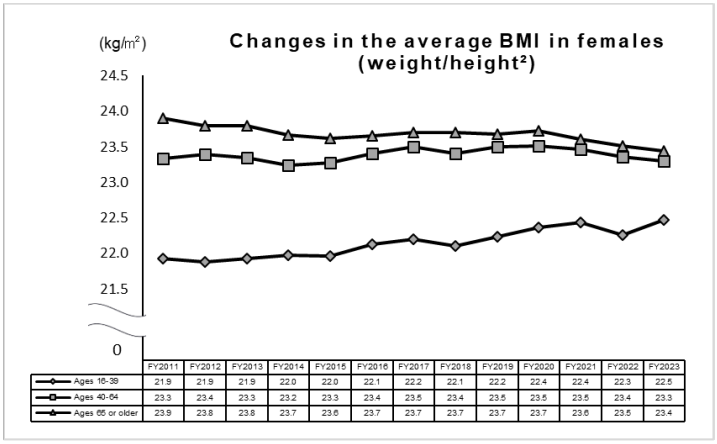
1. Results

Compared with the results for FY2016, the percentage of males with a BMI of 25 kg/m^2 or over increased in FY2017 for all age groups, with no substantial changes thereafter to FY2023.

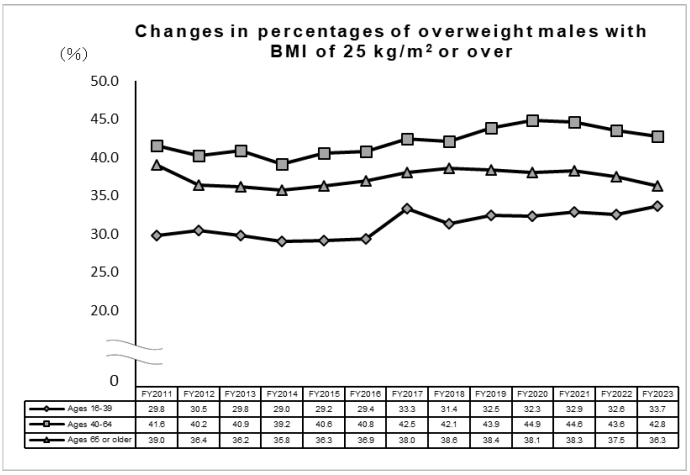
The percentage of females with a BMI of 25 kg/m^2 or over showed an upward trend among those ages 16 to 39 from FY2011 to FY2023. The percentage increased slightly among those ages 40 to 64 from FY2014 to FY2020, but decreased slightly thereafter. Among those ages 65 or older, it showed a decreasing trend from FY2011 to FY2023.



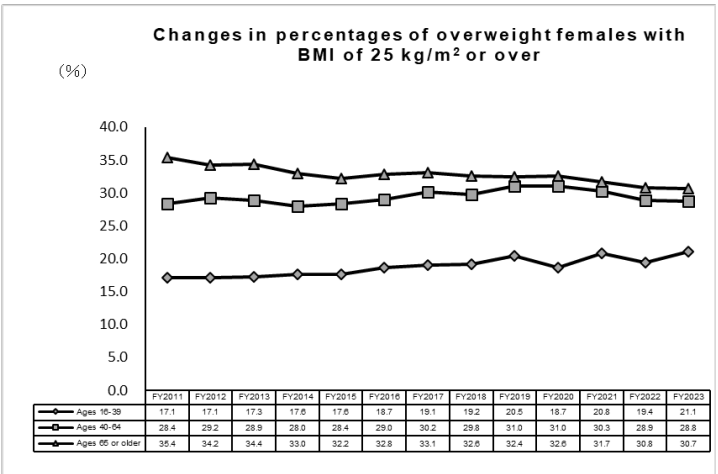
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	23.5	23.5	23.5	23.5	23.5	23.5	23.8	23.6	23.7	23.6	23.7	23.7	23.9
Ages 40-64	24.6	24.5	24.5	24.4	24.5	24.6	24.7	24.7	24.8	25.0	25.0	24.9	24.9
Ages 65 or older	24.2	24.0	24.0	24.0	24.0	24.1	24.2	24.2	24.2	24.2	24.2	24.2	24.1



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	21.9	21.9	21.9	22.0	22.0	22.1	22.2	22.1	22.2	22.4	22.4	22.3	22.5
Ages 40-64	23.3	23.4	23.3	23.2	23.3	23.4	23.5	23.4	23.5	23.5	23.5	23.4	23.3
Ages 65 or older	23.9	23.8	23.8	23.7	23.6	23.7	23.7	23.7	23.7	23.7	23.6	23.5	23.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	29.8	30.5	29.8	29.0	29.2	29.4	33.3	31.4	32.5	32.3	32.9	32.6	33.7
Ages 40-64	41.6	40.2	40.9	39.2	40.6	40.8	42.5	42.1	43.9	44.9	44.6	43.6	42.8
Ages 65 or older	39.0	38.4	38.2	35.8	38.3	38.9	38.0	38.6	38.4	38.1	38.3	37.5	38.3



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	17.1	17.1	17.3	17.6	17.6	18.7	19.1	19.2	20.5	18.7	20.8	19.4	21.1
Ages 40-64	28.4	29.2	28.9	28.0	28.4	29.0	30.2	29.8	31.0	31.0	30.3	28.9	28.8
Ages 65 or older	35.4	34.2	34.4	33.0	32.2	32.8	33.1	32.6	32.4	32.6	31.7	30.8	30.7

2. Explanation of the Graphs

BMI was calculated based on measured heights and weights, and those with a BMI of 25 kg/m^2 or over were classified as obese.

BMI = Weight (kg) / Height (m) / Height (m)

3. Reference Intervals and Action Thresholds

Degrees of obesity

BMI (kg/m^2)	Classification		WHO standards
BMI < 18.5	Underweight		Underweight
18.5 ≤ BMI < 25	Normal weight		Normal range
25 ≤ BMI < 30	Obese (level 1)		Pre-obese
30 ≤ BMI < 35	Obese (level 2)		Obese class Ⅰ
35 ≤ BMI < 40	Severe obesity	Obese (level 3)	Obese class Ⅱ
40 ≤ BMI		Obese (level 4)	Obese class Ⅲ

*Source: "Guidelines for the Management of Obesity Disease 2022" by the Japan Society for the Study of obesity

Physical Exam: Abdominal Circumference

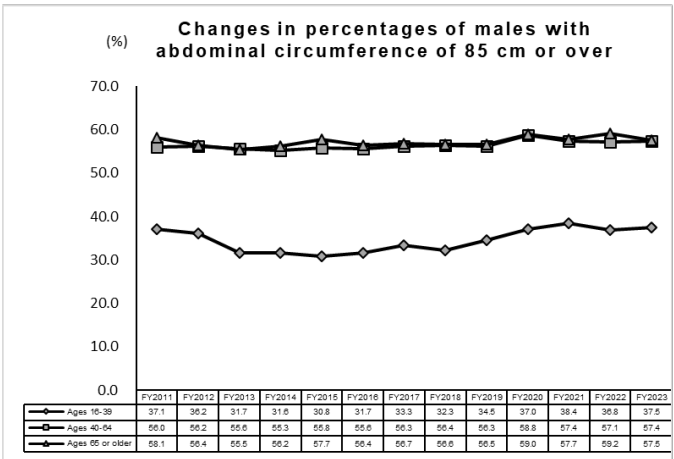
1. Results

The percentage of males with an abdominal circumference of 85.0 cm or over decreased among those ages 16 to 39 from FY2011 to FY2015, but showed a slight upward trend through FY2023.

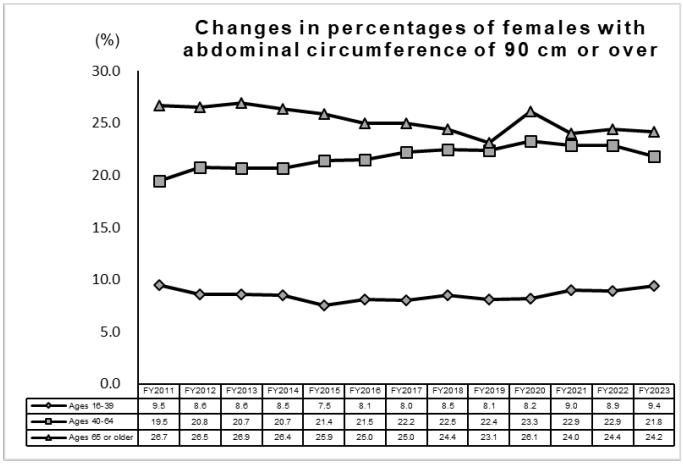
The percentage of females with an abdominal circumference of 90.0 cm or over increased among those ages 40 to 64 from FY2011 to FY2020, but decreased thereafter.

2. Explanation of the Graphs

Levels of the waist circumference (abdominal circumference), which serve as one of the diagnostic criteria for metabolic syndrome, were evaluated based on the following reference intervals.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	37.1	36.2	31.7	31.6	30.8	31.7	33.3	32.3	34.5	37.0	38.4	36.8	37.5
Ages 40-64	56.0	56.2	55.6	55.3	55.8	55.6	56.3	56.4	56.3	56.8	57.4	57.1	57.4
Ages 65 or older	58.1	58.4	58.5	58.2	57.7	58.4	58.7	58.6	58.5	59.0	57.7	59.2	57.5



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	9.5	8.6	8.6	8.5	7.5	8.1	8.0	8.5	8.1	8.2	9.0	8.9	9.4
Ages 40-64	19.5	20.8	20.7	20.7	21.4	21.5	22.2	22.5	22.4	23.3	22.9	22.9	21.8
Ages 65 or older	26.7	26.5	26.9	26.4	25.9	26.0	25.0	24.4	23.1	26.1	24.0	24.4	24.2

3. Reference Intervals

Diagnostic criteria for metabolic syndrome

Visceral fat (intra-abdominal fat) accumulation	
Waist circumference	Males ≥ 85 cm Females ≥ 90 cm
(Visceral fat area: Equivalent to ≥ 100 cm^2 for both males and females)	
Two or more of the following, in addition to the above	
Hypertriglyceridemia and/or Hypo-HDL cholesterolemia	≥ 150 mg/dL < 40 mg/dL for both males and females
Systolic blood pressure and/or Diastolic blood pressure	≥ 130 mmHg ≥ 85 mmHg
Fasting hyperglycemia	≥ 110 mg/dL

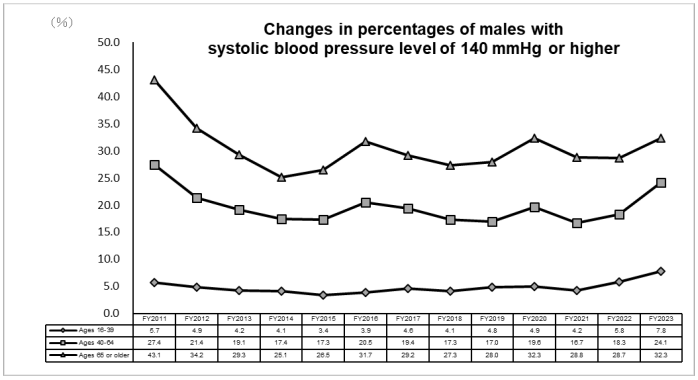
*Source: “Definition and Diagnostic Criteria for Metabolic Syndrome (2005)” by the Metabolic Syndrome Diagnostic Standards Review Committee

Physical Exam: Blood Pressure

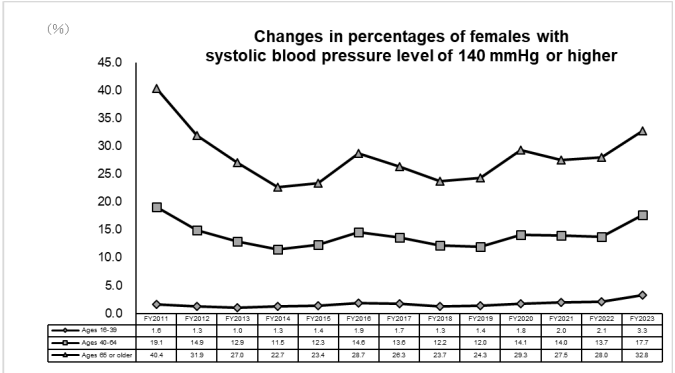
1. Results

The percentage of those with systolic blood pressure levels of 140 mmHg or higher decreased both among males and females aged 40 or older from FY2011 to FY2014, and showed no particular trends thereafter.

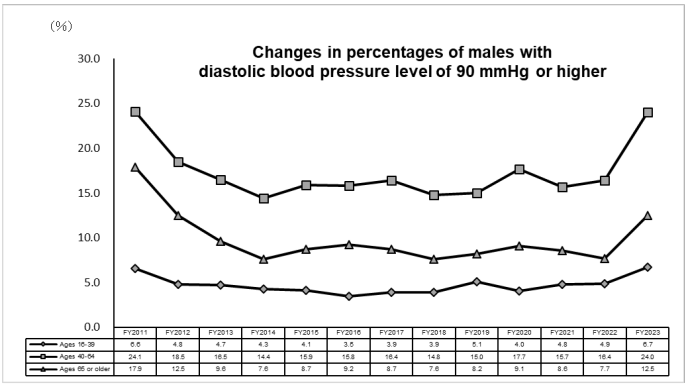
The percentage of those with diastolic blood pressure levels of 90 mmHg or higher decreased among both males and females aged 40 or older from FY2011 to FY2014, and showed no substantial changes thereafter.



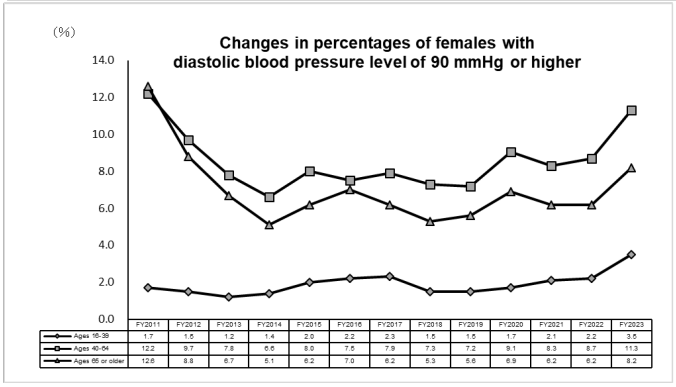
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	5.7	4.9	4.2	4.1	3.4	3.9	4.6	4.1	4.8	4.9	4.2	5.8	7.8
Ages 40-64	27.4	21.4	19.1	17.4	17.3	20.5	19.4	17.3	17.0	19.6	16.7	18.3	24.1
Ages 65 or older	43.1	34.2	29.3	26.1	26.5	31.7	29.2	27.3	28.0	32.3	28.8	28.7	32.3



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	1.6	1.3	1.0	1.3	1.4	1.9	1.7	1.3	1.4	1.8	2.0	2.1	3.3
Ages 40-64	19.1	14.9	12.9	11.5	12.3	14.6	13.6	12.2	12.0	14.1	14.0	13.7	17.7
Ages 65 or older	40.4	31.9	27.0	22.7	23.4	28.7	26.3	23.7	24.3	29.3	27.5	28.0	32.8



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	5.6	4.8	4.7	4.3	4.1	3.5	3.9	3.9	5.1	4.0	4.8	4.9	6.7
Ages 40-64	24.1	18.5	16.5	14.4	15.9	15.8	16.4	14.8	16.0	17.7	15.7	16.4	24.0
Ages 65 or older	17.9	12.5	9.6	7.6	8.7	9.2	8.7	7.6	8.2	9.1	8.6	7.7	12.5



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	1.7	1.5	1.2	1.4	2.0	2.2	2.3	1.5	1.5	1.7	2.1	2.2	3.5
Ages 40-64	12.2	9.7	7.8	6.6	8.0	7.5	7.9	7.3	7.2	9.1	8.3	8.7	11.3
Ages 65 or older	12.6	8.8	6.7	5.1	6.2	7.0	6.2	5.3	5.6	6.9	6.2	6.2	8.2

2. Explanation of the Graphs

Determinations of systolic hypertension and diastolic hypertension were based on the following reference intervals.

3. Reference Intervals

Classification of adults' blood pressure levels

Classification	Office blood pressure (mmHg)			Home blood pressure (mmHg)		
	Systolic BP		Diastolic BP	Systolic BP		Diastolic BP
Normal BP	< 120	and	< 80	< 115	and	< 75
High normal BP	120–129	and	< 80	115–124	and	< 75
High BP	130–139	and/or	80–89	125–134	and/or	75–84
Level 1 hypertension	140–159	and/or	90–99	135–144	and/or	85–89
Level 2 hypertension	160–179	and/or	100–109	145–159	and/or	90–99
Level 3 hypertension	≥ 180	and/or	≥ 110	≥ 160	and/or	≥ 100
(Isolated) systolic hypertension	≥ 140	and	< 90	≥ 135	and	< 85

Source: "Guidelines for the Management of Hypertension 2019" by the Japanese Society of Hypertension

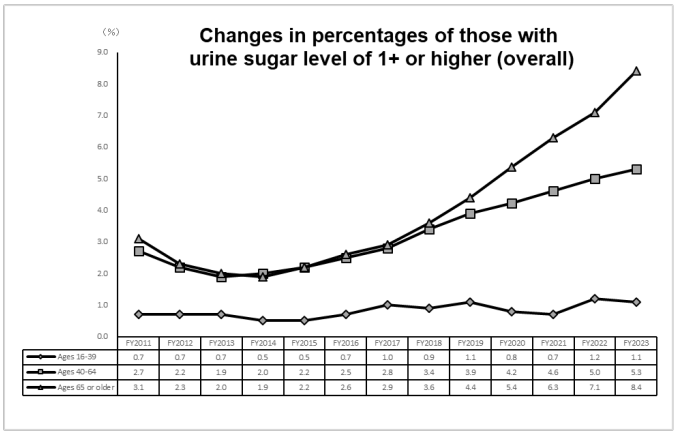
Urine Tests: Urine Sugar, Urine Protein, Urine Occult Blood

1. Results

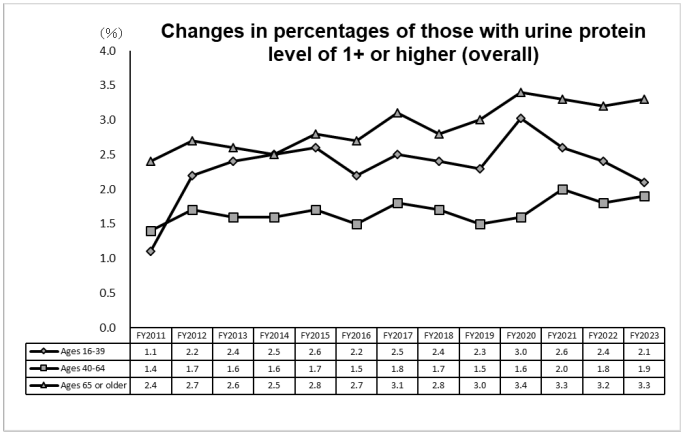
The percentage of those with a urine sugar level of 1+ or higher showed an upward trend among those ages 40 or older from FY2015.

The percentage of those with a urine protein level of 1+ or higher gradually increased among those ages 65 or older.

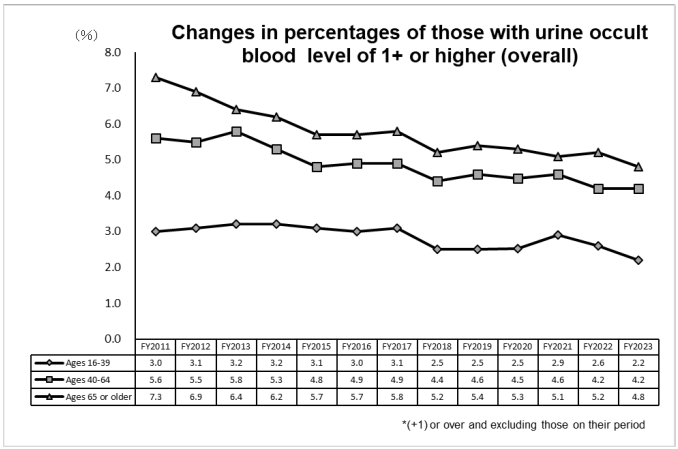
The percentage of those with a urine occult blood level of 1+ or higher decreased among those ages 65 or older from FY2011 to FY2023.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	0.7	0.7	0.7	0.5	0.5	0.7	1.0	0.9	1.1	0.8	0.7	1.2	1.1
Ages 40-64	2.7	2.2	1.9	2.0	2.2	2.5	2.8	3.4	3.9	4.2	4.6	5.0	5.3
Ages 65 or older	3.1	2.3	2.0	1.9	2.2	2.6	2.9	3.6	4.4	5.4	6.3	7.1	8.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	1.1	2.2	2.4	2.5	2.6	2.2	2.5	2.4	2.3	3.0	2.6	2.4	2.1
Ages 40-64	1.4	1.7	1.6	1.6	1.7	1.5	1.8	1.7	1.5	1.6	2.0	1.8	1.9
Ages 65 or older	2.4	2.7	2.6	2.5	2.8	2.7	3.1	2.8	3.0	3.4	3.3	3.2	3.3



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	3.0	3.1	3.2	3.2	3.1	3.0	3.1	2.5	2.5	2.5	2.9	2.6	2.2
Ages 40-64	5.6	5.5	5.8	5.3	4.8	4.9	4.9	4.4	4.6	4.5	4.6	4.2	4.2
Ages 65 or older	7.3	6.9	6.4	6.2	5.7	5.7	5.8	5.2	5.4	5.3	5.1	5.2	4.8

*(+1) or over and excluding those on their period

2. Explanation of the Graphs

Determination of the existence of abnormalities in urine test results was based on the following reference intervals.

3. Screening Values (Diagnostic criteria used for group and individual health checks)

Item \ Diagnosis	Expected	Action Threshold	Abnormality
Urine sugar	(－)	(±)	(+) or higher
Urine protein	(－)	(±)	(+) or higher
Urine occult blood	(－)	(±)	(+) or higher

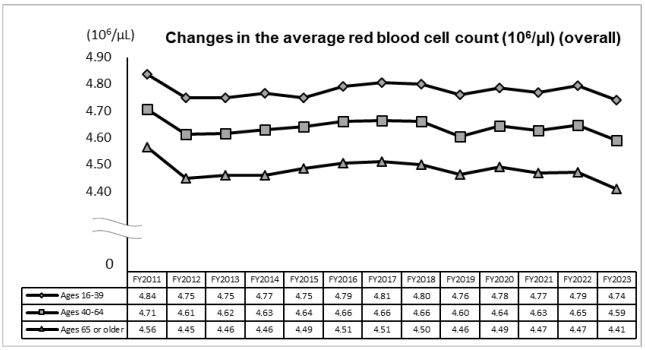
Peripheral Blood Tests: Red Blood Cells, Hemoglobin, Hematocrit

1. Results

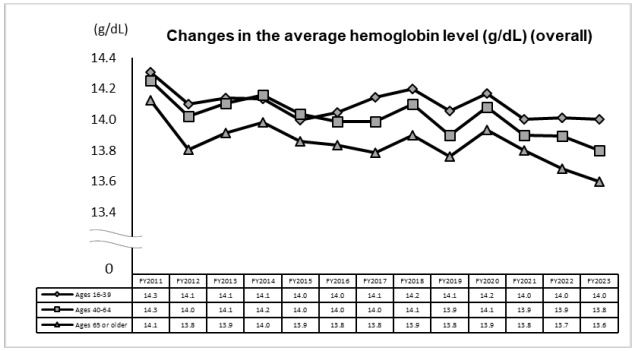
The average red blood cell count and the average hemoglobin level decreased for all age groups from FY2011 to FY2012, but without substantial changes.

The percentage of males with hemoglobin levels of 13.0 g/dL or lower increased among those ages 65 or older from FY2011 to FY2012 and showed no sign of a trend thereafter, but has increased since FY2021. The percentage of females with hemoglobin levels of 12.0 g/dL or lower increased among those ages 65 or older from FY2011 to FY2012 and then showed no particular trend thereafter.

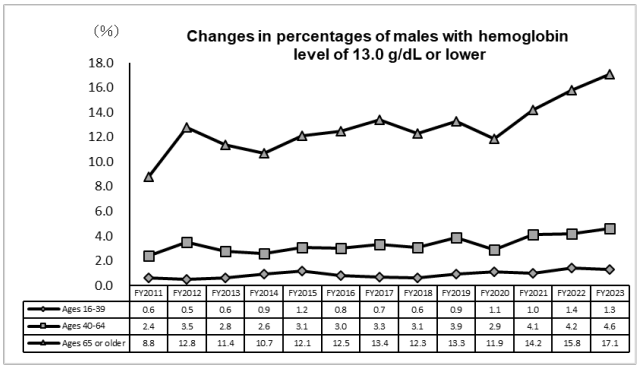
There were no substantial changes in hematocrit levels in any age groups.



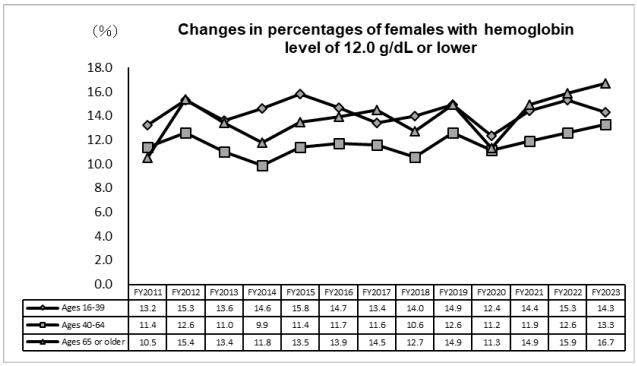
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	4.84	4.75	4.75	4.77	4.75	4.79	4.81	4.80	4.76	4.78	4.77	4.79	4.74
Ages 40-64	4.71	4.61	4.62	4.63	4.64	4.66	4.66	4.66	4.60	4.64	4.63	4.65	4.59
Ages 65 or older	4.56	4.45	4.46	4.46	4.49	4.51	4.51	4.50	4.46	4.49	4.47	4.47	4.41



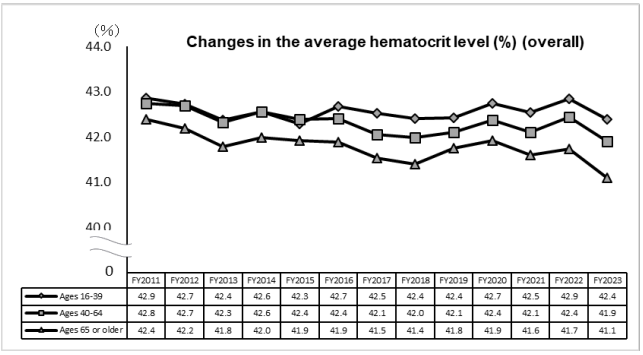
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	14.3	14.1	14.1	14.1	14.0	14.0	14.1	14.2	14.1	14.2	14.0	14.0	14.0
Ages 40-64	14.3	14.0	14.1	14.2	14.0	14.0	14.0	14.1	13.9	14.1	13.9	13.9	13.8
Ages 65 or older	14.1	13.8	13.9	14.0	13.9	13.8	13.8	13.9	13.8	13.9	13.8	13.7	13.6



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	0.6	0.5	0.6	0.9	1.2	0.8	0.7	0.6	0.9	1.1	1.0	1.4	1.3
Ages 40-64	2.4	3.5	2.8	2.6	3.1	3.0	3.3	3.1	3.9	2.9	4.1	4.2	4.6
Ages 65 or older	8.8	12.8	11.4	10.7	12.1	12.5	13.4	12.3	13.3	11.9	14.2	15.8	17.1



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	13.2	15.3	13.6	14.6	15.8	14.7	13.4	14.0	14.9	12.4	14.4	15.3	14.3
Ages 40-64	11.4	12.6	11.0	9.9	11.4	11.7	11.6	10.6	12.6	11.2	11.9	12.6	13.3
Ages 65 or older	10.5	15.4	13.4	11.8	13.5	13.9	14.5	12.7	14.9	11.3	14.9	15.9	16.7



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	42.9	42.7	42.4	42.6	42.3	42.7	42.5	42.4	42.4	42.7	42.5	42.9	42.4
Ages 40-64	42.8	42.7	42.3	42.6	42.4	42.4	42.1	42.0	42.1	42.4	42.1	42.4	41.9
Ages 65 or older	42.4	42.2	41.8	42.0	41.9	41.9	41.5	41.4	41.8	41.9	41.6	41.7	41.1

2. Explanation of the Graphs

The graphs show changes in average values of red blood cell counts, hemoglobin, and hematocrit. The WHO standards for anemia are 13.0 g/dL or lower for males and 12.0 g/dL or lower for females.

3. Reference Intervals

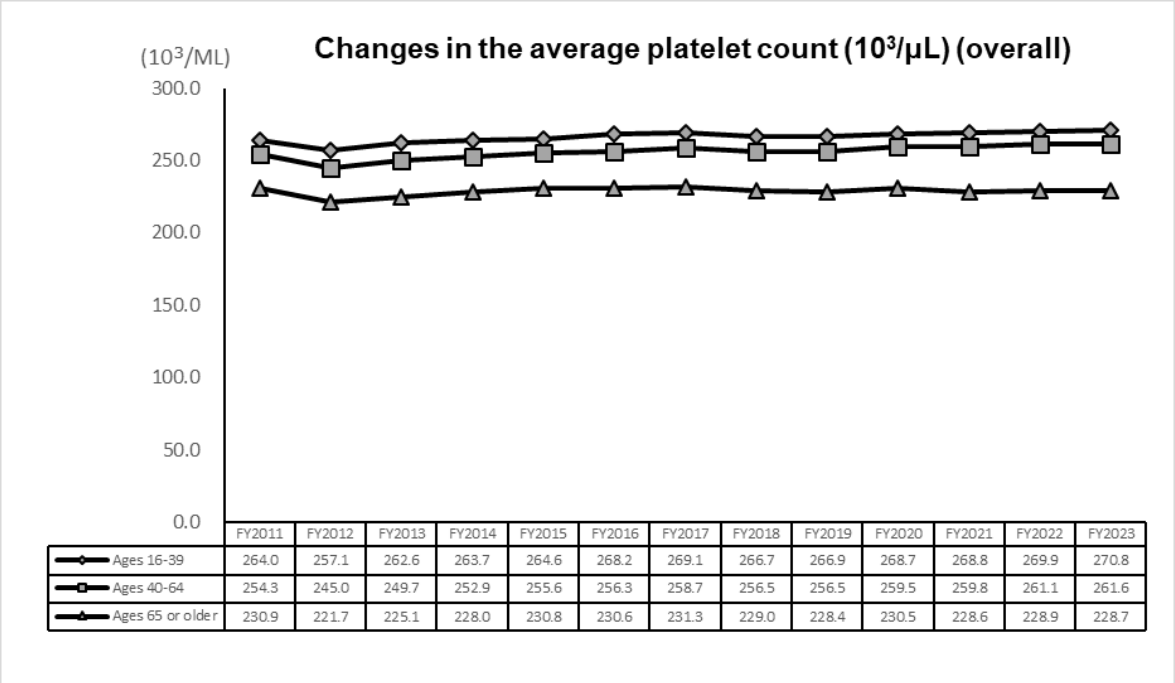
Item	Unit		Lower reference limit	Upper reference limit
Red blood cell count	10^6/μL	Male	4.35	5.55
		Female	3.86	4.92
Hemoglobin	g/dL	Male	13.7	16.8
		Female	11.6	14.8
Hematocrit	%	Male	40.7	50.1
		Female	35.1	44.4

Source: “Guidelines for Clinical Laboratory Tests 2021” (JSLM2021) by the Japanese Society of Laboratory Medicine

Peripheral Blood Test: Platelet Counts

1. Results

There were no substantial changes in the average platelet count in any age group.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	264.0	257.1	262.6	263.7	264.6	268.2	269.1	266.7	266.9	268.7	268.8	269.9	270.8
Ages 40-64	254.3	245.0	249.7	252.9	255.6	256.3	258.7	256.5	256.5	259.5	259.8	261.1	261.6
Ages 65 or older	230.9	221.7	225.1	228.0	230.8	230.6	231.3	229.0	228.4	230.5	228.6	228.9	228.7

2. Explanation of the Graph

The graph shows changes in the average values of platelet counts.

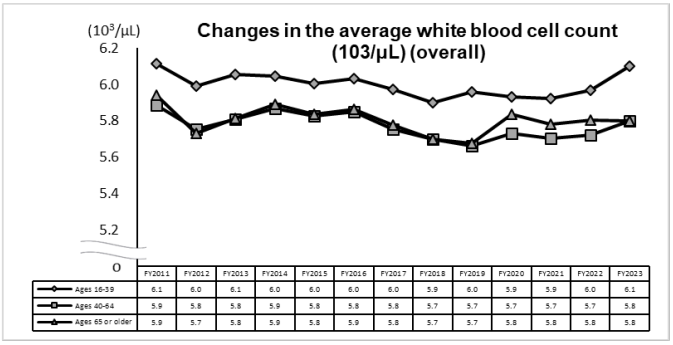
3. Reference Intervals and Action Thresholds (diagnostic criteria used for group and individual health checks)

Diagnosis / Item	Reference Interval	Action Thresholds		Abnormality		Units
Number of blood platelets	130–369	90–129	370–449	89 or lower	450 or higher	×10³/μL

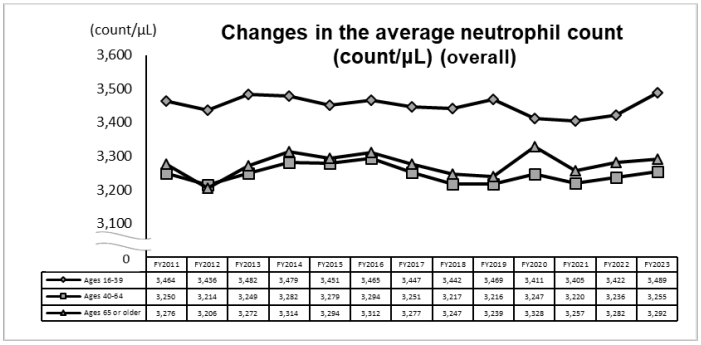
Peripheral Blood Test: White Blood Cell Counts and Differentials

1. Results

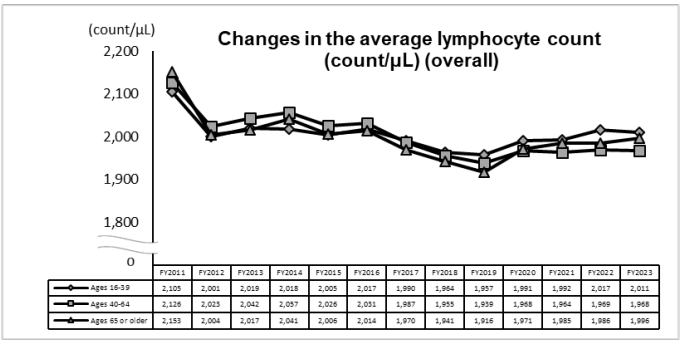
There were no substantial changes in the average white blood cell count in any age group.
There were also no substantial changes in the average neutrophil, lymphocyte, monocyte, eosinophil, or basophil counts.



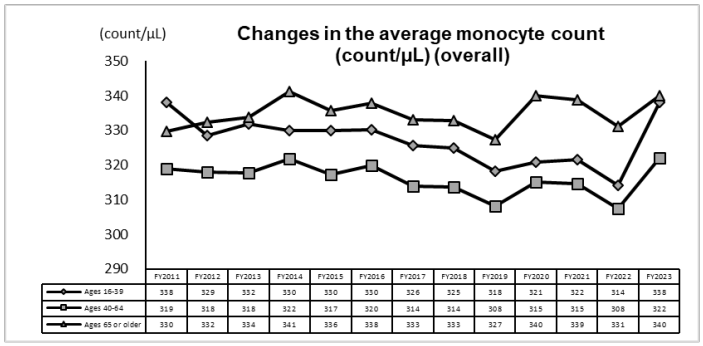
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	6.1	6.0	6.1	6.0	6.0	6.0	6.0	5.9	6.0	5.9	5.9	6.0	6.1
Ages 40-64	5.9	5.8	5.8	5.9	5.8	5.8	5.8	5.7	5.7	5.7	5.7	5.7	5.8
Ages 65 or older	5.9	5.7	5.8	5.9	5.8	5.9	5.8	5.7	5.7	5.8	5.8	5.8	5.8



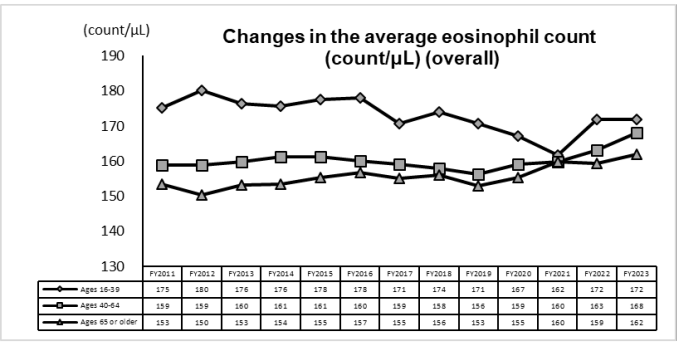
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	3,464	3,436	3,482	3,479	3,451	3,465	3,447	3,442	3,469	3,411	3,405	3,422	3,489
Ages 40-64	3,250	3,214	3,249	3,282	3,279	3,294	3,251	3,217	3,216	3,247	3,220	3,236	3,255
Ages 65 or older	3,276	3,206	3,272	3,314	3,294	3,312	3,277	3,247	3,239	3,328	3,257	3,282	3,292



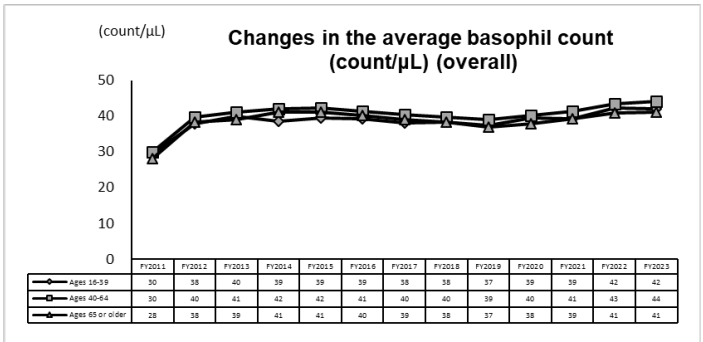
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	2,105	2,001	2,019	2,018	2,005	2,017	1,990	1,964	1,957	1,991	1,992	2,017	2,011
Ages 40-64	2,126	2,023	2,042	2,057	2,026	2,051	1,987	1,955	1,939	1,968	1,964	1,969	1,968
Ages 65 or older	2,153	2,004	2,017	2,041	2,006	2,014	1,970	1,941	1,916	1,971	1,985	1,986	1,996



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	338	329	332	330	330	330	326	325	318	321	322	314	338
Ages 40-64	319	318	318	322	317	320	314	314	308	315	315	308	322
Ages 65 or older	330	332	334	341	336	338	333	333	327	340	339	331	340



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	175	180	176	176	178	178	171	174	171	167	162	172	172
Ages 40-64	159	159	160	161	161	160	159	158	156	159	160	163	168
Ages 65 or older	153	150	153	154	155	157	155	156	153	155	160	159	162



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	30	38	40	39	39	39	38	38	37	39	39	42	42
Ages 40-64	30	40	41	42	42	41	40	40	39	40	41	43	44
Ages 65 or older	28	38	39	41	41	40	39	38	37	38	39	41	41

2. Explanation of the Graphs

The graphs show changes in average values of white blood cell counts and differentials.

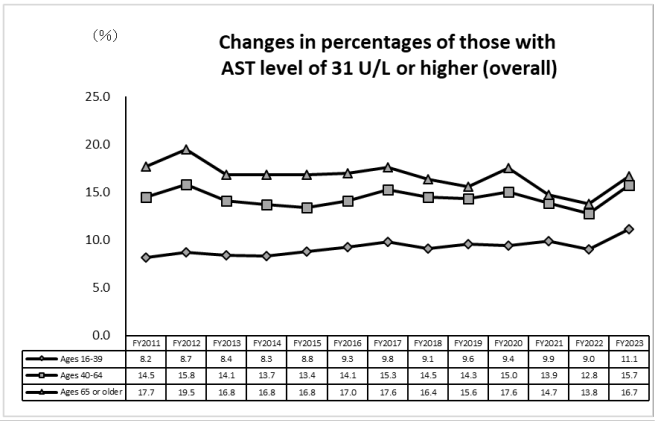
3. Reference Intervals and Action Thresholds (diagnostic criteria used for group and individual health checks)

Item \ Diagnosis		Reference Interval	Action Thresholds		Abnormality		Unit
Number of white blood cells		4.0–9.5	3.0–3.9	9.6–11.0	2.9 or lower	11.1 or higher	×10^3/μL
Differential Leucocyte Counts (DLCs, Reference)	Neutrophils	40.0–75.0					%
	Lymphocytes	20.0–55.0					
	Monocytes	0–12.0					
	Eosinophils	0–10.0					
	Basophils	0–3.0					

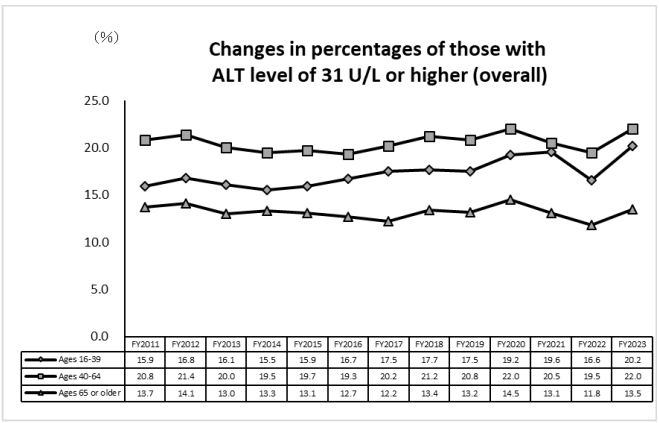
Liver Function: AST, ALT, γ-GT

1. Results

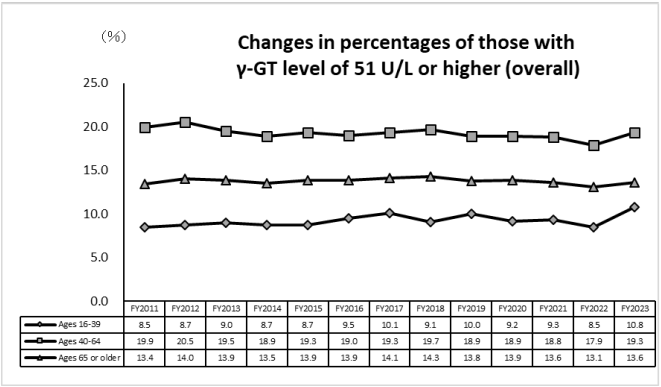
The percentages of those with AST of 31 U/L or higher, those with ALT of 31 U/L or higher, and those with γ-GT of 51 U/L or higher showed no substantial changes in any age group.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	8.2	8.7	8.4	8.3	8.8	9.3	9.8	9.1	9.6	9.4	9.9	9.0	11.1
Ages 40-64	14.5	15.8	14.1	13.7	13.4	14.1	15.3	14.5	14.3	15.0	13.9	12.8	15.7
Ages 65 or older	17.7	19.5	16.8	16.8	16.8	17.0	17.6	16.4	15.6	17.6	14.7	13.8	16.7



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	15.9	16.8	16.1	15.5	15.9	16.7	17.5	17.7	17.5	19.2	19.6	16.6	20.2
Ages 40-64	20.8	21.4	20.0	19.5	19.7	19.3	20.2	21.2	20.8	22.0	20.5	19.5	22.0
Ages 65 or older	13.7	14.1	13.0	13.3	13.1	12.7	12.2	13.4	13.2	14.5	13.1	11.8	13.5



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	8.5	8.7	9.0	8.7	8.7	9.5	10.1	9.1	10.0	9.2	9.3	8.5	10.8
Ages 40-64	19.9	20.5	19.5	18.9	19.3	19.0	19.3	19.7	18.9	18.9	18.8	17.9	19.3
Ages 65 or older	13.4	14.0	13.9	13.5	13.9	13.9	14.1	14.3	13.8	13.9	13.6	13.1	13.6

2. Explanation of the Graphs

Determination of hepatic dysfunction was based on the following reference intervals.

3. Reference Intervals and Action Thresholds (diagnostic criteria used for group and individual health checks)

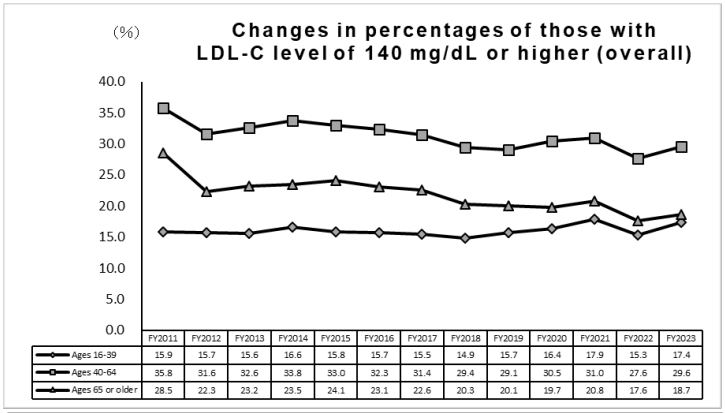
Item \ Diagnosis	Reference Interval	Action Threshold	Abnormality	Unit
AST (GOT)	30 or lower	31-50	51 or higher	U/L
ALT (GPT)	30 or lower	31-50	51 or higher	U/L
γ-GT	50 or lower	51-100	101 or higher	U/L

Lipids: LDL Cholesterol, Triglycerides, HDL Cholesterol

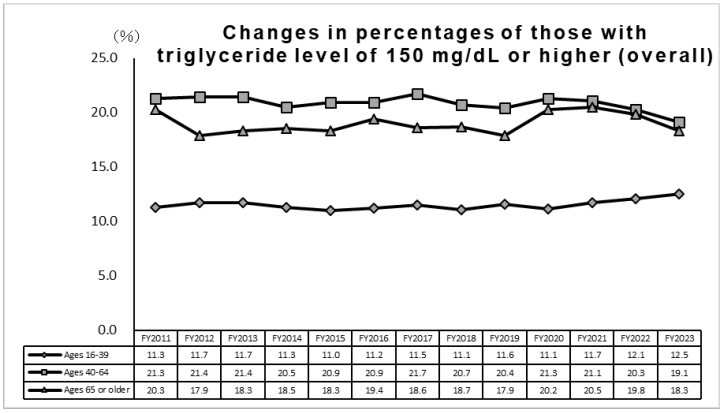
1. Results

The percentages of those with LDL-C of 140 mg/dL or higher and those with triglycerides of 150 mg/dL or higher slightly decreased among those ages 65 or older from FY2011 to FY2012, but remained almost the same thereafter.

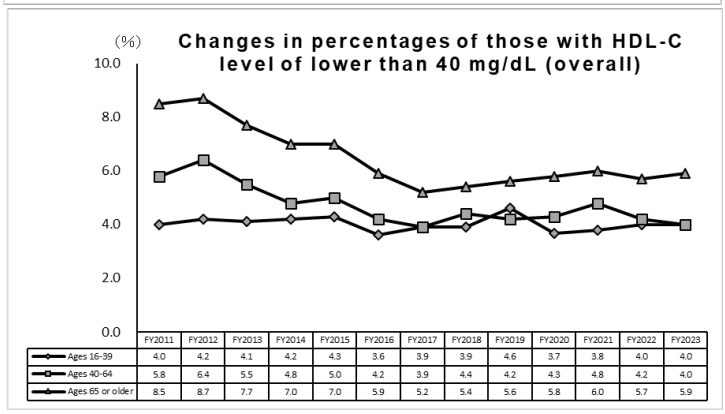
The percentages of those with HDL-C below 40 mg/dL decreased from FY2011 through FY2017 for ages 65 or older, but showed no significant changes thereafter.



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	15.9	15.7	15.6	16.6	15.8	15.7	15.5	14.9	15.7	16.4	17.9	15.3	17.4
Ages 40-64	35.8	31.6	32.6	33.8	33.0	32.3	31.4	29.4	29.1	30.5	31.0	27.6	29.6
Ages 65 or older	28.5	22.3	23.2	23.5	24.1	23.1	22.6	20.3	20.1	19.7	20.8	17.6	18.7



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	11.3	11.7	11.7	11.3	11.0	11.2	11.5	11.1	11.6	11.1	11.7	12.1	12.5
Ages 40-64	21.3	21.4	21.4	20.5	20.9	20.9	21.7	20.7	20.4	21.3	21.1	20.3	19.1
Ages 65 or older	20.3	17.9	18.3	18.5	18.3	19.4	18.6	18.7	17.9	20.2	20.5	19.8	18.3



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	4.0	4.2	4.1	4.2	4.3	3.6	3.9	3.9	4.6	3.7	3.8	4.0	4.0
Ages 40-64	5.8	6.4	5.5	4.8	5.0	4.2	3.9	4.4	4.2	4.3	4.8	4.2	4.0
Ages 65 or older	8.5	8.7	7.7	7.0	7.0	5.9	5.2	5.4	5.6	5.8	6.0	5.7	5.9

2. Explanation of the Graphs

Determination of hyperlipidemia was based on the following reference intervals.

3. Reference Intervals

Diagnostic criteria for hyperlipidemia (fasting blood sampling)

LDL cholesterol	140 mg/dL or higher	Hyper-LDL-cholesterolemia
	120–139 mg/dL	Borderline hyper-LDL-cholesterolemia
HDL cholesterol	Lower than 40 mg/dL	Hypo-HDL-cholesterolemia
Triglycerides (neutral fats)	150 mg/dL or higher	Hypertriglyceridemia

Source: "Guidelines for the Prevention of Arteriosclerotic Diseases 2022" by the Japan Atherosclerosis Society

Blood Glucose (Fasting Blood Glucose, HbA1c)

1. Results

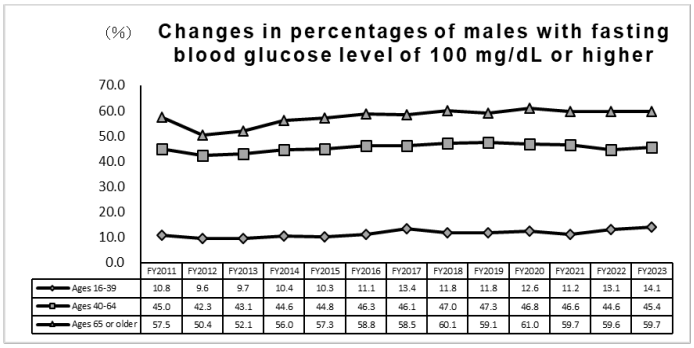
Among males and females ages 65 or older, the percentages of those with fasting blood glucose of 100 mg/dL or higher decreased from FY2011 to FY2012, then showed slight increases thereafter until FY2020, but slightly decreased thereafter.

The percentage of males ages 65 or older with fasting blood glucose of 126 mg/dL or higher was on a downward trend from FY2011 to FY2012, but showed slight increases thereafter through FY2020 and a slight decrease thereafter.

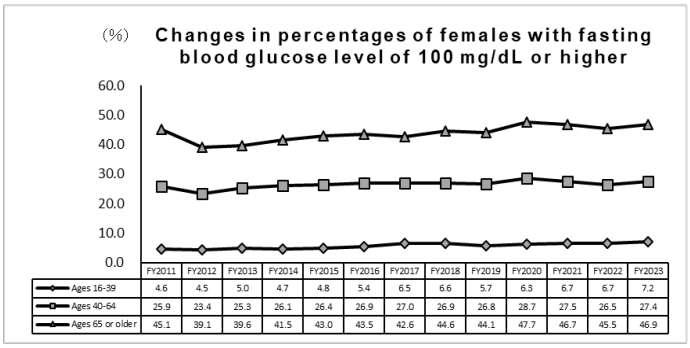
The percentage of females ages 65 or older with fasting blood glucose of 126 mg/dL or higher was on a downward trend from FY2011 to FY2013, then trended slightly upward through FY2020, but decreased slightly in FY2021.

The percentages of those with HbA1c of 5.6% or higher increased in ages 40 years and older from FY2011 through FY2023.

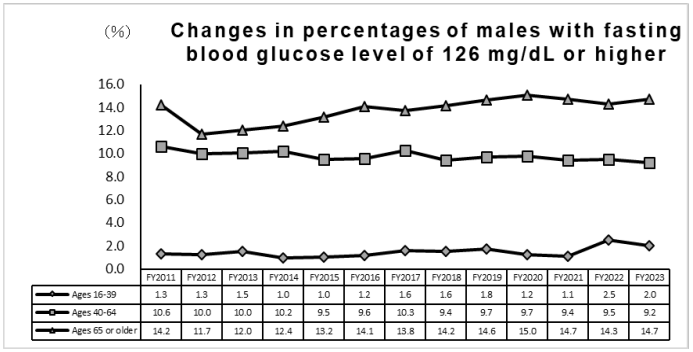
The percentage of those who were diagnosed as having diabetes (HbA1c of 6.5% or higher) was on an upward trend from FY2011 to FY2023 for the age group of 65 and older for both males and females.



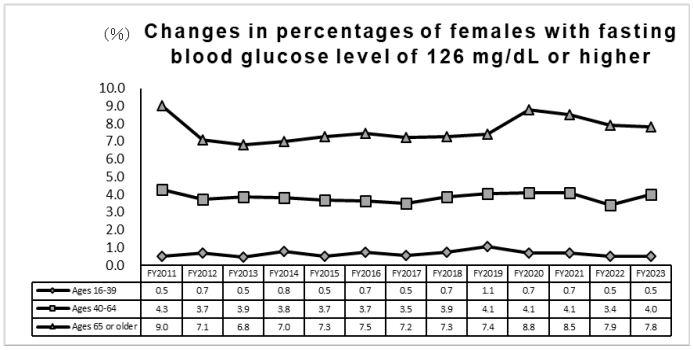
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	10.8	9.6	9.7	10.4	10.3	11.1	13.4	11.8	11.8	12.6	11.2	13.1	14.1
Ages 40-64	45.0	42.3	43.1	44.6	44.8	46.3	46.1	47.0	47.3	46.8	46.6	44.6	45.4
Ages 65 or older	57.5	50.4	52.1	56.0	57.3	58.8	58.5	60.1	59.1	61.0	59.7	59.6	59.7



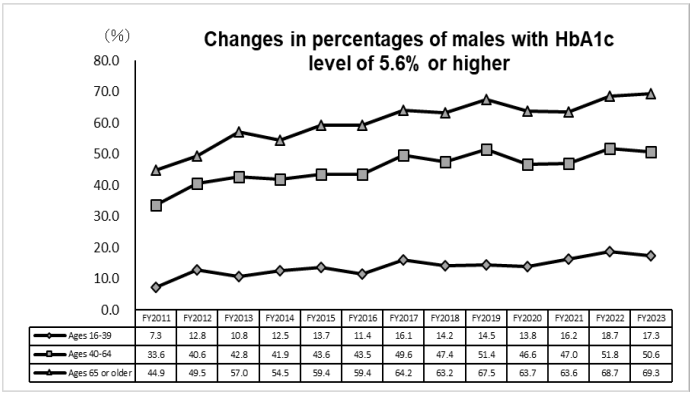
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	4.6	4.5	5.0	4.7	4.8	5.4	6.5	6.6	5.7	6.3	6.7	6.7	7.2
Ages 40-64	25.9	23.4	25.3	26.1	26.4	26.9	27.0	26.9	26.8	28.7	27.5	26.5	27.4
Ages 65 or older	45.1	39.1	39.6	41.5	43.0	43.5	42.6	44.6	44.1	47.7	46.7	45.5	46.9



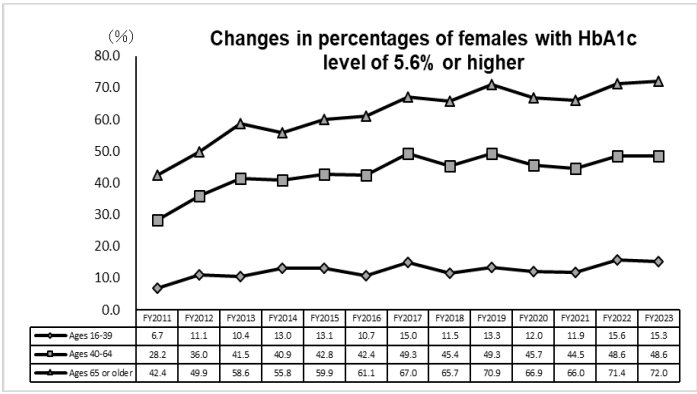
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	1.3	1.3	1.5	1.0	1.0	1.2	1.6	1.6	1.8	1.2	1.1	2.5	2.0
Ages 40-64	10.6	10.0	10.0	10.2	9.5	9.6	10.3	9.4	9.7	9.7	9.4	9.5	9.2
Ages 65 or older	14.2	11.7	12.0	12.4	13.2	14.1	13.8	14.2	14.6	15.0	14.7	14.3	14.7



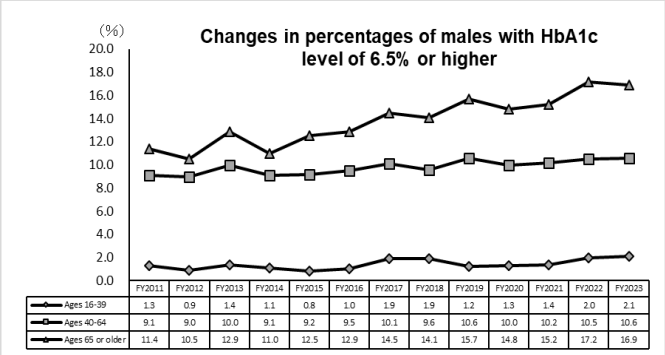
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	0.5	0.7	0.5	0.8	0.5	0.7	0.5	0.7	1.1	0.7	0.7	0.5	0.5
Ages 40-64	4.3	3.7	3.9	3.8	3.7	3.7	3.5	3.9	4.1	4.1	4.1	3.4	4.0
Ages 65 or older	9.0	7.1	6.8	7.0	7.3	7.5	7.2	7.3	7.4	8.8	8.5	7.9	7.8



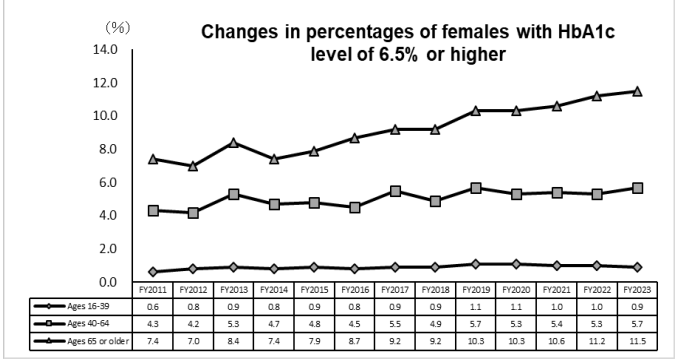
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	7.3	12.8	10.8	12.5	13.7	11.4	16.1	14.2	14.5	13.8	16.2	18.7	17.3
Ages 40-64	33.6	40.6	42.8	41.9	43.6	43.5	49.6	47.4	51.4	46.6	47.0	51.8	50.6
Ages 65 or older	44.9	49.5	57.0	54.5	59.4	59.4	64.2	63.2	67.5	63.7	63.6	68.7	69.3



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	6.7	11.1	10.4	13.0	13.1	10.7	15.0	11.5	13.3	12.0	11.9	15.6	15.3
Ages 40-64	28.2	36.0	41.5	40.9	42.8	42.4	49.3	45.4	49.3	45.7	44.5	48.6	48.6
Ages 65 or older	42.4	49.9	58.6	55.8	59.9	61.1	67.0	65.7	70.9	66.9	66.0	71.4	72.0



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	1.3	0.9	1.4	1.1	0.8	1.0	1.9	1.9	1.2	1.3	1.4	2.0	2.1
Ages 40-64	9.1	9.0	10.0	9.1	9.2	9.5	10.1	9.6	10.6	10.0	10.2	10.5	10.6
Ages 65 or older	11.4	10.5	12.9	11.0	12.5	12.9	14.5	14.1	15.7	14.8	15.2	17.2	16.9



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	0.6	0.8	0.9	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.0	1.0	0.9
Ages 40-64	4.3	4.2	5.3	4.7	4.8	4.5	5.5	4.9	5.7	5.3	5.4	5.3	5.7
Ages 65 or older	7.4	7.0	8.4	7.4	7.9	8.7	9.2	9.2	10.3	10.3	10.6	11.2	11.5

2. Explanation of the Graphs

Determinations of the existence of high blood glucose (fasting blood glucose of 100 mg/dL or higher and HbA1c of 5.6% or higher) and diabetes (fasting blood glucose of 126 mg/dL or higher and HbA1c of 6.5% or higher) were based on the following reference intervals.

3. Reference Intervals

Classification and diagnostic criteria using fasting blood glucose and 75g OGTT

	Time of measurement			Classification
	Fasting		2 hours postprandial	
Blood glucose (venous plasma level)	126 mg/dL or higher	OR	200 mg/dL or higher	Diabetes
	Intermediate values, neither diabetic nor normal			Borderline
	Less than 110 mg/dL	AND	Less than 140 mg/dL	Normal

1) Fasting plasma glucose of 126 mg/dL or higher in the early morning
2) Plasma glucose of 200 mg/dL or higher at 2 hours after a 75g OGTT
3) Casual plasma glucose of 200 mg/dL or higher
4) HbA1c level of 6.5% or higher

If any of the items 1) through 4) apply, the person will be diagnosed as having diabetes.

5) Fasting plasma glucose of less than 110 mg/dL in the early morning
6) Plasma glucose of less than 140 mg/dL at 2 hours after a 75g OGTT

If the blood glucose level is 5) or 6), the person will be diagnosed as normal.

●Individuals who are not diagnosed as diabetic or normal will be classified as borderline.

Source: “Japanese Clinical Practice Guideline for Diabetes 2022–2023” by the Japan Diabetes Society

*In this report, based on the “Epidemiological study: To estimate the frequency of diabetes mellitus,” ‘diabetes mellitus’ can be substituted for the determination of ‘diabetic type’ from a single examination. In this case, HbA1c of 6.5% (HbA1c (JDS) ≥ 6.1%) alone can be defined as diagnostic of diabetes mellitus. Source: “Report of the Committee on the Classification and Diagnostic Criteria of Diabetes Mellitus (2012)” (Japan Diabetes Society).

Criteria for conducting a detailed health check (additional check items based on a doctor's judgment)

Blood glucose level	Fasting blood glucose of 100 mg/dL or higher and HbA1c (NGSP level) of 5.6% or higher or casual blood glucose of 100 mg/dL or higher

Source: "Guidelines for Smooth Implementation of Specified Health Checkups and Health Guidance (4.1 Edition) 2024" by the Ministry of Health, Labour and Welfare

Renal Function (Serum Creatinine, eGFR)

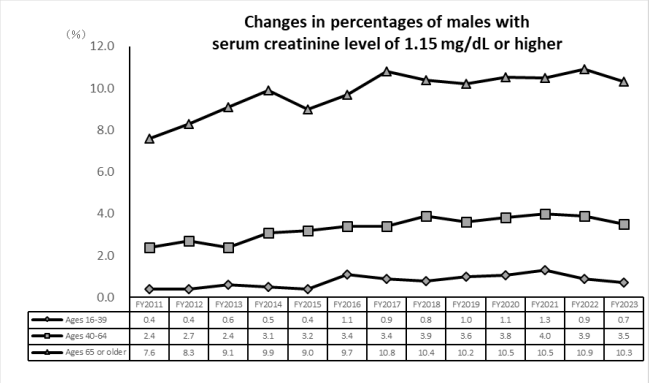
1. Results

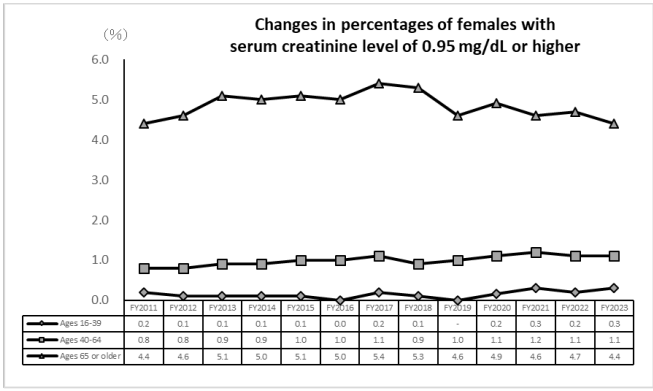
The percentage of males with serum creatinine of 1.15 mg/dL or higher showed an increasing trend for ages 65 and older until FY2017, but showed no substantial changes thereafter.

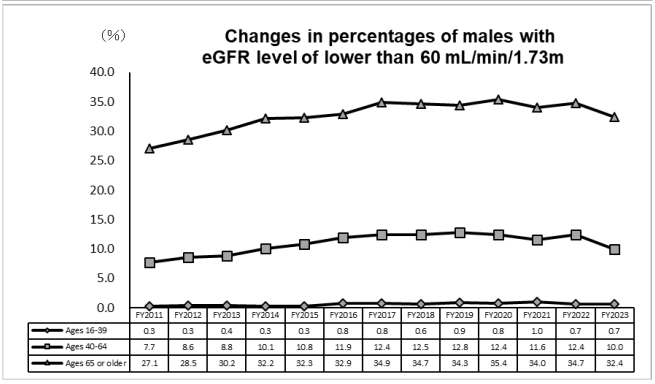
The percentage of females ages 65 or older with serum creatinine of 0.95 mg/dL or higher increased from FY2011 to FY2017, but showed a downward trend thereafter.

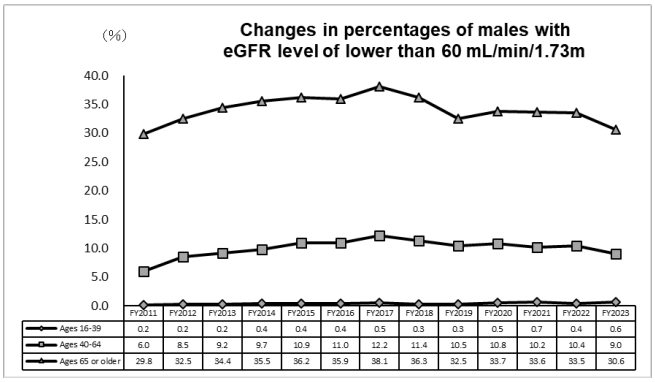
The percentage of males ages 40 to 64 with eGFR lower than 60mL/min/1.73m^2 was on an upward trend from FY2011 to FY2019 but showed no substantial changes thereafter. The relevant percentage for males ages 65 or older showed an upward trend from FY2011 to FY2020, then showed no substantial changes thereafter.

The percentage of females ages 65 or older with eGFR lower than 60mL/min/1.73m^2 was on an upward trend from FY2011 to FY2017, then trended downward.









2. Explanation of the Graphs

The graphs show the percentages of those with eGFR lower than 60mL/min/1.73m^2, which is one of the diagnostic criteria for chronic kidney disease.

3. Reference Intervals and Action Thresholds (criteria used for group and individual health checks)

Item \ Diagnosis		Reference Interval	Action Threshold	Abnormality	Unit
Serum creatinine (enzymatic method)	Males	0.45–1.14	1.15–1.34	1.35 or higher	mg/dL
	Females	0.35–0.94	0.95–1.14	1.15 or higher	
eGFR (estimated glomerular filtration rate)		60.0 or higher	45.0–59.9	44.9 or lower	mL/min/1.73m^2

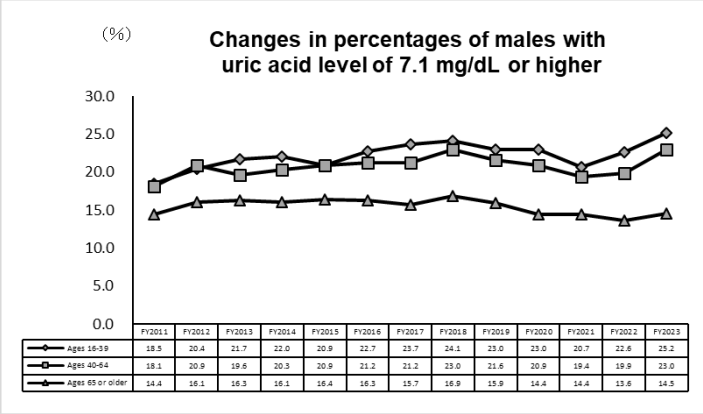
Renal Function: Uric Acid

1. Results

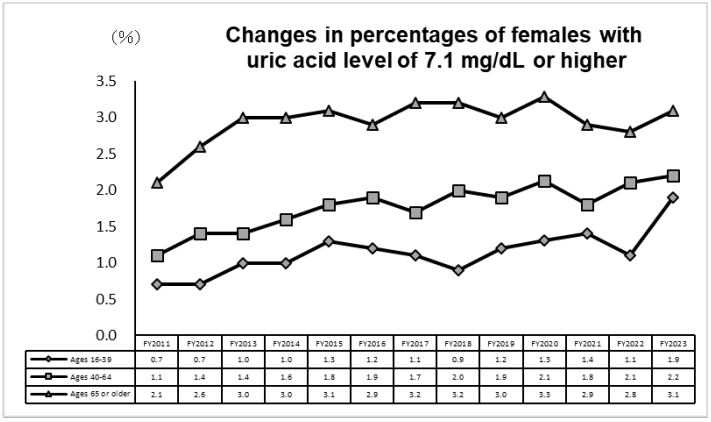
The percentage of males with uric acid levels of 7.1 mg/dL or higher increased for all age groups from FY2011 to FY2018, but showed a slight downward trend through FY2021. However, the percentage for ages 16 to 39 and ages 40 to 64 showed a slight increase in FY2023. Among females, no substantial changes were observed in any age group.

The percentage of males with uric acid of 7.9 mg/dL or higher increased among those ages 16 to 39 from FY2011 to FY2020, but showed an upward trend through FY2023.

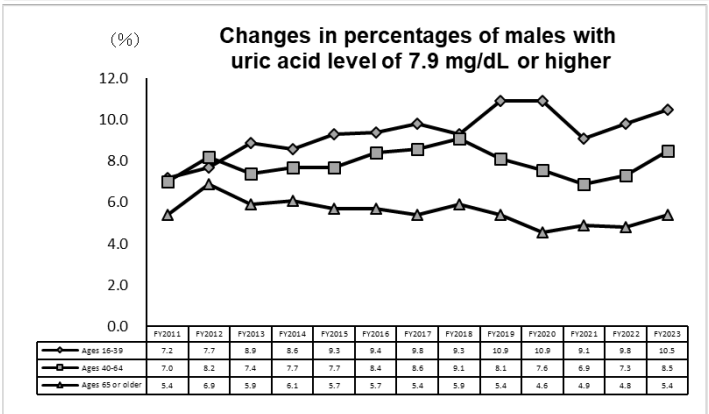
The percentage of females with uric acid of 5.6 mg/dL or higher increased from FY2011 to FY2023 for those ages 40 to 64.



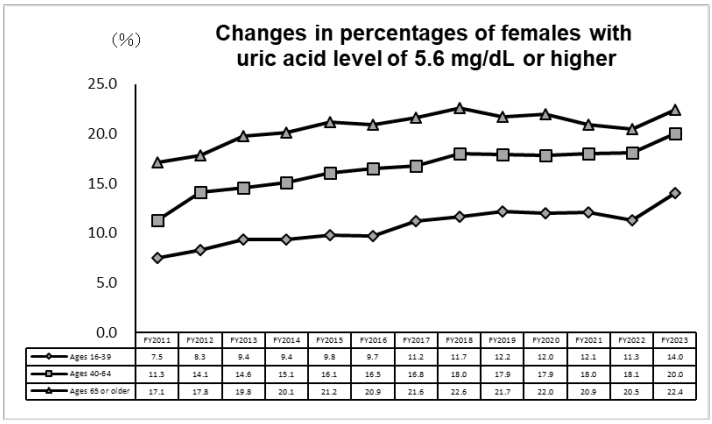
	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	18.5	20.4	21.7	22.0	20.9	22.7	23.7	24.1	23.0	23.0	20.7	22.6	25.2
Ages 40-64	18.1	20.9	19.6	20.3	20.9	21.2	21.2	23.0	21.6	20.9	19.4	19.9	23.0
Ages 65 or older	14.4	16.1	16.3	16.1	16.4	16.3	15.7	16.9	15.9	14.4	14.4	13.6	14.5



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	0.7	0.7	1.0	1.0	1.3	1.2	1.1	0.9	1.2	1.3	1.4	1.1	1.9
Ages 40-64	1.1	1.4	1.4	1.6	1.8	1.9	1.7	2.0	1.9	2.1	1.8	2.1	2.2
Ages 65 or older	2.1	2.6	3.0	3.0	3.1	2.9	3.2	3.2	3.0	3.3	2.9	2.8	3.1



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	7.2	7.7	8.9	8.6	9.3	9.4	9.8	9.3	10.9	10.9	9.1	9.8	10.5
Ages 40-64	7.0	8.2	7.4	7.7	7.7	8.4	8.6	9.1	8.1	7.6	6.9	7.3	8.5
Ages 65 or older	5.4	6.9	5.9	6.1	5.7	5.7	5.4	5.9	5.4	4.6	4.9	4.8	5.4



	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
Ages 16-39	7.5	8.3	9.4	9.4	9.8	9.7	11.2	11.7	12.2	12.0	12.1	11.3	14.0
Ages 40-64	11.3	14.1	14.6	15.1	16.1	16.5	16.8	18.0	17.9	17.9	18.0	18.1	20.0
Ages 65 or older	17.1	17.8	19.8	20.1	21.2	20.9	21.6	22.6	21.7	22.0	20.9	20.5	22.4

2. Explanation of the Graphs

Determination of hyperuricemia was based on the following reference intervals.

3. Reference Intervals

Definition of hyperuricemia in the “Guidelines for Management of Hyperuricemia and Gout” by the Japanese Society of Gout and Uric & Nucleic Acids	Uric acid of 7.1 mg/dL or higher
Levels that exceed the upper limit of the common reference interval established by the Japanese Committee for Clinical Laboratory Standards	Uric acid of 7.9 mg/dL or higher for males and 5.6 mg/dL or higher for females

FY2023 Comprehensive Health Check
Fukushima Health Management Survey
Results of Tabulation by Health Check Item

[Coverage]

- Residents registered at covered areas* from March 11, 2011 to April 1, 2012 (also after moving out from those covered areas)
- Residents registered at evacuation zones, etc. as of April 1 of the examination year
- Others, as warranted, based on Basic Survey results, even if the above conditions are not met

* Covered areas: Municipalities designated as the evacuation zone in 2011
Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Iitate Village, Minamisoma City, Tamura City and Kawamata Town, and parts of Date City (containing specific spots recommended for evacuation)

[Examination Items]

Age Group	Examination items
0-6 years old (Preschool children and infants)	Height, weight (The following items are only as for the applicants) CBC (number of red blood cells, hematocrit, hemoglobin, platelet count, number of white blood cells, differential white blood count)
7-15 years old (from 1st to 9th grades)	Height, weight CBC (number of red blood cells, hematocrit, hemoglobin, platelet count, number of white blood cells, differential white blood count) (The following items are only as for the applicants) Blood biochemistry (AST, ALT, γ-GT, TG, HDL-C, LDL-C, HbA1c, plasma glucose, serum creatinine, uric acid)
16 years old and older	Height, weight, abdominal circumference (BMI), blood pressure, CBC (number of red blood cells, hematocrit, hemoglobin, platelet count, number of white blood cells, differential white blood count), Urine test (urine sugar, urine protein, urine occult blood), Blood biochemistry (AST, ALT, γ-GT, TG, HDL-C, LDL-C, HbA1c, plasma glucose, serum creatinine, estimated glomerular filtration rate [eGFR],uric acid) The underlined values are not routinely measured during regular health checks.

* As general age categories and items for the Comprehensive Health Check do not correspond, we classified the participants into five age groups: ages 0 to 6, ages 7 to 15, ages 16 to 39, ages 40 to 64, and ages 65 and older, and tabulated the results by each health check item.

* For each health check item, tabulation was conducted by age group and by gender.

* Only the result of earlier date is included in the tabulation for those who received health checks twice or more in the same fiscal year.

* Rules for describing tabulation results are the same as those used for the Vital Statistics in Japan by the Ministry of Health, Labour and Welfare.

When there is no data: -
When an item is not applicable to the relevant age group: ・
When it is inappropriate to indicate data: …
When the ratio is minor (lower than 0.05): 0.0%

* The Data in this document are presented with the same items as those in the previous reports to make comparison possible. Therefore, the results may not correspond to the graphs shown in the Report on the Results of the FY2023 Comprehensive Health Check.

* The "number of participants" are the numbers used for the tabulation, and it differs from the actual number of examinees.

Height

Height (cm) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	315	3.6	95.2
7 to 15	966	11.9	148.7
16 to 39	2,743	29.3	163.4
40 to 64	8,051	54.5	161.5
65 or older	18,841	74.2	156.6

Height (cm) (males)					
Age group	Number of participants	Average age	Average value	150 cm or shorter	170 cm or taller
0 to 6	170	3.7	97.1	…	…
7 to 15	506	11.9	150.2	…	…
16 to 39	1,124	28.3	171.0	0.8%	56.1%
40 to 64	2,934	54.7	169.7	0.2%	48.4%
65 or older	8,663	74.4	163.6	1.8%	15.5%

Height (cm) (females)					
Age group	Number of participants	Average age	Average value	140 cm or shorter	160 cm or taller
0 to 6	145	3.3	93.0	…	…
7 to 15	460	11.9	147.1	…	…
16 to 39	1,619	29.9	158.1	0.2%	37.9%
40 to 64	5,117	54.4	156.8	0.3%	28.4%
65 or older	10,178	74.0	150.7	4.7%	5.8%

Weight

Weight (kg) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	315	3.6	14.9
7 to 15	966	11.9	42.6
16 to 39	2,743	29.3	61.8
40 to 64	8,051	54.5	62.5
65 or older	18,841	74.2	58.4

Weight (kg) (males)					
Age group	Number of participants	Average age	Average value	50 kg or less	70 kg or over
0 to 6	170	3.7	15.6	…	…
7 to 15	506	11.9	43.5	…	…
16 to 39	1,124	28.3	70.0	5.3%	43.1%
40 to 64	2,934	54.7	71.7	1.3%	50.5%
65 or older	8,663	74.4	64.6	5.6%	26.7%

Weight (kg) (females)					
Age group	Number of participants	Average age	Average value	45 kg or less	65 kg or over
0 to 6	145	3.3	14.1	…	…
7 to 15	460	11.9	41.6	…	…
16 to 39	1,619	29.9	56.2	12.0%	17.4%
40 to 64	5,117	54.4	57.3	9.5%	20.1%
65 or older	10,178	74.0	53.2	17.6%	10.1%

1. Physical Exam (1) BMI

BMI (Weight/Height^2) (overall)					
Age group	Number of participants	Average age	Average value	18 kg/m^2 or lower	25 kg/m^2 or over
0 to 6	·	·	·	·	·
7 to 15	·	·	·	·	·
16 to 39	2,743	29.3	23.1	8.2%	26.2%
40 to 64	8,051	54.5	23.9	4.6%	33.9%
65 or older	18,841	74.2	23.7	3.6%	33.3%

BMI (Weight/Height^2) (males)					
Age group	Number of participants	Average age	Average value	18 kg/m^2 or lower	25 kg/m^2 or over
0 to 6	·	·	·	·	·
7 to 15	·	·	·	·	·
16 to 39	1,124	28.3	23.9	6.5%	33.7%
40 to 64	2,934	54.7	24.9	1.5%	42.8%
65 or older	8,663	74.4	24.1	2.0%	36.3%

BMI (Weight/Height^2) (females)					
Age group	Number of participants	Average age	Average value	18 kg/m^2 or lower	25 kg/m^2 or over
0 to 6	·	·	·	·	·
7 to 15	·	·	·	·	·
16 to 39	1,619	29.9	22.5	9.5%	21.1%
40 to 64	5,117	54.4	23.3	6.4%	28.8%
65 or older	10,178	74.0	23.4	5.0%	30.7%

1. Physical Exam (2) Abdominal Circumference

Abdominal circumference (cm) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	·	·	·
7 to 15	·	·	·
16 to 39	690	29.4	78.9
40 to 64	8,050	54.5	84.1
65 or older	11,791	70.5	85.1

Abdominal circumference (cm) (males)				
Age group	Number of participants	Average age	Average value	85 cm or over
0 to 6	·	·	·	·
7 to 15	·	·	·	·
16 to 39	349	29.5	82.5	37.5%
40 to 64	2,933	54.7	87.6	57.4%
65 or older	5,284	70.7	87.1	57.5%

Abdominal circumference (cm) (females)				
Age group	Number of participants	Average age	Average value	90 cm or over
0 to 6	·	·	·	·
7 to 15	·	·	·	·
16 to 39	341	29.2	75.1	9.4%
40 to 64	5,117	54.4	82.1	21.8%
65 or older	6,507	70.3	83.6	24.2%

1. Physical Exam (3) Blood Pressure

Systolic blood pressure (mmHg) (overall)				
Age group	Number of participants	Average age	Average value	140 mmHg or higher
0 to 6	.	.	.	.
7 to 15	965	11.9	106.7	0.1%
16 to 39	2,744	29.3	116.0	5.1%
40 to 64	8,052	54.5	126.6	20.0%
65 or older	18,842	74.2	133.2	32.6%

Systolic blood pressure (mmHg) (males)				
Age group	Number of participants	Average age	Average value	140 mmHg or higher
0 to 6	.	.	.	.
7 to 15	506	11.9	108.0	0.2%
16 to 39	1,125	28.3	120.7	7.8%
40 to 64	2,934	54.7	129.6	24.1%
65 or older	8,664	74.4	133.1	32.3%

Systolic blood pressure (mmHg) (females)				
Age group	Number of participants	Average age	Average value	140 mmHg or higher
0 to 6	.	.	.	.
7 to 15	459	11.9	105.2	-
16 to 39	1,619	29.9	112.8	3.3%
40 to 64	5,118	54.4	124.8	17.7%
65 or older	10,178	74.0	133.3	32.8%

Diastolic blood pressure (mmHg) (overall)				
Age group	Number of participants	Average age	Average value	90 mmHg or higher
0 to 6	.	.	.	.
7 to 15	965	11.9	62.0	0.7%
16 to 39	2,744	29.3	70.2	4.8%
40 to 64	8,052	54.5	78.3	15.9%
65 or older	18,842	74.2	76.3	10.2%

Diastolic blood pressure (mmHg) (males)				
Age group	Number of participants	Average age	Average value	90 mmHg or higher
0 to 6	.	.	.	.
7 to 15	506	11.9	61.7	0.8%
16 to 39	1,125	28.3	72.8	6.7%
40 to 64	2,934	54.7	82.2	24.0%
65 or older	8,664	74.4	77.7	12.5%

Diastolic blood pressure (mmHg) (females)				
Age group	Number of participants	Average age	Average value	90 mmHg or higher
0 to 6	.	.	.	.
7 to 15	459	11.9	62.3	0.7%
16 to 39	1,619	29.9	68.4	3.5%
40 to 64	5,118	54.4	76.0	11.3%
65 or older	10,178	74.0	75.1	8.2%

2. Urine Test (1) Urine Sugar

Urine sugar (overall)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	2,723	29.3	1.1%
40 to 64	8,038	54.5	5.3%
65 or older	18,771	74.1	8.4%

Urine sugar (males)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	1,124	28.3	1.9%
40 to 64	2,930	54.7	8.3%
65 or older	8,638	74.4	12.2%

Urine sugar (females)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	1,599	29.9	0.6%
40 to 64	5,108	54.4	3.5%
65 or older	10,133	73.9	5.1%

2. Urine Test (2) Urine Protein

Urine protein (overall)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	2,723	29.3	2.1%
40 to 64	8,038	54.5	1.9%
65 or older	18,771	74.1	3.3%

Urine protein (males)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	1,124	28.3	2.1%
40 to 64	2,930	54.7	2.9%
65 or older	8,638	74.4	5.0%

Urine protein (females)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	-	-	-
7 to 15	-	-	-
16 to 39	1,599	29.9	2.1%
40 to 64	5,108	54.4	1.4%
65 or older	10,133	73.9	1.9%

2. Urine Test (3) Urine Occult Blood

Urine occult blood (overall)				
Age group	Number of participants	Average age	(1+) or higher	(1+) or higher and excluding those on their
0 to 6	·	·	·	·
7 to 15	·	·	·	·
16 to 39	2,722	29.3	6.3%	2.2%
40 to 64	8,037	54.5	5.7%	4.2%
65 or older	18,771	74.1	4.8%	4.8%

Urine occult blood (males)			
Age group	Number of participants	Average age	(1+) or higher
0 to 6	·	·	·
7 to 15	·	·	·
16 to 39	1,124	28.3	0.7%
40 to 64	2,930	54.7	1.8%
65 or older	8,638	74.4	3.4%

Urine occult blood (females)				
Age group	Number of participants	Average age	(1+) or higher	(1+) or higher and excluding those on their
0 to 6	·	·	·	·
7 to 15	·	·	·	·
16 to 39	1,598	29.9	10.2%	3.3%
40 to 64	5,107	54.4	7.9%	5.6%
65 or older	10,133	73.9	5.9%	5.9%

3. Peripheral Blood Test (1)-1 Red Blood Cells

Red blood cell count (10^6/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	4.67
7 to 15	961	11.9	4.80
16 to 39	2,743	29.3	4.74
40 to 64	8,049	54.5	4.59
65 or older	18,839	74.2	4.41

Red blood cell count (10^6/μL) (males)						
Age group	Number of participants	Average age	Average value	3.69×10^6/μL or lower	3.99×10^6/μL or lower	5.80×10^6/μL or higher
0 to 6	159	3.8	4.67	-	0.6%	-
7 to 15	504	11.9	4.94	0.2%	0.6%	0.6%
16 to 39	1,124	28.3	5.16	0.1%	0.2%	4.5%
40 to 64	2,933	54.7	4.86	0.9%	2.9%	2.1%
65 or older	8,661	74.4	4.57	3.9%	11.8%	0.8%

Red blood cell count (10^6/μL) (females)						
Age group	Number of participants	Average age	Average value	3.39×10^6/μL or lower	3.69×10^6/μL or lower	5.50×10^6/μL or higher
0 to 6	128	3.4	4.67	-	-	0.8%
7 to 15	457	12.0	4.65	-	-	0.7%
16 to 39	1,619	29.9	4.46	0.4%	1.6%	0.4%
40 to 64	5,116	54.4	4.43	0.5%	2.2%	0.6%
65 or older	10,178	74.0	4.27	1.6%	6.7%	0.2%

3. Peripheral Blood Test (1)-2 Hemoglobin

Hemoglobin (g/dL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	12.4
7 to 15	961	11.9	13.6
16 to 39	2,743	29.3	14.0
40 to 64	8,049	54.5	13.8
65 or older	18,839	74.2	13.6

Hemoglobin (g/dL) (males)						
Age group	Number of participants	Average age	Average value	12.0 g/dL or lower	13.0 g/dL or lower	18.0 g/dL or higher
0 to 6	159	3.8	12.4	31.4%	77.4%	-
7 to 15	504	11.9	13.9	3.2%	19.8%	-
16 to 39	1,124	28.3	15.4	0.4%	1.3%	0.7%
40 to 64	2,933	54.7	15.0	1.4%	4.6%	0.9%
65 or older	8,661	74.4	14.3	5.7%	17.1%	0.4%

Hemoglobin (g/dL) (females)						
Age group	Number of participants	Average age	Average value	11.0 g/dL or lower	12.0 g/dL or lower	16.0 g/dL or higher
0 to 6	128	3.4	12.4	2.3%	30.5%	-
7 to 15	457	12.0	13.2	1.8%	9.8%	-
16 to 39	1,619	29.9	13.0	4.6%	14.3%	0.2%
40 to 64	5,116	54.4	13.2	4.3%	13.3%	0.6%
65 or older	10,178	74.0	13.0	3.8%	16.7%	0.4%

3. Peripheral Blood Test (1)-3 Hematocrit

Hematocrit (%) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	38.2
7 to 15	961	11.9	41.5
16 to 39	2,743	29.3	42.4
40 to 64	8,049	54.5	41.9
65 or older	18,839	74.2	41.1

Hematocrit (%) (males)						
Age group	Number of participants	Average age	Average value	35.9% or lower	37.9% or lower	55.0% or higher
0 to 6	159	3.8	38.1	18.9%	49.1%	-
7 to 15	504	11.9	42.4	1.8%	8.5%	-
16 to 39	1,124	28.3	46.1	0.3%	0.4%	0.3%
40 to 64	2,933	54.7	44.9	1.1%	2.6%	0.2%
65 or older	8,661	74.4	42.9	4.9%	10.5%	0.2%

Hematocrit (%) (females)						
Age group	Number of participants	Average age	Average value	28.9% or lower	32.9% or lower	48.0% or higher
0 to 6	128	3.4	38.2	-	0.8%	-
7 to 15	457	12.0	40.6	-	0.4%	-
16 to 39	1,619	29.9	39.8	0.6%	2.0%	0.1%
40 to 64	5,116	54.4	40.2	0.4%	2.3%	0.7%
65 or older	10,178	74.0	39.7	0.2%	2.2%	0.5%

3. Peripheral Blood Test (2) Platelet Count

Platelet count (10^3/μL) (overall)							
Age group	Number of participants	Average age	Average value	89×10^3/μL or lower	129×10^3/μL or lower	370×10^3/μL or higher	450×10^3/μL or higher
0 to 6	287	3.6	371.2	0.3%	0.3%	44.6%	15.7%
7 to 15	961	11.9	294.9	0.2%	0.5%	12.5%	2.2%
16 to 39	2,739	29.3	270.8	0.0%	0.3%	5.9%	0.7%
40 to 64	8,038	54.5	261.6	0.1%	0.6%	5.2%	0.9%
65 or older	18,804	74.2	228.7	0.3%	1.7%	1.3%	0.3%

Platelet count (10^3/μL) (males)							
Age group	Number of participants	Average age	Average value	89×10^3/μL or lower	129×10^3/μL or lower	370×10^3/μL or higher	450×10^3/μL or higher
0 to 6	159	3.8	369.3	0.6%	0.6%	42.1%	14.5%
7 to 15	504	11.9	298.3	0.2%	0.6%	13.3%	2.8%
16 to 39	1,123	28.3	264.3	-	0.1%	3.9%	0.4%
40 to 64	2,928	54.7	254.3	0.1%	0.8%	3.6%	0.5%
65 or older	8,643	74.4	220.9	0.3%	2.2%	1.2%	0.4%

Platelet count (10^3/μL) (females)							
Age group	Number of participants	Average age	Average value	89×10^3/μL or lower	129×10^3/μL or lower	370×10^3/μL or higher	450×10^3/μL or higher
0 to 6	128	3.4	373.5	-	-	47.7%	17.2%
7 to 15	457	12.0	291.2	0.2%	0.4%	11.6%	1.5%
16 to 39	1,616	29.9	275.3	0.1%	0.4%	7.2%	0.8%
40 to 64	5,110	54.4	265.8	0.1%	0.5%	6.1%	1.2%
65 or older	10,161	74.0	235.3	0.3%	1.3%	1.4%	0.2%

3. Peripheral Blood Test (3)-1 White Blood Cell Count

White blood cell count (10^3/μL) (overall)							
Age group	Number of participants	Average age	Average value	2.9×10^3/μL or lower	3.9×10^3/μL or lower	9.6×10^3/μL or higher	11.1×10^3/μL or higher
0 to 6	287	3.6	8.9	-	-	32.1%	17.1%
7 to 15	961	11.9	6.4	0.2%	3.2%	4.6%	1.6%
16 to 39	2,743	29.3	6.1	0.5%	7.5%	3.3%	0.8%
40 to 64	8,049	54.5	5.8	0.8%	9.5%	2.2%	0.6%
65 or older	18,839	74.2	5.8	0.6%	7.5%	2.1%	0.6%

White blood cell count (10^3/μL) (males)							
Age group	Number of participants	Average age	Average value	2.9×10^3/μL or lower	3.9×10^3/μL or lower	9.6×10^3/μL or higher	11.1×10^3/μL or higher
0 to 6	159	3.8	8.7	-	-	29.6%	15.1%
7 to 15	504	11.9	6.4	0.2%	3.4%	5.2%	2.0%
16 to 39	1,124	28.3	6.0	0.2%	7.9%	3.0%	1.1%
40 to 64	2,933	54.7	6.1	0.4%	6.1%	3.0%	0.8%
65 or older	8,661	74.4	6.0	0.3%	5.8%	2.9%	0.8%

White blood cell count (10^3/μL) (females)							
Age group	Number of participants	Average age	Average value	2.9×10^3/μL or lower	3.9×10^3/μL or lower	9.6×10^3/μL or higher	11.1×10^3/μL or higher
0 to 6	128	3.4	9.1	-	-	35.2%	19.5%
7 to 15	457	12.0	6.4	0.2%	3.1%	3.9%	1.1%
16 to 39	1,619	29.9	6.1	0.8%	7.3%	3.5%	0.6%
40 to 64	5,116	54.4	5.6	1.0%	11.5%	1.8%	0.5%
65 or older	10,178	74.0	5.7	0.8%	9.0%	1.4%	0.4%

3. Peripheral Blood Test (3)-2 Neutrophil count

Neutrophil count (count/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	3,376
7 to 15	961	11.9	3,220
16 to 39	2,743	29.3	3,489
40 to 64	8,048	54.5	3,255
65 or older	18,835	74.2	3,292

Neutrophil count (count/μL) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	159	3.8	3,392
7 to 15	504	11.9	3,159
16 to 39	1,124	28.3	3,377
40 to 64	2,933	54.7	3,440
65 or older	8,660	74.4	3,439

Neutrophil count (count/μL) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	128	3.4	3,357
7 to 15	457	12.0	3,287
16 to 39	1,619	29.9	3,567
40 to 64	5,115	54.4	3,149
65 or older	10,175	74.0	3,168

3. Peripheral Blood Test (3)-3 Lymphocyte Count

Lymphocyte count (count/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	4,693
7 to 15	961	11.9	2,484
16 to 39	2,743	29.3	2,011
40 to 64	8,048	54.5	1,968
65 or older	18,835	74.2	1,996

Lymphocyte count (count/μL) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	159	3.8	4,511
7 to 15	504	11.9	2,517
16 to 39	1,124	28.3	2,049
40 to 64	2,933	54.7	2,017
65 or older	8,660	74.4	1,980

Lymphocyte count (count/μL) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	128	3.4	4,919
7 to 15	457	12.0	2,447
16 to 39	1,619	29.9	1,984
40 to 64	5,115	54.4	1,940
65 or older	10,175	74.0	2,009

3. Peripheral Blood Test (3)-4 Monocyte Count

Monocyte count (count/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	489
7 to 15	961	11.9	387
16 to 39	2,743	29.3	338
40 to 64	8,048	54.5	322
65 or older	18,835	74.2	340

Monocyte count (count/μL) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	159	3.8	488
7 to 15	504	11.9	400
16 to 39	1,124	28.3	356
40 to 64	2,933	54.7	359
65 or older	8,660	74.4	374

Monocyte count (count/μL) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	128	3.4	490
7 to 15	457	12.0	373
16 to 39	1,619	29.9	325
40 to 64	5,115	54.4	300
65 or older	10,175	74.0	312

3. Peripheral Blood Test (3)-5 Eosinophil Count

Eosinophil count (count/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	278
7 to 15	961	11.9	256
16 to 39	2,743	29.3	172
40 to 64	8,048	54.5	168
65 or older	18,835	74.2	162

Eosinophil count (count/μL) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	159	3.8	291
7 to 15	504	11.9	289
16 to 39	1,124	28.3	190
40 to 64	2,933	54.7	190
65 or older	8,660	74.4	188

Eosinophil count (count/μL) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	128	3.4	261
7 to 15	457	12.0	219
16 to 39	1,619	29.9	160
40 to 64	5,115	54.4	156
65 or older	10,175	74.0	140

3. Peripheral Blood Test (3)-6 Basophil Count

Basophil count (count/μL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	287	3.6	44
7 to 15	961	11.9	38
16 to 39	2,743	29.3	42
40 to 64	8,048	54.5	44
65 or older	18,835	74.2	41

Basophil count (count/μL) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	159	3.8	43
7 to 15	504	11.9	40
16 to 39	1,124	28.3	43
40 to 64	2,933	54.7	47
65 or older	8,660	74.4	43

Basophil count (count/μL) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	128	3.4	44
7 to 15	457	12.0	36
16 to 39	1,619	29.9	41
40 to 64	5,115	54.4	42
65 or older	10,175	74.0	40

4. Blood Biochemistry (1)-1 Liver Function (AST)

AST (U/L) (overall)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	953	11.9	22.0	6.7%	0.4%
16 to 39	2,743	29.3	22.1	11.1%	2.9%
40 to 64	8,050	54.5	24.9	15.7%	3.3%
65 or older	18,839	74.2	25.7	16.7%	2.6%

AST (U/L) (males)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	499	11.9	23.8	10.2%	0.8%
16 to 39	1,124	28.3	25.8	19.8%	4.9%
40 to 64	2,934	54.7	27.7	23.6%	5.0%
65 or older	8,661	74.4	26.5	20.2%	3.1%

AST (U/L) (females)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higer
0 to 6	.	.	.	.	.
7 to 15	454	11.9	20.1	2.9%	-
16 to 39	1,619	29.9	19.6	5.0%	1.5%
40 to 64	5,116	54.4	23.3	11.1%	2.3%
65 or older	10,178	74.0	25.0	13.6%	2.2%

4. Blood Biochemistry (1)-2 Liver Function (ALT)

ALT (U/L) (overall)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	953	11.9	15.3	4.8%	1.2%
16 to 39	2,743	29.3	24.7	20.2%	9.3%
40 to 64	8,050	54.5	25.1	22.0%	7.2%
65 or older	18,839	74.2	21.6	13.5%	3.1%

ALT (U/L) (males)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	499	11.9	17.5	7.2%	2.2%
16 to 39	1,124	28.3	34.9	38.3%	18.1%
40 to 64	2,934	54.7	31.5	35.2%	12.6%
65 or older	8,661	74.4	23.4	17.7%	4.1%

ALT (U/L) (females)					
Age group	Number of participants	Average age	Average value	31 U/L or higher	51 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	454	11.9	12.8	2.2%	-
16 to 39	1,619	29.9	17.6	7.6%	3.3%
40 to 64	5,116	54.4	21.4	14.5%	4.1%
65 or older	10,178	74.0	20.1	9.9%	2.3%

4. Blood Biochemistry (1)-3 Liver Function (γ-GT)

γ to GT (U/L) (overall)					
Age group	Number of participants	Average age	Average value	51 U/L or higher	101 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	953	11.9	14.6	0.4%	-
16 to 39	2,743	29.3	27.7	10.8%	3.2%
40 to 64	8,050	54.5	39.5	19.3%	6.2%
65 or older	18,839	74.2	33.6	13.6%	3.8%

γ to GT (U/L) (males)					
Age group	Number of participants	Average age	Average value	51 U/L or higher	101 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	499	11.9	16.3	0.8%	-
16 to 39	1,124	28.3	39.2	20.4%	6.2%
40 to 64	2,934	54.7	57.6	33.9%	11.8%
65 or older	8,661	74.4	42.7	21.0%	6.2%

γ to GT (U/L) (females)					
Age group	Number of participants	Average age	Average value	51 U/L or higher	101 U/L or higher
0 to 6	.	.	.	.	.
7 to 15	454	11.9	12.8	-	-
16 to 39	1,619	29.9	19.8	4.2%	1.1%
40 to 64	5,116	54.4	29.1	11.0%	2.9%
65 or older	10,178	74.0	25.8	7.3%	1.7%

4. Blood Biochemistry (2)-1 Lipids (LDL Cholesterol)

LDL-C (mg/dL) (overall)					
Age group	Number of participants	Average age	Average value	120 mg/dL or higher	140 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	953	11.9	91.5	11.4%	2.6%
16 to 39	2,743	29.3	111.6	35.8%	17.4%
40 to 64	8,050	54.5	124.2	53.5%	29.6%
65 or older	18,839	74.2	114.8	41.4%	18.7%

LDL-C (mg/dL) (males)					
Age group	Number of participants	Average age	Average value	120 mg/dL or higher	140 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	499	11.9	89.6	9.8%	2.2%
16 to 39	1,124	28.3	115.1	41.6%	22.2%
40 to 64	2,934	54.7	121.4	50.0%	27.0%
65 or older	8,661	74.4	110.2	35.8%	14.6%

LDL-C (mg/dL) (females)					
Age group	Number of participants	Average age	Average value	120 mg/dL or higher	140 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	454	11.9	93.5	13.2%	3.1%
16 to 39	1,619	29.9	109.2	31.8%	14.0%
40 to 64	5,116	54.4	125.8	55.6%	31.1%
65 or older	10,178	74.0	118.8	46.2%	22.3%

4. Blood Biochemistry (2)-2 Lipids (Triglyceride)

Triglyceride (TG) (mg/dL) (overall)					
Age group	Number of participants	Average age	Average value	150 mg/dL or higher	300 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	953	11.9	86.2	9.8%	1.3%
16 to 39	2,743	29.3	92.3	12.5%	1.6%
40 to 64	8,050	54.5	113.0	19.1%	2.9%
65 or older	18,839	74.2	110.8	18.3%	1.5%

Triglyceride (TG) (mg/dL) (males)					
Age group	Number of participants	Average age	Average value	150 mg/dL or higher	300 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	499	11.9	84.7	10.6%	1.0%
16 to 39	1,124	28.3	111.5	19.1%	2.8%
40 to 64	2,934	54.7	138.1	29.1%	5.6%
65 or older	8,661	74.4	116.1	21.5%	2.0%

Triglyceride (TG) (mg/dL) (females)					
Age group	Number of participants	Average age	Average value	150 mg/dL or higher	300 mg/dL or higher
0 to 6	.	.	.	.	.
7 to 15	454	11.9	87.8	8.8%	1.5%
16 to 39	1,619	29.9	78.9	8.0%	0.7%
40 to 64	5,116	54.4	98.6	13.4%	1.3%
65 or older	10,178	74.0	106.3	15.7%	1.0%

4. Blood Biochemistry (2)-3 Lipids (HDL Cholesterol)

HDL-C (mg/dL) (overall)				
Age group	Number of participants	Average age	Average value	Lower than 40 mg/dL
0 to 6	·	·	·	·
7 to 15	953	11.9	59.2	3.4%
16 to 39	2,743	29.3	61.5	4.0%
40 to 64	8,050	54.5	64.3	4.0%
65 or older	18,839	74.2	59.9	5.9%

HDL-C (mg/dL) (males)				
Age group	Number of participants	Average age	Average value	Lower than 40 mg/dL
0 to 6	·	·	·	·
7 to 15	499	11.9	59.3	4.8%
16 to 39	1,124	28.3	55.6	7.5%
40 to 64	2,934	54.7	57.4	8.3%
65 or older	8,661	74.4	55.6	9.6%

HDL-C (mg/dL) (females)				
Age group	Number of participants	Average age	Average value	Lower than 40 mg/dL
0 to 6	·	·	·	·
7 to 15	454	11.9	59.2	1.8%
16 to 39	1,619	29.9	65.7	1.7%
40 to 64	5,116	54.4	68.3	1.5%
65 or older	10,178	74.0	63.6	2.7%

4. Blood Biochemistry (3)-1 Blood Glucose (Fasting Blood Glucose)

Fasting blood glucose (mg/dL) (overall)						
Age group	Number of participants	Average age	Average value	110 mg/dL or higher	130 mg/dL or higher	160 mg/dL or higher
0 to 6	·	·	·	·	·	·
7 to 15	600	12.1	87.0	0.2%	-	-
16 to 39	2,507	29.2	90.1	3.1%	0.9%	0.4%
40 to 64	7,230	54.4	99.2	14.7%	4.9%	1.5%
65 or older	15,319	73.8	105.1	26.9%	9.0%	1.8%

Fasting blood glucose (mg/dL) (males)						
Age group	Number of participants	Average age	Average value	110 mg/dL or higher	130 mg/dL or higher	160 mg/dL or higher
0 to 6	·	·	·	·	·	·
7 to 15	305	12.0	87.7	-	-	-
16 to 39	1,024	28.2	92.1	5.1%	1.7%	0.9%
40 to 64	2,610	54.7	103.4	21.9%	7.5%	2.5%
65 or older	7,022	74.1	108.0	33.0%	11.9%	2.5%

Fasting blood glucose (mg/dL) (females)						
Age group	Number of participants	Average age	Average value	110 mg/dL or higher	130 mg/dL or higher	160 mg/dL or higher
0 to 6	·	·	·	·	·	·
7 to 15	295	12.2	86.4	0.3%	-	-
16 to 39	1,483	29.8	88.7	1.8%	0.4%	0.1%
40 to 64	4,620	54.3	96.8	10.6%	3.3%	1.0%
65 or older	8,297	73.6	102.7	21.7%	6.5%	1.3%

4. Blood Biochemistry (3)-2 Blood Glucose (HbA1c)

HbA1c (%) (NGSP) (overall)						
Age group	Number of participants	Average age	Average value	6.0% or higher	7.0% or higher	8.0% or higher
0 to 6	·	·	·	·	·	·
7 to 15	953	11.9	5.3	0.3%	-	-
16 to 39	2,743	29.3	5.3	2.9%	1.0%	0.5%
40 to 64	8,049	54.5	5.7	17.2%	4.1%	1.4%
65 or older	18,840	74.2	5.9	32.6%	6.5%	1.3%

HbA1c (%) (NGSP) (males)						
Age group	Number of participants	Average age	Average value	6.0% or higher	7.0% or higher	8.0% or higher
0 to 6	·	·	·	·	·	·
7 to 15	499	11.9	5.4	0.4%	-	-
16 to 39	1,124	28.3	5.4	3.9%	1.8%	1.0%
40 to 64	2,933	54.7	5.7	21.0%	6.0%	2.3%
65 or older	8,662	74.4	5.9	35.3%	8.2%	1.6%

HbA1c (%) (NGSP) (females)						
Age group	Number of participants	Average age	Average value	6.0% or higher	7.0% or higher	8.0% or higher
0 to 6	·	·	·	·	·	·
7 to 15	454	11.9	5.3	0.2%	-	-
16 to 39	1,619	29.9	5.3	2.2%	0.4%	0.1%
40 to 64	5,116	54.4	5.6	15.1%	3.0%	0.9%
65 or older	10,178	74.0	5.9	30.2%	5.0%	1.0%

4. Blood Biochemistry (4)-1 Renal Function (Serum Creatinine)

Serum creatinine (mg/dL) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	·	·	·
7 to 15	952	11.9	0.53
16 to 39	2,743	29.3	0.69
40 to 64	8,050	54.5	0.73
65 or older	18,839	74.2	0.79

Serum creatinine (mg/dL) (males)					
Age group	Number of participants	Average age	Average value	1.15 mg/dL or higher	1.35 mg/dL or higher
0 to 6	·	·	·	·	·
7 to 15	499	11.9	0.56	-	-
16 to 39	1,124	28.3	0.82	0.7%	0.1%
40 to 64	2,934	54.7	0.87	3.5%	1.1%
65 or older	8,661	74.4	0.92	10.3%	4.1%

Serum creatinine (mg/dL) (females)					
Age group	Number of participants	Average age	Average value	0.95 mg/dL or higher	1.15 mg/dL or higher
0 to 6	·	·	·	·	·
7 to 15	453	11.9	0.50	-	-
16 to 39	1,619	29.9	0.60	0.3%	0.1%
40 to 64	5,116	54.4	0.64	1.1%	0.4%
65 or older	10,178	74.0	0.68	4.4%	1.4%

4. Blood Biochemistry (4)-2 Renal Function (eGFR)

eGFR (mL/min/1.73m^2) (overall)			
Age group	Number of participants	Average age	Average value
0 to 6	·	·	·
7 to 15	·	·	·
16 to 39	2,743	29.3	96.3
40 to 64	8,050	54.5	76.8
65 or older	18,839	74.2	66.7

eGFR (mL/min/1.73m^2) (males)			
Age group	Number of participants	Average age	Average value
0 to 6	·	·	·
7 to 15	·	·	·
16 to 39	1,124	28.3	94.5
40 to 64	2,934	54.7	76.6
65 or older	8,661	74.4	66.4

eGFR (mL/min/1.73m^2) (females)			
Age group	Number of participants	Average age	Average value
0 to 6	·	·	·
7 to 15	·	·	·
16 to 39	1,619	29.9	97.5
40 to 64	5,116	54.4	76.9
65 or older	10,178	74.0	66.8

4. Blood Biochemistry (4)-3 Renal Function (Uric Acid)

Uric acid (mg/dL) (overall)					
Age group	Number of participants	Average age	Average value	7.1 mg/dL or higher	8.0 mg/dL or higher
0 to 6	·	·	·	·	·
7 to 15	953	11.9	4.9	4.3%	0.9%
16 to 39	2,743	29.3	5.2	11.4%	4.3%
40 to 64	8,050	54.5	5.2	9.8%	3.0%
65 or older	18,839	74.2	5.2	8.3%	2.5%

Uric acid (mg/dL) (males)						
Age group	Number of participants	Average age	Average value	7.1 mg/dL or higher	7.9 mg/dL or higher	8.0 mg/dL or higher
0 to 6	·	·	·	·	·	·
7 to 15	499	11.9	5.2	8.0%	2.4%	1.8%
16 to 39	1,124	28.3	6.3	25.2%	10.5%	9.8%
40 to 64	2,934	54.7	6.1	23.0%	8.5%	7.5%
65 or older	8,661	74.4	5.8	14.5%	5.4%	4.7%

Uric acid (mg/dL) (females)						
Age group	Number of participants	Average age	Average value	5.6 mg/dL or higher	7.1 mg/dL or higher	8.0 mg/dL or higher
0 to 6	·	·	·	·	·	·
7 to 15	454	11.9	4.4	11.7%	0.2%	-
16 to 39	1,619	29.9	4.5	14.0%	1.9%	0.5%
40 to 64	5,116	54.4	4.7	20.0%	2.2%	0.5%
65 or older	10,178	74.0	4.8	22.4%	3.1%	0.6%

Comprehensive Health Check (CHC)

On the Fukushima Health Management Survey

Related Papers*

(Effects of the Evacuation on Lives)

Office of Comprehensive Health Check and Health Promotion,
Radiation Medical Science Center
for the Fukushima Health Management Survey

*Publications made after the 50th Oversight Committee meeting (by December 2024)

1 *Association between evacuation and becoming overweight after the Great East Japan Earthquake: a 7-year follow-up of the Fukushima Health Management Survey*

Public Health. 2024 Jul; 232:170-177.

Masanori Nagao (Radiation Medical Science Center for the Fukushima Health Management Survey (FHMS), Fukushima Medical University), et al.

2 *Trajectories of liver dysfunction and long-term evacuation status after the Great East Japan Earthquake: The Fukushima Health Management Survey*

Int J Disaster Risk Reduct. 2024 Jun; 108:104513.

Fumikazu Hayashi (Radiation Medical Science Center for the Fukushima Health Management Survey (FHMS), Fukushima Medical University), et al.

3 *Impact of Changes in Lifestyle and Psychological Factors on the Incidence of Metabolic Syndrome after the Great East Japan Earthquake: Follow-up of the Fukushima Health Management Survey*

J Atheroscler Thromb. 2024 Sep; *32(3):345-355.*

Atsushi Takahashi (Radiation Medical Science Center for the Fukushima Health Management Survey (FHMS), Fukushima Medical University), et al.

1. Association between evacuation and becoming overweight after the Great East Japan Earthquake: a 7-year follow-up of the Fukushima Health Management Survey

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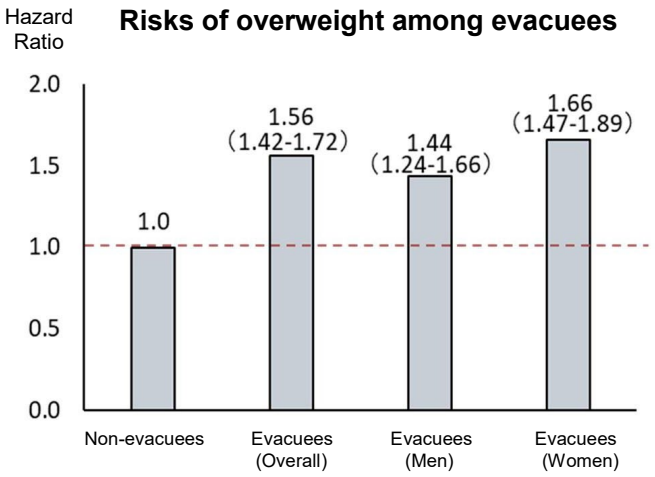


*The values in the graph are 'Hazard Ratio" (95% Confidence interval)

Age, sex, baseline BMI (continuous volume), smoking (never, past, and current), alcohol consumption (never, past, and current; less than 40 g/day and more than 40 g/day of pure alcohol equivalent for men and less than 20 g/day and more than 20 g/day for women), exercise habits (more than twice a week and less than twice a week), Sleep satisfaction (satisfied/dissatisfied), psychological distress (yes/no), awareness of radiation health effects (high/low), decreased income (yes/no) (yes/no), Participation in recreation and community activities (yes/no), and education (more or less than a junior college degree) were adjusted.

Background and Objectives:

Evacuation life increases the risk of becoming overweight or obese due to changes in the living environment and psychosocial factors. Previously, the Fukushima Health Management Survey (FHMS) reported an increase in weight and abdominal obesity after the 3.11 disaster compared to before the disaster. This study evaluated the effect of evacuation on the risk of becoming overweight among residents of evacuation areas who were not obese in FY2011, and studied the factors influencing overweight, including psychosocial factors.

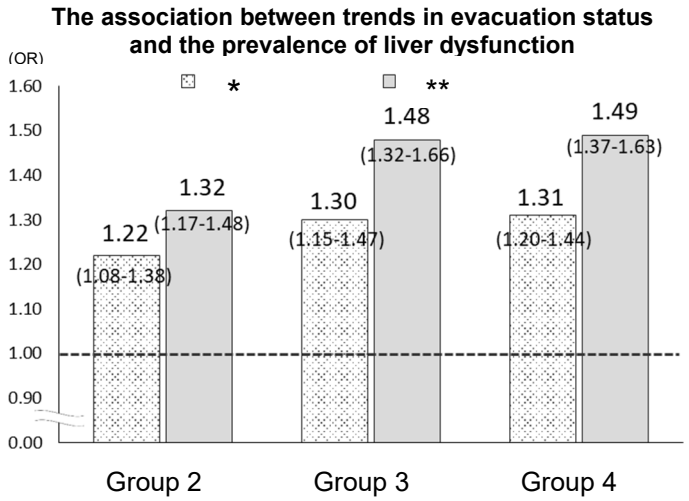
Methods:

This follow-up study focuses on individuals aged 39-89 who participated in the 'Comprehensive Health Check (CHC)' and the 'Mental Health and Lifestyle Survey' of the Fukushima Health Management Survey during the baseline period from July 2011 to November 2012, and who were not obese. Obesity was defined as a Body mass index (BMI) of 25 kg/m² or more, and evacuation was described as living in an area designated as an evacuation zone at the time of the 3.11 disaster or having answered in the survey that they had lived in an evacuation shelter or temporary housing. The study confirmed the occurrence of new obesity based on the results of the CHC conducted by March 2018. The study also analyzed the association among evacuation experience, other lifestyle and/or psychological factors using a Cox proportional hazards regression model.

Results:
During an average follow-up period of 4.29 years, 15,875 participants (6,091 men and 9,784 women; mean age 63.0 ± 11.1 years), 2,042 participants (856 men and 1,186 women) were newly identified as having obesity. The risk of becoming obese was significantly higher for those who experienced evacuation compared to those who did not. Hazard ratios (95% confidence interval) adjusted for age, baseline BMI, lifestyle, and psychosocial factors were 1.44 (1.24-1.66) for men and 1.66 (1.47-1.89) for women. Among those who had experienced evacuation, smoking and feeling anxiety about radiation tended to increase the likelihood of becoming obese, while exercise habits and being satisfied with sleep were associated with a lower likelihood of becoming obese.

Conclusion:
Evacuation experiences were associated with the risk of becoming overweight. Thus, maintaining physical activity, a healthy diet, and sleep quality, and removing barriers to healthy behavior caused by disasters, including anxiety concerning radiation, may prevent this health risk among evacuees.

2. Trajectories of liver dysfunction and long-term evacuation status after the Great East Japan earthquake: The Fukushima Health Management Survey
   Int J Disaster Risk Reduct. 2024 Jun;108:104513.
   Fumikazu Hayashi (Radiation Medical Science Center for the FHMS, Fukushima Medical University) et al.



*Covered municipalities where the evacuation order lifting preparation zones and residential restriction zones for most of the municipalities were lifted by March 31, 2019, were classified as "returnable areas".

**Covered municipalities where the difficult-to-return zones occupied the majority of municipalities as of March 31, 2019, were classified as "difficult-to-return areas".

Group 1 (criterion): group with continuously low prevalence
Group 2: Groups that improved from high prevalence in 2011
Group 3: Similar to the prevalence of Group 1 in 2011, but increased since then.
Group 4: Continuously high prevalence group

Adjusted for age, gender, evacuation status, obesity, exercise habits, smoking habits, drinking habits, unemployment, education, problem drinking, insomnia symptoms as determined by the survey, and psychological distress.

Purpose:
The association between subsequent evacuation status, such as return or continued evacuation, and trends in hepatic dysfunction remains unclear in the Fukushima Health Management Survey (FHMS). Therefore, in this study, we evaluated this association using FHMS data through FY2018.

Methods:
The participants in this study were 34,435 individuals (14,063 men and 20,372 women) in total, who had undergone the Comprehensive Health Check (CHC) in 2011 and responded to the survey questionnaires of the Mental Health and Lifestyle Survey, followed through FY2018. Group-based trajectory modeling was used to categorize participants' liver dysfunction by trajectory group, and differences in survey items for each trajectory group as of FY2012 were examined. Furthermore, we divided the 13 municipalities, including evacuation zones, etc., into partially evacuated areas, returnable areas, and difficult-to-return areas according to the lifting of evacuation orders as of FY 2018, and examined the association between long-term evacuation status after the earthquake and the trajectory of liver dysfunction using logistic regression modeling.

Results:
Participants were each grouped by group-based trajectory modeling into Group 1 (continuously low prevalence; 62.2 %), Group 2 (improvement from high prevalence in FY2011; 10.8 %), Group 3 (like Group1 prevalence in FY2011 but increasing afterwards; 11.2 %), and Group 4 (continuously high prevalence; 15.8 %), based on waveform characteristics. Multivariate logistic regression Modeling revealed that difficult-to-return and possible return areas are at higher risk of belonging to Group 2, Group 3, and Group 4 compared to partially evacuated areas.

Conclusion:
The results of this study suggest that liver dysfunction will likely persist in areas where evacuation took a long time.

3. Impact of Changes in Lifestyle and Psychological Factors on the Incidence of Metabolic Syndrome after the Great East Japan Earthquake: Follow-up of the Fukushima Health Management Survey
J Atheroscler Thromb. 2024 Sep 10.
Atsushi Takahashi (Radiation Medical Science Center for the FHMS, Fukushima Medical University), et al.

Association between changes in lifestyle habits and new onset of metabolic syndrome (odds ratio (95% confidence interval))

	Baseline (2013)	Thereafter (2014-2017)	Total (10,373)	Men (3,635)	Women (6,738)	Gender interaction
Eating fast						0.23
	No	No		reference		
	Yes	No	1.02 (0.83-1.27)	0.93 (0.69-1.25)	1.13 (0.83-1.55)	
	No	Yes	1.11 (0.89-1.38)	1.06 (0.79-1.43)	1.16 (0.84-1.61)	
	Yes	Yes	1.28 (1.10-1.49)*	1.22 (0.99-1.50)	1.34 (1.06-1.67)*	
Smoking status						0.12
	No	No		reference		
	Yes	No	1.57 (1.08-2.26)*	1.58 (1.05-2.36)*	1.10 (0.44-2.72)	
	No	Yes	2.20 (1.04-4.67)*	1.35 (0.54-3.38)	7.62 (2.17-26.72)*	
	Yes	Yes	1.09 (0.89-1.32)	0.97 (0.78-1.20)	1.56 (0.99-2.45)	
Alcohol intake						0.23
	No	No		reference		
	Yes	No	0.88 (0.64-1.22)	0.94 (0.66-1.35)	0.77 (0.37-1.58)	
	No	Yes	0.89 (0.63-1.25)	0.98 (0.65-1.46)	0.69 (0.36-1.35)	
	Yes	Yes	1.18 (1.00-1.38)*	1.25 (1.05-1.49)*	0.96 (0.63-1.45)	

*$p < 0.05$

Purpose:
The 3.11 Great East Japan Earthquake and the subsequent Fukushima Daiichi Nuclear Power Plant accident caused drastic lifestyle changes and psychological distress among the residents in the evacuation areas. This study aims to clarify the associations between changes in residents' lifestyles and psychological factors with the onset of metabolic syndrome (METs) among residents in evacuation areas after the accident.

Methods:
This study included 10,373 residents of 13 municipalities designated as evacuation zones who participated Comprehensive Health Check and Mental Health and Lifestyle Survey, and had not been diagnosed with metabolic syndrome as of FY2013. Follow-up surveys were conducted between FY 2014 and FY 2017 and evaluated using a logistic regression model to analyze lifestyle factors and psychological factors associated with metabolic syndrome onset.

Results:

Of the 10,373 participants, 1,451 (14.0%) developed metabolic syndrome. Variable logistic regression showed that starting physical activity or a fast walking habit was associated with lower odds ratios of developing metabolic syndrome, while fast eating, continued alcohol consumption, and smoking were associated with higher odds ratios of developing metabolic syndrome. On the other hand, no association was found between psychological factors and the development of metabolic syndrome.

Conclusion:
Eating fast, drinking alcohol, and smoking are associated with the new onset of metabolic syndrome after the Great East Japan Earthquake.

The Impact of the COVID-19 Pandemic On Results of the "Fukushima Health Management Survey" (FHMS)

Background and Objectives:

The worldwide spread of a novel coronavirus infection (hereafter referred to as "COVID-19") led to a variety of significant restrictions on social activities throughout Japan, including emergency measures and priority measures to limit its spread, starting from the end of fiscal year 2019 (March 2020) until May 8, 2023, when COVID-19 was changed from a Class 2 to a Class 5 infection under Japan's Infectious Diseases Control Law. Fukushima Prefecture was no exception, prompting concern that fewer social activities may have had a negative impact on the health status of residents.

Therefore, the purpose of this study was to evaluate the impact of the COVID-19 pandemic on the health status of residents of the evacuation zone by summarizing changes in health examination results from the period before the COVID-19 pandemic to just before its transition to a Class 5 infection.

Method:

Covered population

Among residents eligible for the Comprehensive Health Check (CHC) in the Fukushima Health Management Survey (FHMS), 45,957 persons ages 40 or older at the end of the fiscal year who received a CHC at least once (specified health checkup, late-stage health checkup, or CHC based on the FHMS) between fiscal years 2018 and 2022 were included in the total number of participants.

Definition of lifestyle-related diseases.

Lifestyle-related diseases and other conditions considered in this analysis were defined as follows.

- Obesity was defined as a body mass index (BMI) of 25 kg/m^2 or higher.
- Underweight was defined as a BMI less than 18.5 kg/m^2.
- Hypertension was defined as a systolic blood pressure of 140 mmHg or higher, a diastolic blood pressure of 90 mmHg or higher, or the use of antihypertensive drugs.
- Diabetic patients were defined as having a fasting blood glucose of 126 mg/dL or higher, an occasional blood glucose of 200 mg/dL or higher, an HbA1c of 6.5% or higher (NGSP criteria), or being treated with hypoglycemic medication. Fasting was defined as not consuming calories for at least 10 hours (with or without intake of non-caloric fluids).
- Lipid abnormalities were defined as HDL cholesterol <40 mg/dL, LDL cholesterol >140 mg/dL, fasting triglycerides >150 mg/dL, or taking cholesterol-lowering medication.
- Liver dysfunction was defined as AST of 31 U/L or higher, ALT of 31 U/L or higher, and/or γ-GT of 51 U/L or higher.
- Hyperuricemia was defined as uric acid greater than 7.1 mg/dL.
- Renal dysfunction was defined as estimated glomerular filtration rate (eGFR) less than 60 mL/min/1.73 m^2, urinary protein greater than 1+, or chronic renal failure (including the need for dialysis).
- Metabolic syndrome was defined as having an abdominal circumference of at least 85 cm for men or 90 cm for women, and at least two of the following three criteria: blood lipid irregularities (triglycerides at least 150 mg/dL and/or HDL cholesterol less than 40 mg/dL), elevated blood pressure (systolic pressure at least 130 mmHg and/or diastolic pressure at least 85 mmHg), or elevated blood glucose (fasting blood glucose 110 mg/dL or higher).

Tabulation Method

Study 1: Characteristics based on participation pattern and Comprehensive Health Check (CHC) results before and after the COVID-19 pandemic.

Fiscal years 2018 and 2019 (FY2018 and FY2019) are defined as time point 1 before the COVID-19 pandemic, FY2020 and FY2021 are defined as time point 2 during the COVID-19 pandemic, and FY2022 is defined as time point 3 after the COVID-19 pandemic. Examinees were classified based on the time points (*1) at which they participated in CHC medical examinations (*2), and their characteristics were compared based on medical examination results for those who received examinations at time point 1.

Study 2: Changes in Comprehensive Health Check (CHC) results before and after the COVID-19 pandemic period

To check annual changes in the results of health checkups, we defined "continuous examinees" as those who had undergone health checkups at time points 1, 2, and 3, of whom 20,144 persons (44.3% of subjects aged 40 or older at the end of FY2018, the study cohort) had no missing test values (excluding abdominal circumference and metabolic syndrome assessment). Results of their medical checkups were tabulated only for those who had no missing examination values (excluding assessments of abdominal circumference and metabolic syndrome), and are shown as line graphs. Results for abdominal circumference and metabolic syndrome were tabulated only for those "continuous examinees" (14,296 persons) who also had no missing test results. In addition, to confirm whether the "continuous examinees" are representative of the population, the results of each year's health checkups (average test values, percentage of lifestyle-related diseases, etc.) for the population were tabulated for all persons (45,975 persons) aged 40 or older at the end of the fiscal year who received a health checkup in that year; these results are shown in bar graphs.

*1: Definition of time points

Time point 1 (before the COVID-19 pandemic): FY2018 or FY2019 (If both CHCs are taken, the results of FY 2018 will be used.)

Time point 2 (COVID-19 pandemic period): FY2020 or FY2021 (If both examinations are taken, the results of FY2020 will be used.)

Time point 3 (after the COVID-19 pandemic): FY2022

*2: Classification of eligible persons based on patterns of medical examinations

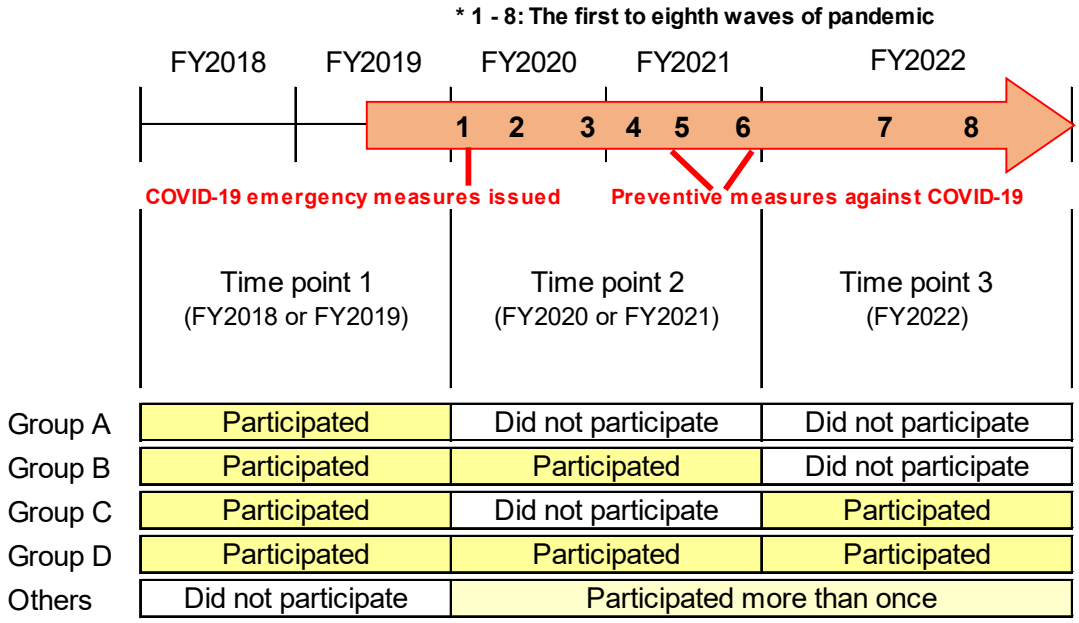
Group A (○— —): Participated at time point 1, but did not participate at time points 2 and 3.

Group B (○○—): Participated at time points 1 and 2, but did not participate at time point 3.

Group C (○—○): Participated at time points 1 and 3, but did not participate at time point 2.

Group D (○○○): Participated at time points 1, 2, and 3.

Others: Those who did not participate at time point 1 but had participated at least once at other time points.



Results and Discussion

Study 1: Participants' characteristics based on participation pattern and Comprehensive Health Check (CHC) results before and after the COVID-19 pandemic.

When the characteristics of those who participated at time point 1, which was before the COVID-19 pandemic, were compared by pattern of subsequent CHCs, the largest number was in group D, those who had participated at all time points. The smallest number was in group C, those who did not participate at time point 2, which was during the COVID-19 pandemic.

Regarding age, participants in Group A and Group B were older on average than those in other groups, who did not participate a time point 3, which was after the COVID-19 pandemic. On the other hand, Group C was the youngest compared to Group D, which was examined at all time points.

In the framework of CHC participation, compared to group D, the other three groups had a lower percentage of municipal health check-ups and a higher percentage of group and/or individual health check-ups.

The use of antihypertensive and hypoglycemic drugs was high in Group A and low in Group C. The use of cholesterol-lowering drugs was highest in Group D and lowest in Group C.

No differences were observed in the prevalence of lifestyle-related diseases between Groups C and D except for obesity, but Group A had higher percentages of obesity, underweight, hypertension, and diabetes than Group D. Group D had the lowest percentage of obesity and the highest percentage of cholesterol-lowering drug users, suggesting that this may be a more health-managed population.

Table: Participants' characteristics based on participation pattern and Comprehensive Health Check (CHC) results before and after the COVID-19 pandemic.

	Group A (○－－)	Group B (○○－)	Group C (○－○)	Group D (○○○)
Number of participants	8,917	6,564	1,731	20,317
Female %	57.0	57.4	59.6	57.5
Age at visit, mean±SD	67.0±13.1	66.6±12.3	64.1±10.7	65.2±9.8
40-64 years old at the end of the fiscal year, %.	37.5	36.3	43.3	38.3
65-74 years old at the end of the fiscal year, %.	28.5	33.3	38.2	43.8
75 years old or older at the end of the fiscal year, %.	33.9	30.4	18.5	17.9
Framework for CHC, %.				
Municipal health check-ups	69.7	71.5	73.8	80.2
FMU group health check-ups	10.4	9.2	11.0	7.3
FMU individual health check-ups	13.3	12.2	9.5	6.7
Out-of-prefecture health check-ups	6.5	7.1	5.7	5.9
Examination results				
BMI, kg/m^2	24.0	24.0	24.0	23.9
Abdominal circumference, cm	85.0	84.9	84.3	84.5
Systolic blood pressure, mmHg	129	128	128	127
Diastolic blood pressure, mmHg	74	74	74	74
Hemoglobin A1c, %	5.8	5.8	5.7	5.7
HDL cholesterol, mg/dL	61	61	62	62
LDL cholesterol, mg/dL	119	120	122	120
Neutral fat, mg/dL	117	115	115	113
AST, U/dL	25	25	24	25
ALT, U/dL	22	23	22	23
γGT, U/dL	39	36	37	36
Uric acid, mg/dL	5.2	5.2	5.2	5.2
eGFR, mL/min/1.73m^2	67.9	68.1	69.9	68.7
Antihypertensive medication taken, %.	45.1	43.4	39.6	41.1
Hypoglycemic drug use, %.	12.0	11.4	9.2	11.0
Cholesterol-lowering medication taken, %.	26.0	27.3	27.0	30.6
Prevalence, %				
Obesity	36.0	35.9	36.3	33.9
Underweight	5.5	5.2	4.2	4.6
High blood pressure	56.8	54.2	51.2	51.3
Diabetic type	17.8	15.9	13.9	15.1
Dyslipidemia	55.2	56.6	57.5	58.5
Abnormal liver function	29.6	29.4	27.9	28.3
Hyperuricemia (increased levels of uric acid in the blood)	10.4	9.3	8.7	9.4
Abnormal renal function	31.2	29.0	24.3	25.8
Metabolic syndrome	19.7	19.9	19.7	20.4

Study 2: Changes in Comprehensive Health Check (CHC) results before and after the COVID-19 pandemic period

1. BMI and obesity rate

In the continuous participants (Group D), the average BMI and the obesity rate decreased from time point 2 (FY2020 to FY2021) to time point 3 (FY2022) (Figures 1-1 and 1-2)

The same trend was observed in the population, with the average BMI and the obesity rate decreasing from FY2020 to FY2022 (Figures 1-3 and 1-4).

Figure 1-1

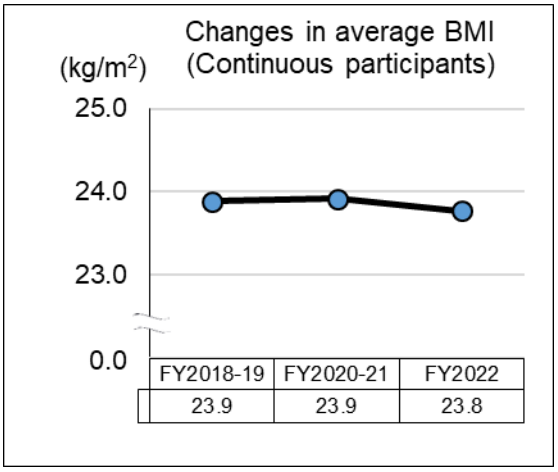


Figure 1-2

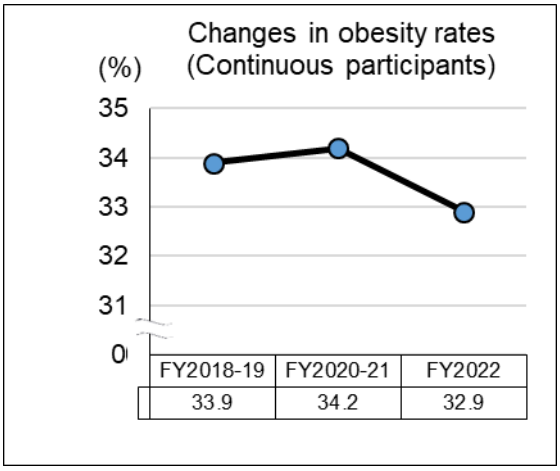


Figure 1-3

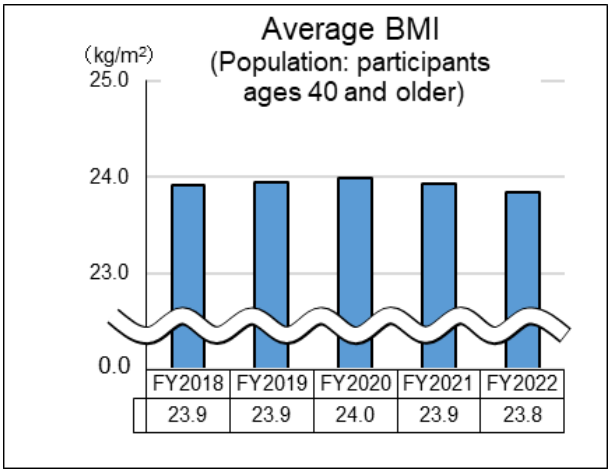
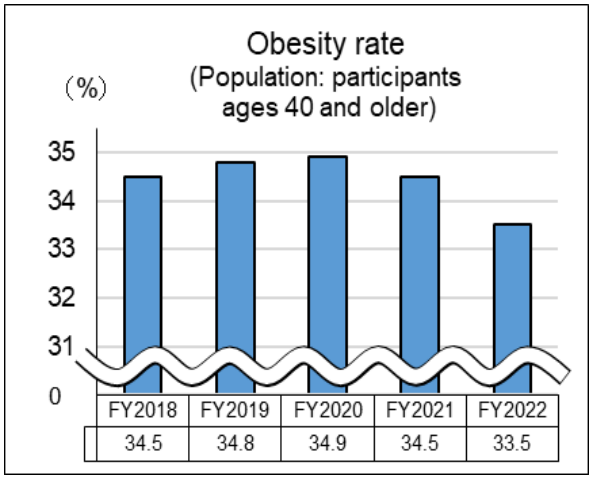


Figure 1-4



2. Systolic blood pressure, diastolic blood pressure, percentage of antihypertensive drug users, percentage of participants with hypertension

Among continuous participants (Group D), systolic blood pressure increased from time point 1 (FY2018 - FY2019) to time point 2 (FY2020 - FY2021), and then decreased in time point 3 (FY2022). Diastolic blood pressure showed a similar trend, but decreased to the level of time point 1 (FY2018 - FY2019) by time point 3 (FY2022) (Figures 2-1 and 2-2). The percentage of those taking antihypertensive drugs and those with hypertension increased consistently from time point 1 (FY2018 - FY2019) to time point 3 (FY2022). In particular, the percentage of those taking antihypertensive drugs increased, and both systolic and diastolic blood pressures were lower at time point 3 (FY2022), suggesting that the number of those taking appropriate blood pressure control measures (treatment) may have increased (Figures 2-3, 2-4).

The same trend was observed in the population (Figures 2-5 to 2-8).

Figure 2-1

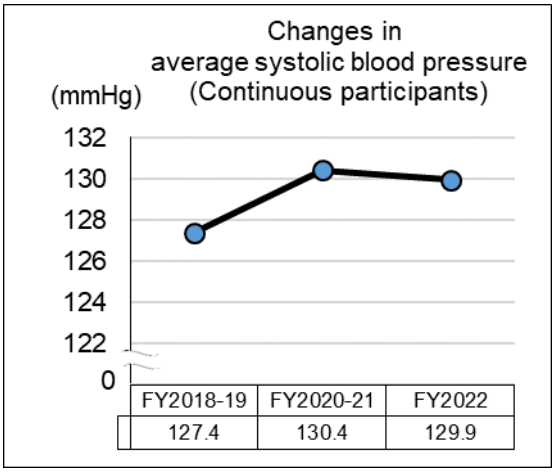


Figure 2-2

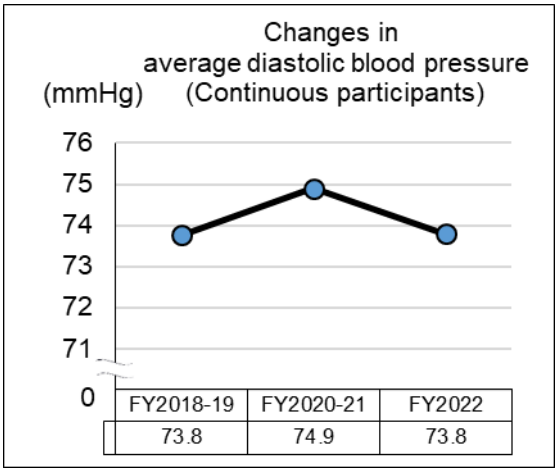


Figure 2-3

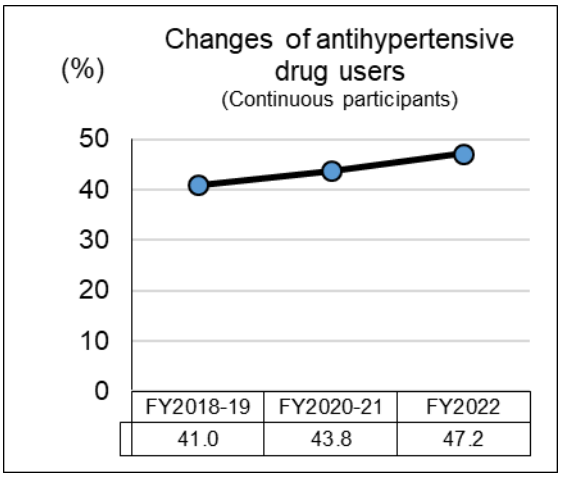


Figure 2-4

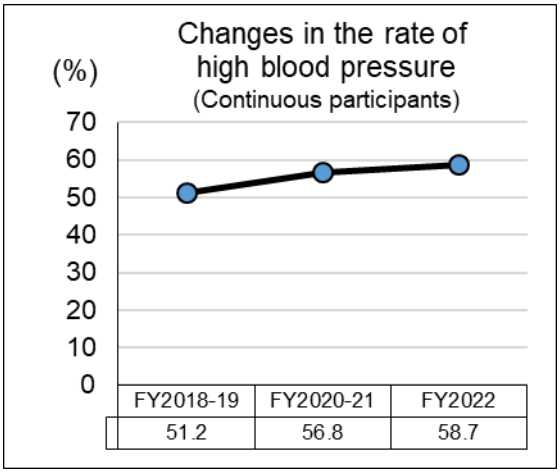


Figure 2-5

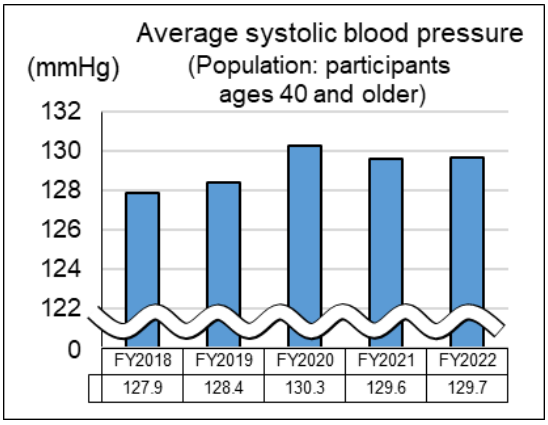


Figure 2-6

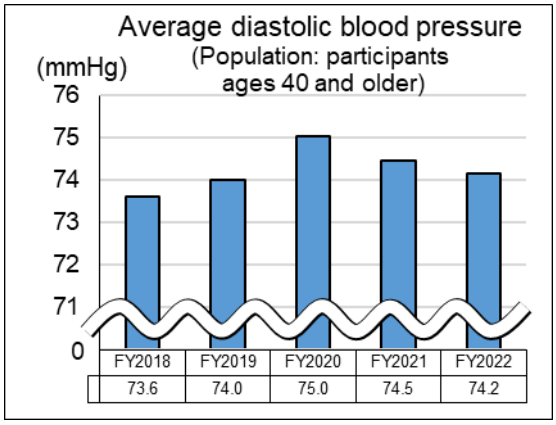


Figure 2-7

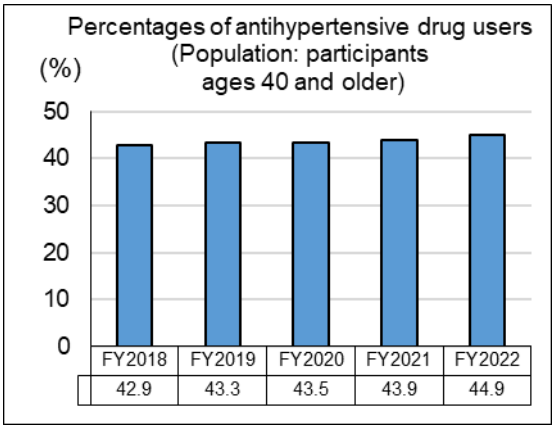
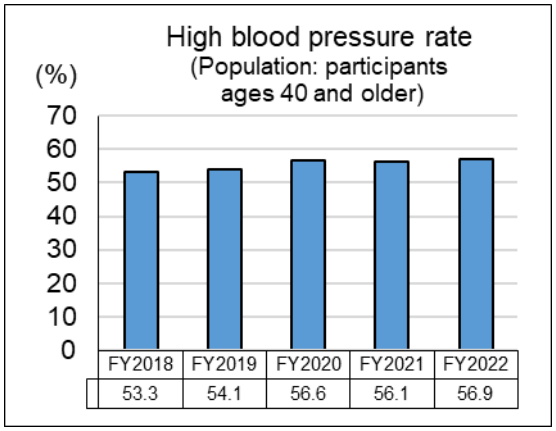


Figure 2-8



3. Hemoglobin A1c, percentage of hypoglycemic drug users, percentage of diabetic participants.

Among continuous participants (Group D), the average hemoglobin A1c level, the percentage of hypoglycemic drug users, and the percentage of participants with diabetes increased from time point 1 (FY2018 - FY2019) to time point 3 (FY2022). The percentages of hypoglycemic drug users and diabetic patients showed a consistent increasing trend (Figures 3-1 to 3-3).

The same trend was observed in the population (Figures 3-4 to 3-6).

Figure 3-1

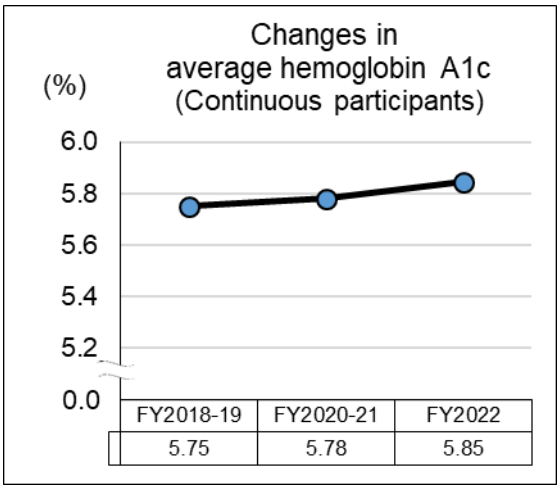


Figure 3-2

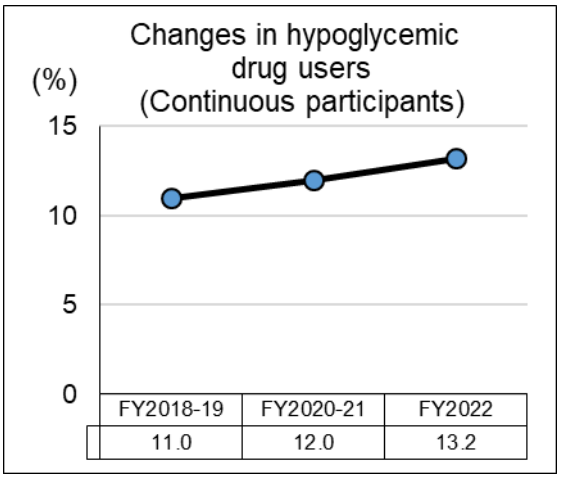


Figure 3-3

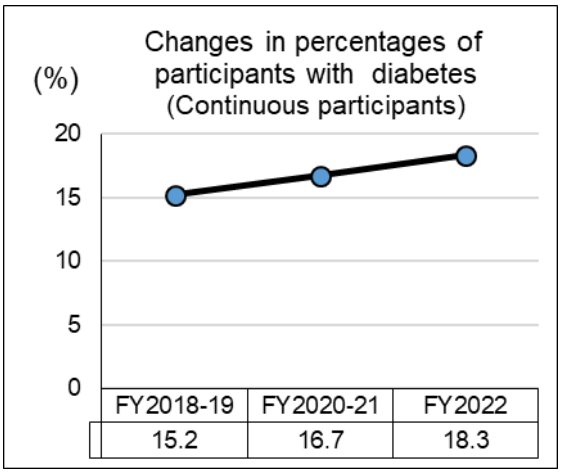


Figure 3-4

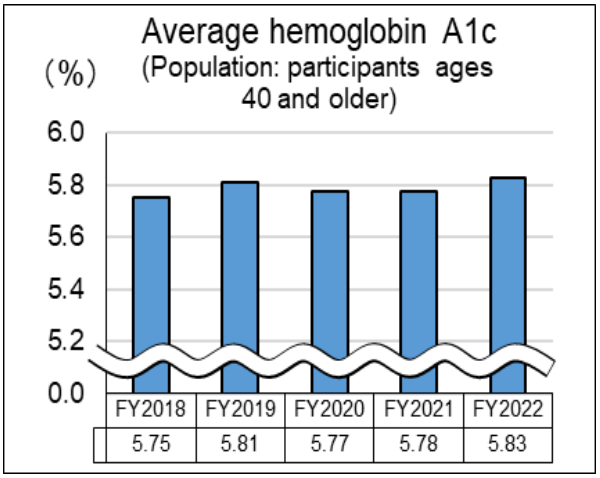


Figure 3-5

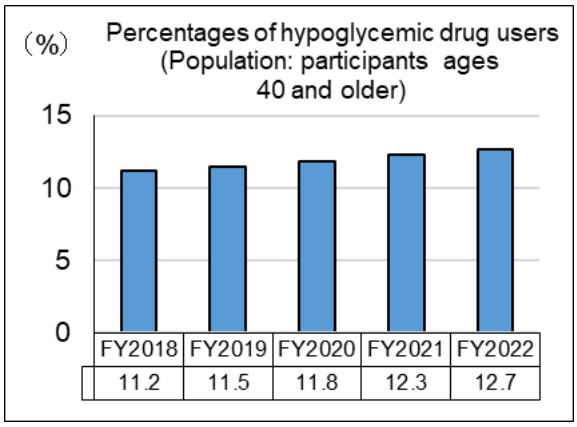
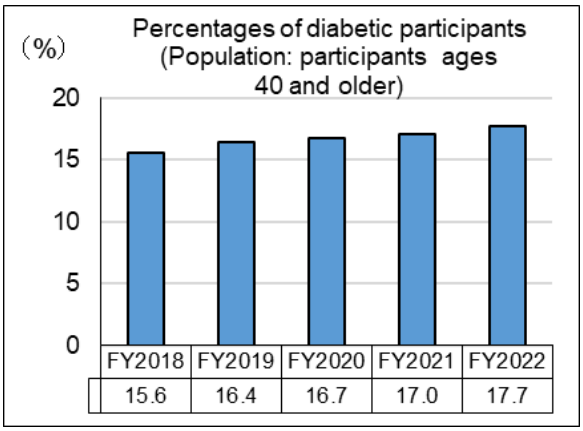


Figure 3-6



4. HDL cholesterol, LDL cholesterol, triglycerides, percentages of cholesterol-lowering drug users, percentages of participants with lipid abnormalities

Among continuous participants (Group D), the average HDL cholesterol remained almost unchanged (Figure 4-1), while the average LDL cholesterol decreased consistently from time point 1 (FY2018 - FY2019) to time point 3 (FY2022) (Figure 4-2). Average triglycerides increased from time point 1 (FY2018 - FY2019) to time point 2 (FY2020 - FY2021), and then decreased to a level similar to time point 1 (FY2018 - FY2019) in time point 3 (FY2022) (Figure 4-3). The percentage of users of cholesterol-lowering drugs increased consistently from time point 1 (FY2018 - FY2019) to time point 3 (FY2022) (Figure 4-4). The percentage of participants with lipid abnormalities showed an increase at time point 2 (FY2020 -FY2021), but was almost the same at time point 1 (FY2018 - FY2019) and time point 3 (FY2022) (Figure 4-5).

The trend was generally similar in the population (Figures 4-6 to 4-10).

Figure 4-1

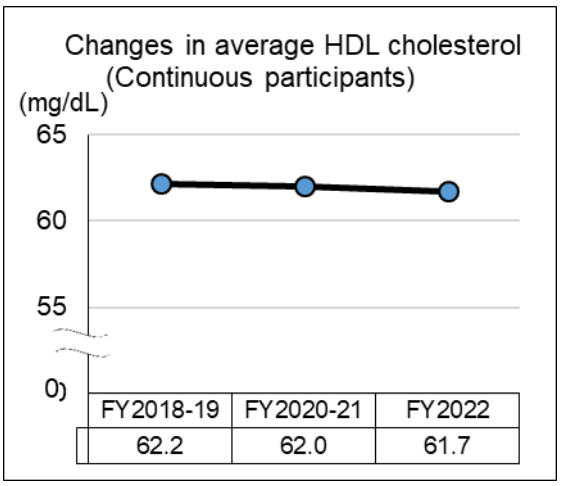


Figure 4-2

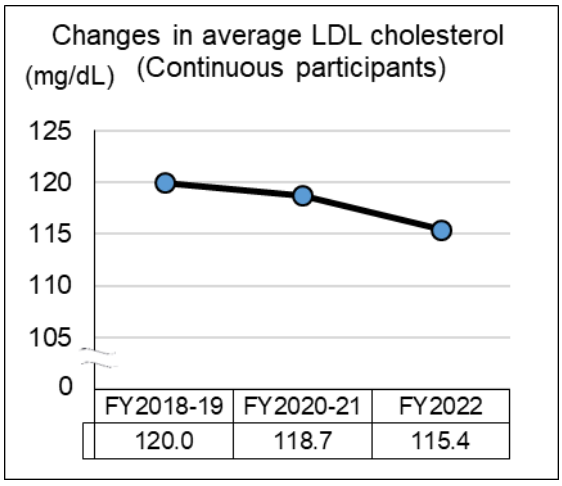


Figure 4-3

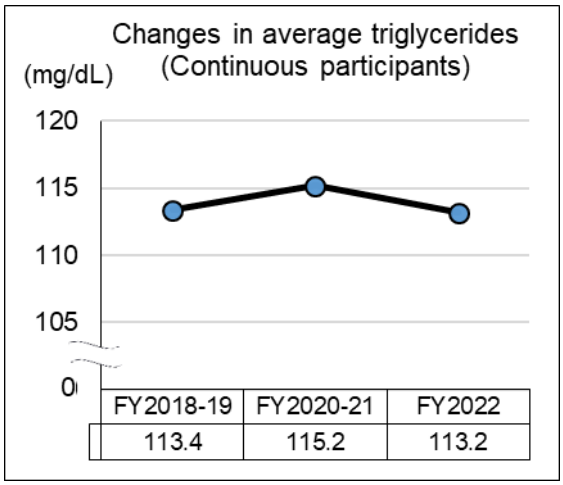


Figure 4-4

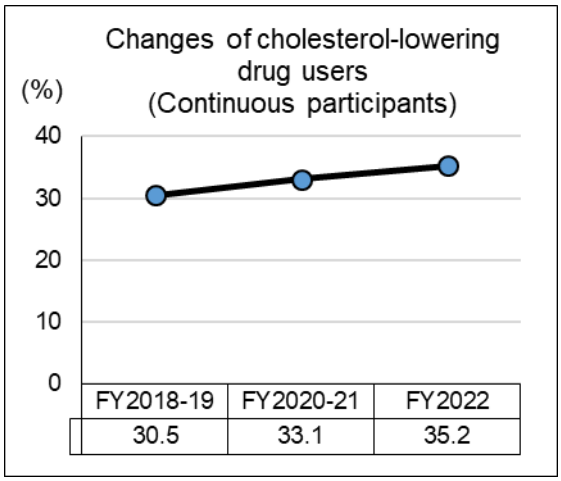


Figure 4-5

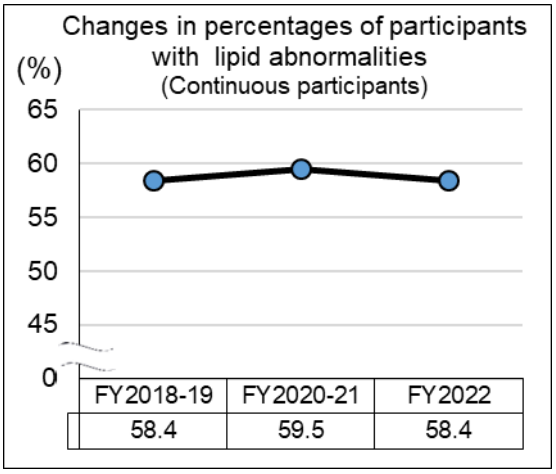


Figure 4-6

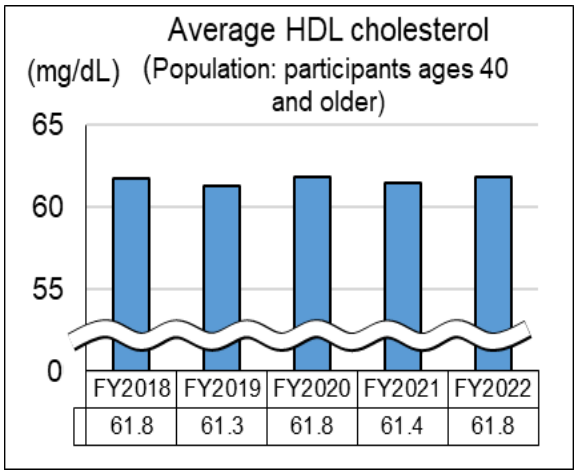


Figure 4-7

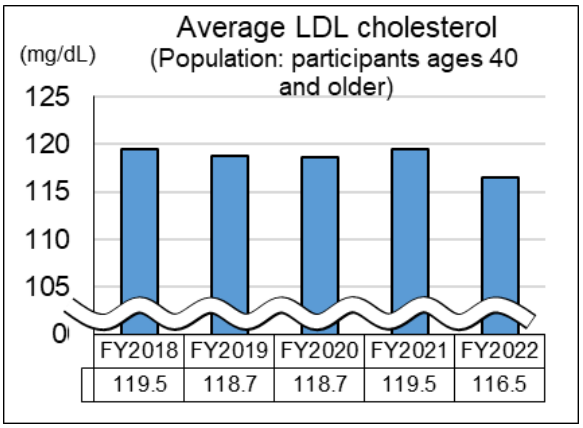


Figure 4-8

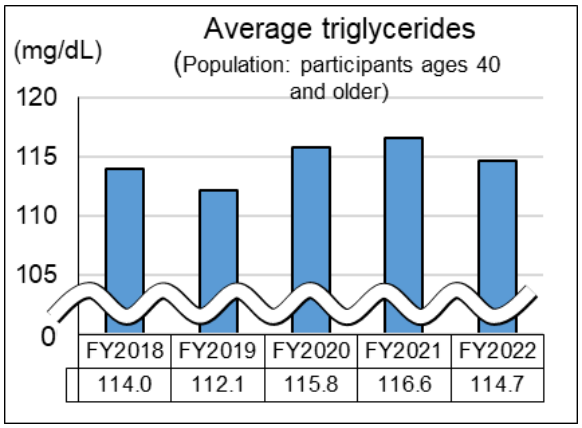


Figure 4-9

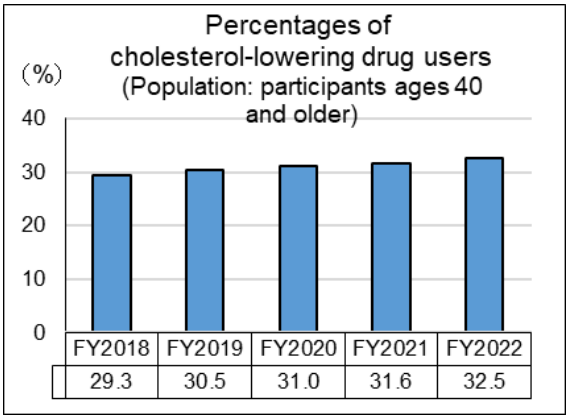
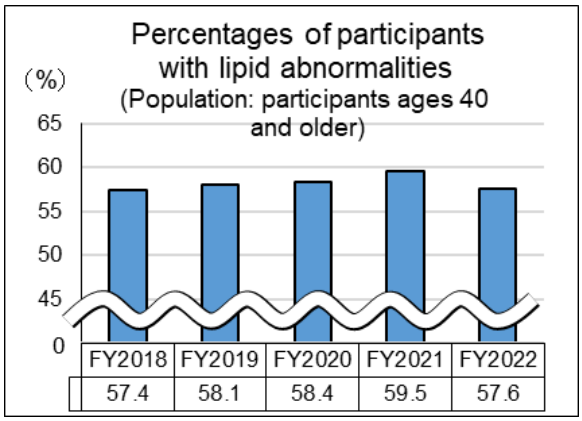


Figure 4-10



5. Percentage of AST, ALT, γ-GT, and liver dysfunction

Among continuous participants (Group D), the average values of AST, ALT, and γ-GT increased from time point 1 (FY2018 - FY2019) to time point 2 (FY2020 - FY2021), and then decreased to a level lower than time point 1 (FY2018 - FY2019) by time point 3 (FY2022). (Figures 5-1 to 5-3). The percentage of participants with liver dysfunction decreased from time point 2 (FY2020 - FY2021) to time point 3 (FY2022) (Figure 5-4).

The trend was generally similar in the population (Figures 5-5 to 5-8).

Figure 5-1

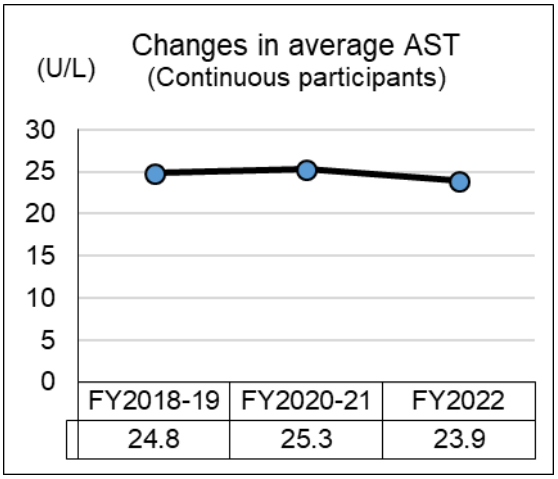


Figure 5-2

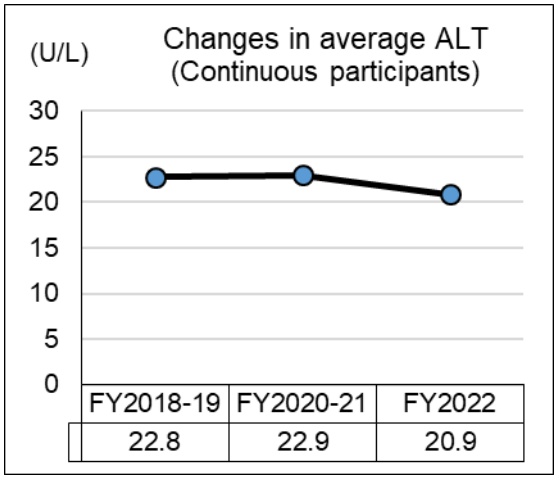


Figure 5-3

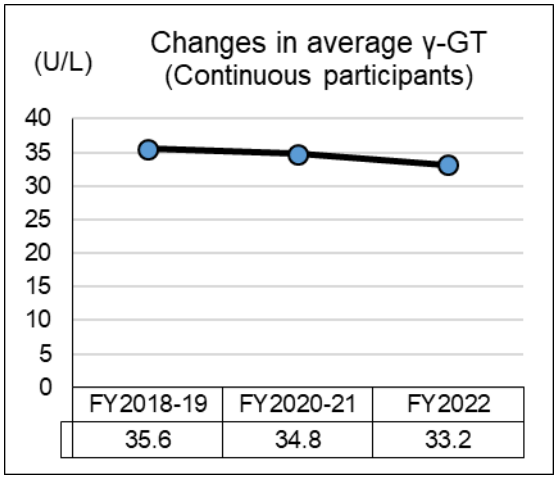


Figure 5-4

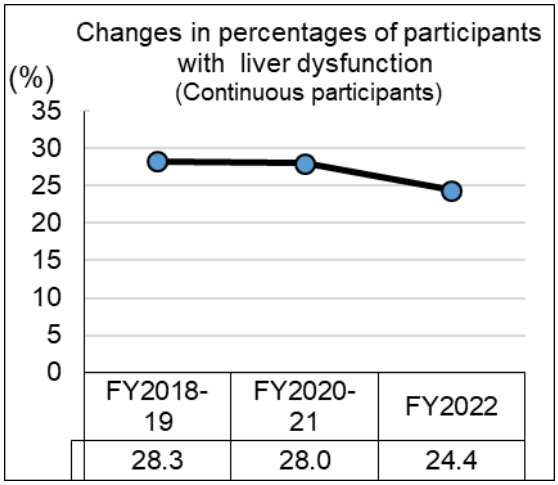


Figure 5-5

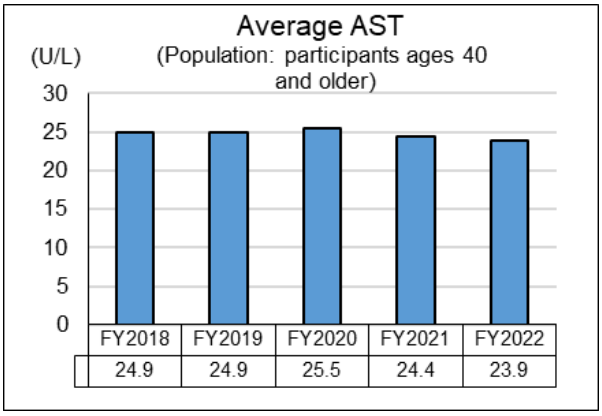


Figure 5-6

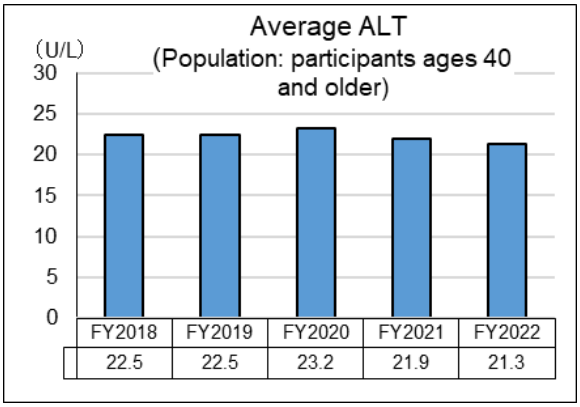


Figure 5-7

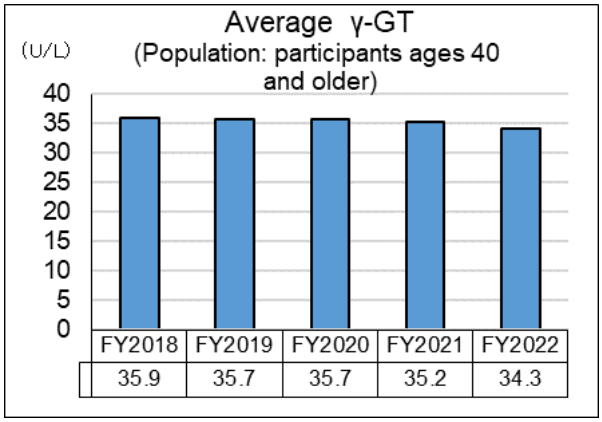
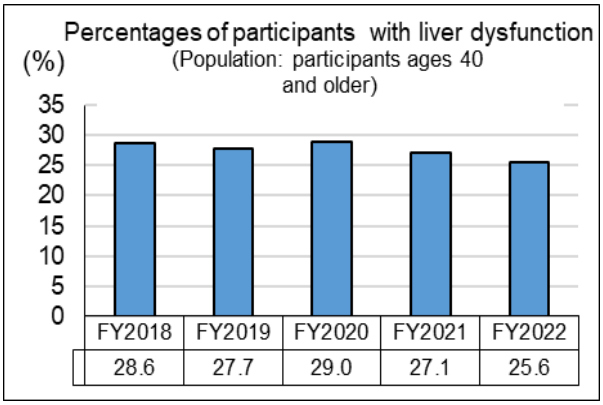


Figure 5-8



6. Trends in uric acid and hyperuricemia

Among continuous examinees (Group D), the mean uric acid level and the percentage of participants with hyperuricemia showed a consistent downward trend from time point 1 (FY2018 - FY2019) to time point 3 (FY2022) (Figures 6-1 and 6-2).

The trend was generally similar in the population (Figures 6-3 and 6-4).

Figure 6-1

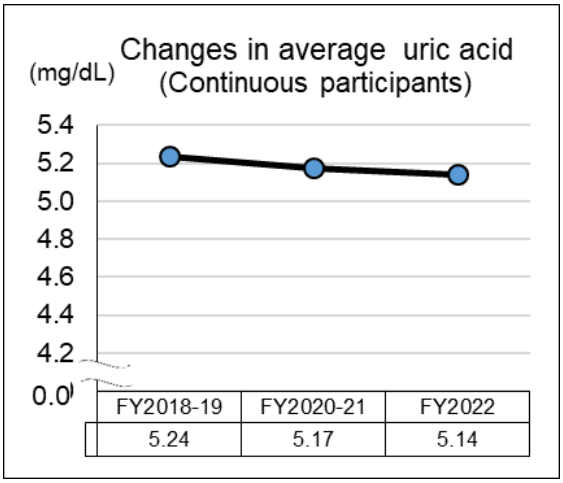


Figure 6-2

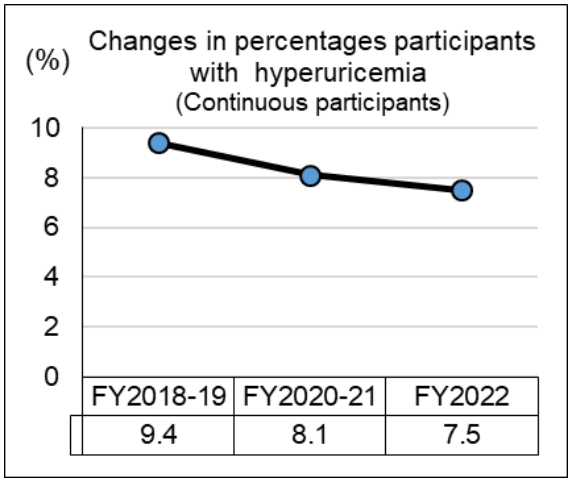


Figure 6-3

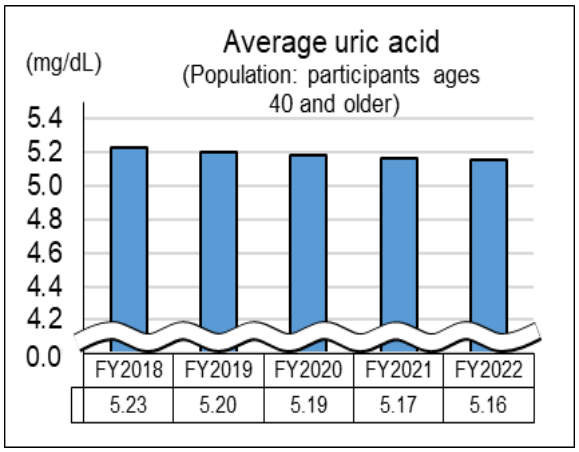
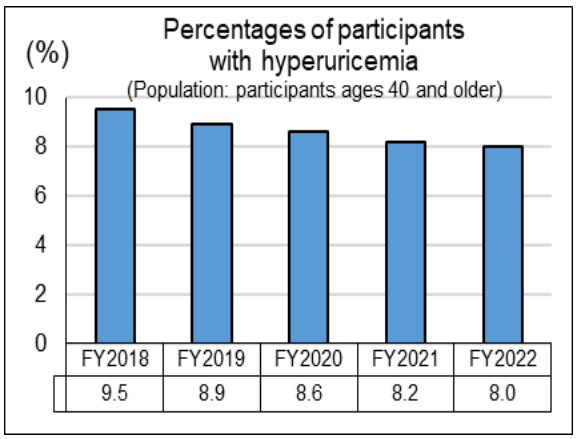


Figure 6-4



7. Trends in eGFR and renal dysfunction

Among continuous examinees (group D), eGFR showed a consistent downward trend, and the percentage of participants with renal dysfunction showed a consistent upward trend (Figures 7-1 and 7-2).

The trend was different in the population, with the average eGFR value generally unchanged between FY2018 and FY2022, although there were some fluctuations (Figure 7-3). The percentage of participants with renal dysfunction generally remained unchanged between FY2018 and FY2022, although there were some fluctuations (Figure 7-4). This suggests that the effect of aging may be stronger in Group D, since the number of survey subjects was fixed throughout the entire period.

Figure 7-1

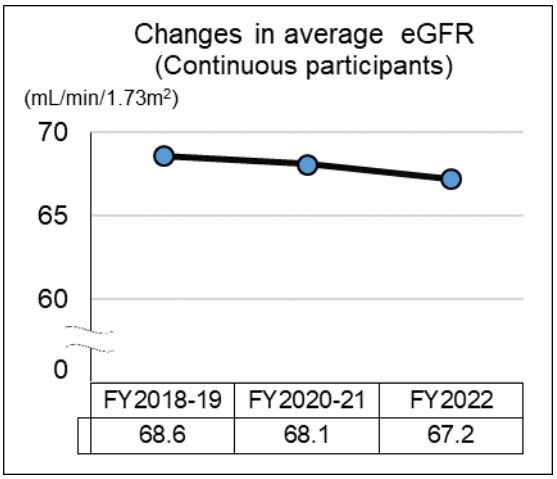


Figure 7-2

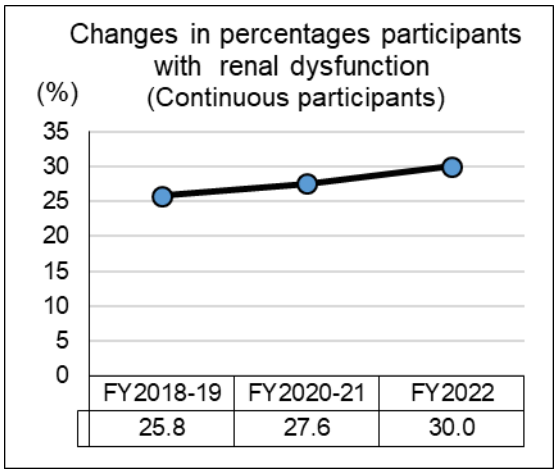


Figure 7-3

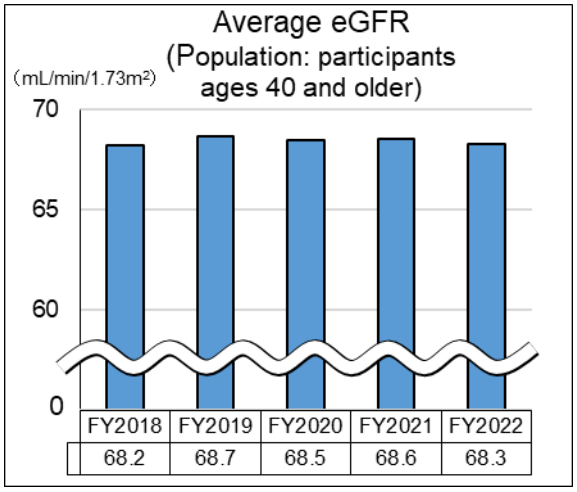
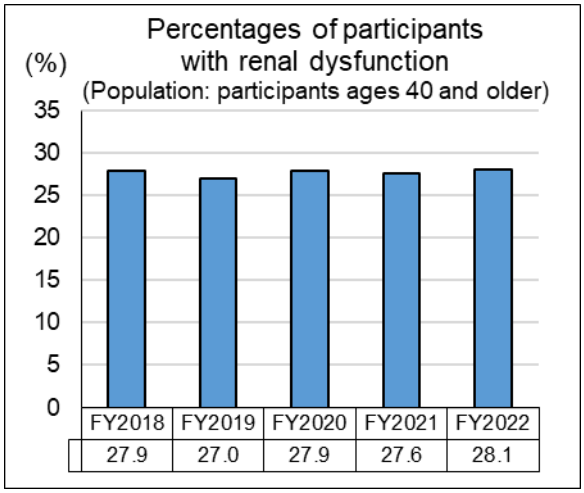


Figure 7-4



8. Percentage of participants with metabolic syndrome

Among continuous examinees (Group D), the percentage of those with metabolic syndrome (MetS) increased from time point 1 (FY2018 - FY2019) to time point 2 (FY2020 - FY2021), and remained at the same level in time point 3 (FY2022) (Figure 8-1).

The trend was generally similar in the population (Figure 8-2).

Figure 8-1

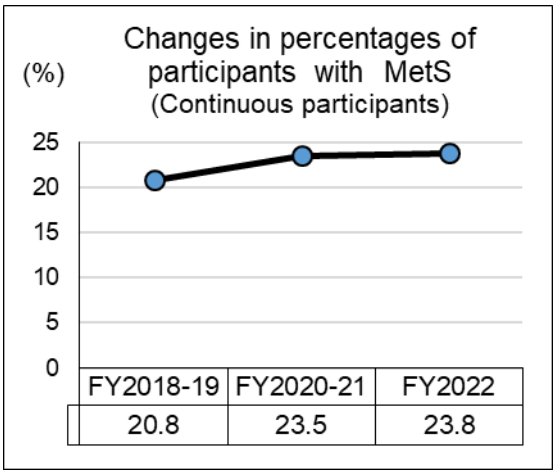
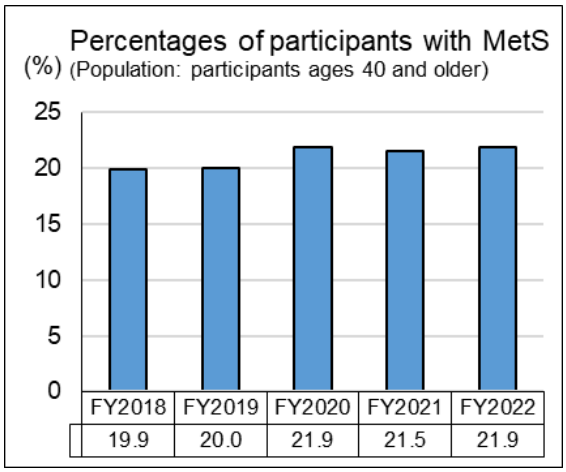


Figure 8-2



Summary

In Study 1, when the characteristics of participants were compared by examination pattern before and after the COVID-19 pandemic, those who continued to receive examinations after the pandemic tended to be younger and had fewer lifestyle-related conditions — such as underweight, hypertension, and diabetes — than those who had not received examinations since the COVID-19 pandemic. There was a trend toward a smaller proportion of those who were younger, underweight, and had lifestyle-related diseases such as hypertension and diabetes. Among these, the proportion of obese participants was low among those who had participated at all time points (Group D), while the proportion of cholesterol-lowering drug users was high, suggesting that this group may have a high awareness of health management.

On the other hand, Group A, which did not receive medical checkups or CHC during and after the COVID-19 pandemic, had the largest number of patients after Group D, and had the highest percentage of those aged 75 years or older and those with hypertension, diabetes, liver dysfunction, hyperuricemia, and renal dysfunction. The reasons for not receiving checkups after the COVID-19 pandemic may include the following: the elderly were not aware of the need for health checkups because they were already receiving medical care, and those at high risk due to advanced age or underlying diseases could not continue to receive checkups due to their health condition or death. Other possible reasons include the fact that people at high risk, such as those of older age and those with underlying diseases, are unable to continue to receive medical examinations due to their health condition or death.

Study 2 evaluated the examination results of those who had continued to receive medical examinations during the period before and after the COVID-19 pandemic. Although those who had continued to receive CHC were a slightly younger and healthier group than those who had not, the trends in examination results were generally similar to those of the overall examinees.

About the lifestyle-related diseases evaluated in this study, it was found that some of them showed a consistent trend (regardless of whether they improved, worsened, or remained unchanged) from before to after the COVID-19 pandemic (diabetes, abnormal liver function, hyperuricemia, and renal dysfunction), while others deteriorated during the COVID-19 pandemic and improved thereafter (hypertension, lipid abnormalities, liver dysfunction, metabolic syndrome).

One limitation of this study is that although we used the results of those who had continuously undergone medical examinations to examine the trends in the results of medical examinations, it should be noted that since these were approximately half of the total population, it is impossible to evaluate whether the same results would apply to those who had not undergone medical examinations continuously. In addition, this study compares the results of medical examinations during the COVID-19 pandemic and the periods before and after the pandemic, but it is not possible to verify the extent to which differences were influenced by the pandemic itself.

Report of the 23rd Meeting of the Thyroid Examination Evaluation Subcommittee

Date and Time: Friday, November 15, 2024, 13:00 - 15:00
Location: LT Emporium, 2nd floor meeting room, Hearten * Both on-site and online
Attendees: 8 subcommittee members
Agenda

1. Items to be considered by the Thyroid Examination Evaluation Subcommittee

Discussions were held regarding materials from Fukushima Medical University, based on opinions regarding future analysis, etc., as presented at the 22nd Subcommittee meeting (held on March 22, 2024) (Reference 1).

<Main contents of the document>

1-1 The days between dates of detection of malignant or suspicious for malignancy findings in the Thyroid Ultrasound Examination (date of cytological diagnosis) and corresponding dates of diagnosis in the cancer registry were tallied from the perspective of appropriate age adjustment when analyzing all cases detected by Thyroid Ultrasound Examination and cases registered only in the cancer registry. In approximately 60% of cases, the number of days was between 0 and 60, and in more than 90% of cases, the number of days was less than 180.

1-2 In addition to 1-1 above, to understand the characteristics of each case, the history of Thyroid Ultrasound Examinations from 2012 to 2019*, including diagnostic records, progress, and detection processes, was reviewed.

The percentage of cases with intraepithelial carcinoma or localized cancer was 35.9% for those registered in both the Thyroid Ultrasound Examination and cancer registries, and 44.7% for those registered only in the cancer registries; thus, the percentage of such cases registered only in cancer registries is higher.

Regarding processes for detection, 96.2% of the cases registered in both the Thyroid Ultrasound Examination and cancer registries were detected during "cancer examination, health checkups, or complete medical checkup," while 72.3% of the cases registered only in the cancer registries were detected during "follow-up observation of other diseases, other (including subjective symptoms), or unknown." Note that "under follow-up observation for other diseases" includes follow-up observation after Thyroid Ultrasound Examinations, which accounted for a large proportion of the cases.

*Cancer registry data had previously been available through 2018, but data for 2019 have since been added.

1-3 In verifying time-dependent changes on the effects of the examination to detect a specific disease or predict the development of a disease in asymptomatic individuals, we reviewed the status of the confirmatory examination at the time of the primary examination by age group, standardized by the sessions.

In addition, the cumulative detection rate by age at the time of detection was confirmed graphically by age group at the time of the 3.11 disaster.

Also, the status of the confirmatory examination by nodule diameter at the time of the primary examination was reviewed.

1-4 To observe the cumulative detection rate of malignant or suspected for malignancy thyroid disease over time using the person-year method, the Kaplan-Meier method, which is mainly used for survival time analysis.

The analysis was conducted in 3 different classifications: by sex, by age group at the time of the 3.11 disaster, and an estimated radiation exposure for Hamadori and evacuated areas. The three areas of exposure doses are for Aizu, Nakadori, Hamadori, and the designated evacuation areas, by region, and estimated radiation exposure.

The three-dose categories graph the data. No significant differences were observed.

<Opinions from the subcommittee members>

(Related to 1-1)

- In case-control studies to date, age adjustment has been done mechanically by matching the age of the examinees to one year (the same age), but in the future, it will be necessary to consider adding a range of about six months to the age adjustment.

(Related to 1-2)

- Regarding the progress level, I think the results are favorable from the perspective of appropriate medical care after the Thyroid Ultrasound Examination.
- Regarding the detection process of cases registered only in the cancer registry, based on the examination history, some cases were operated on (registered in the cancer registry) at other medical institutions and facilities after undergoing Thyroid Ultrasound Examinations. Therefore, I would like to confirm if there are any cases with no history of participation in the Thyroid Ultrasound Examination. I think "under observation for other diseases" in the detection process would become more realistic.
- In the future, we would like to verify the trend by, for example, analyzing only the cases registered in the cancer registry to confirm the trend when we analyze the total cases detected by Thyroid Ultrasound Examination and those registered only in the cancer registry.

(Related to 1-3)

- The results suggest that the rate of cytological diagnosis in preliminary examination affects the detection rate.
- In future analyses, it will be necessary to confirm the data, excluding the results of the preliminary examination, as a sensitivity analysis.
- A comparison of the presence/absence of cases registered only in the cancer registry shows a slight variation. In particular, this trend becomes significant with increasing age, and given the fact that the participation rate of Thyroid Ultrasound Examination is on the decrease, it is important to continue to utilize cancer registry data.

(Related to 1-4)

- In previous subcommittee meetings, it has been suggested that regional differences in the participation rate of cytological diagnosis and/or the confirmatory examination are influencing factors. Therefore, going forward, to verify the results by plotting graphs without a dose relationship or with the same dose groups may be considered. It would be very significant if the regional differences, rather than radiation doses, are demonstrated as affecting the results.

2. Others

Fukushima Medical University explained about a paper on surgery cases, and the same contents as those reported at the 53rd meeting of the Oversight Committee (held on November 12, 2024).

3. Evaluation up to the 5th inspection

It was confirmed that after the next subcommittee meeting, the policy will be to analyze and evaluate the results of up to the fifth round of examination and prepare a report by the end of this term.

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

As of September 30, 2024

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 who were 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 was conducted over a three-year period, from FY2020 through FY2022.

1.3-2 For those 19 years old or older

The examination was 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 at 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

The results of surveys for those 25 and 30 years old will be reported separately.

1.4 Implementing Organizations (number of medical facilities with agreements for the implementation of thyroid examinations as of September 30, 2024)

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	150 medical facilities

1.4-2 Confirmatory examination facilities

In Fukushima Prefecture	7 medical facilities, including FMU
Outside Fukushima Prefecture	41 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 reclassified 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

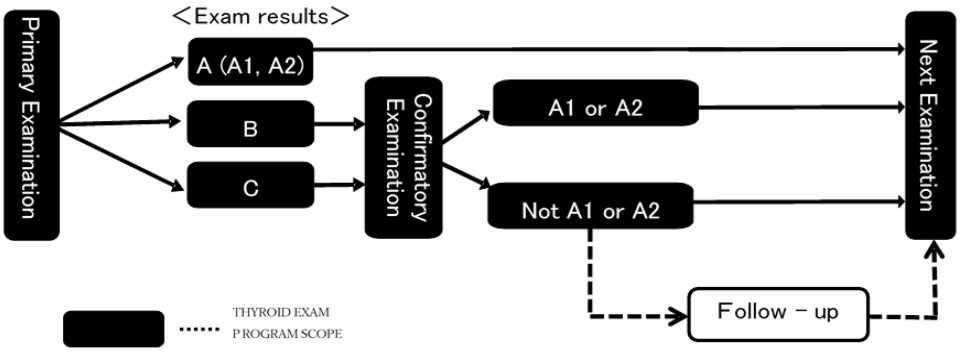


Figure 1: Flow chart

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:

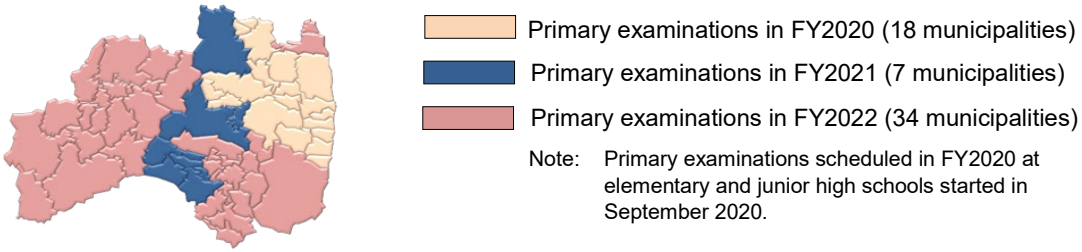


Figure 2 Municipalities covered for primary examinations at elementary and junior high schools

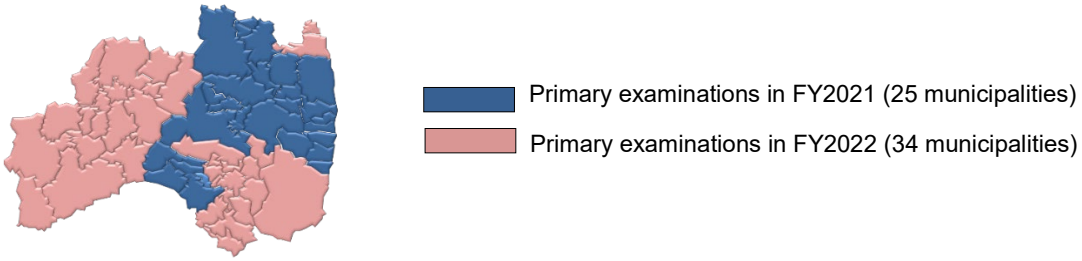


Figure 3 Municipalities covered for primary examinations at high schools and other facilities

The data will be compiled biannually, per the initial plan.

2. Results as of September 30, 2024

2.1 Results of the Primary Examination

2.1-1 Implementation status

The primary examination was completed for 113,959 participants (45.1%) by September 30, 2024. (Refer to Appendices 1 and 2 for the participation and progress summaries by municipalities in Fukushima and other prefectures.)

The results of 113,959 participants (100.0%) have been finalized, and individual reports have been sent to them. (See Appendix 3 for the results by municipalities.)

Of these, 32,846 (28.8%) had Grade A1 results, 79,767 (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)									
							Details by grade (%)							
							A				Those referred to confirmatory exam			
							A1		A2		B		C	
	a	b	Participation rate (%) (b/a)	Those who participated outside Fukushima	c	Judgment rate (%) (c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/c)
FY2020	144,902	69,179	(47.7)	5,500	69,179	(100.0)	19,999	(28.9)	48,432	(70.0)	748	(1.1)	0	(0.0)
FY2021	108,034	44,780	(41.4)	2,471	44,780	(100.0)	12,847	(28.7)	31,335	(70.0)	598	(1.3)	0	(0.0)
Total	252,936	113,959	(45.1)	7,971	113,959	(100.0)	32,846	(28.8)	79,767	(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	69,179	748	(1.1)	381	(0.6)	1	(0.0)	48,848	(70.6)
FY2021	44,780	598	(1.3)	284	(0.6)	0	(0.0)	31,678	(70.7)
Total	113,959	1,346	(1.2)	665	(0.6)	1	(0.0)	80,526	(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 to 11 years old	12 to 17 years old	18 to 24 years old
	Eligible persons	(a)	144,902	37,105	61,911	45,886
	Participants	(b)	69,179	27,925	36,161	5,093
	Participation rate (%)	(b/a)	47.7	75.3	58.4	11.1
FY2021	Age group*			9 to 11 years old	12 to 17 years old	18 to 24 years old
	Eligible persons	(a)	108,034	19,771	45,059	43,204
	Participants	(b)	44,780	14,152	25,688	4,940
	Participation rate (%)	(b/a)	41.4	71.6	57.0	11.4
Total	Eligible persons	(a)	252,936	56,876	106,970	89,090
	Participants	(b)	113,959	42,077	61,849	10,033
	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 106,592 (sum of *1) participants with Grade A (A1 and A2) results in the fourth-round survey, 105,825 (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*	Results of the fifth-round survey**			
				A		B	C
			a (%)	A1 b (b/a)	A2 c (c/a)	d (d/a)	e (e/a)
Results of the fourth-round survey	A	A1	34,598 *1 (100.0)	23,881 *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		6,821 (100.0)	2,309 (33.9)	4,375 (64.1)	137 (2.0)	0 (0.0)
Total			113,959 (100.0)	32,846 (28.8)	79,767 (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 September 30, 2024, of 1,346 eligible persons, 1,116 (82.9%) had participated in the confirmatory examination, and 1,098 (98.4%) had completed the entire procedure. (See Appendix 5 for the implementation status of the confirmatory examinations by area.)

Of those 1,098 participants, 104 (A1: 7, A2: 97) (9.5%) were confirmed to meet A1 or A2 diagnostic criteria by primary examination standards (including those with other thyroid conditions). After the detailed examination, 994 (90.5%) were confirmed to be outside 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 (%)									
			Participation Rate (%)	Determination rate (%)		A1		A2		Other than 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	627	(83.8)	617	(98.4)	4	(0.6)	64	(10.4)	549	(89.0)	67	(12.2)
FY2021	598	489	(81.8)	481	(98.4)	3	(0.6)	33	(6.9)	445	(92.5)	32	(7.2)
Total	1,346	1,116	(82.9)	1,098	(98.4)	7	(0.6)	97	(8.8)	994	(90.5)	99	(10.0)

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

Among those who underwent FNAC, 49 participants had nodules classified as malignant or suspicious for malignancy: 13 were male, and 36 were female. Participants' ages at the confirmatory examination ranged from 12 to 24 years (mean age: 17.3 ± 2.9 years). The tumor diameters were from 5.4 mm to 46.7 mm (mean tumor diameter: 13.8 ± 8.2 mm).
Of these 49 participants, 37 had Grade A (A1:11, A2:26), 6 had Grade B results in the fourth-round survey, and the remaining 6 participants did not participate. Among 26 participants with Grade A2, 1 met nodule, 22 met cyst, and 3 met both cyst and nodule criteria.

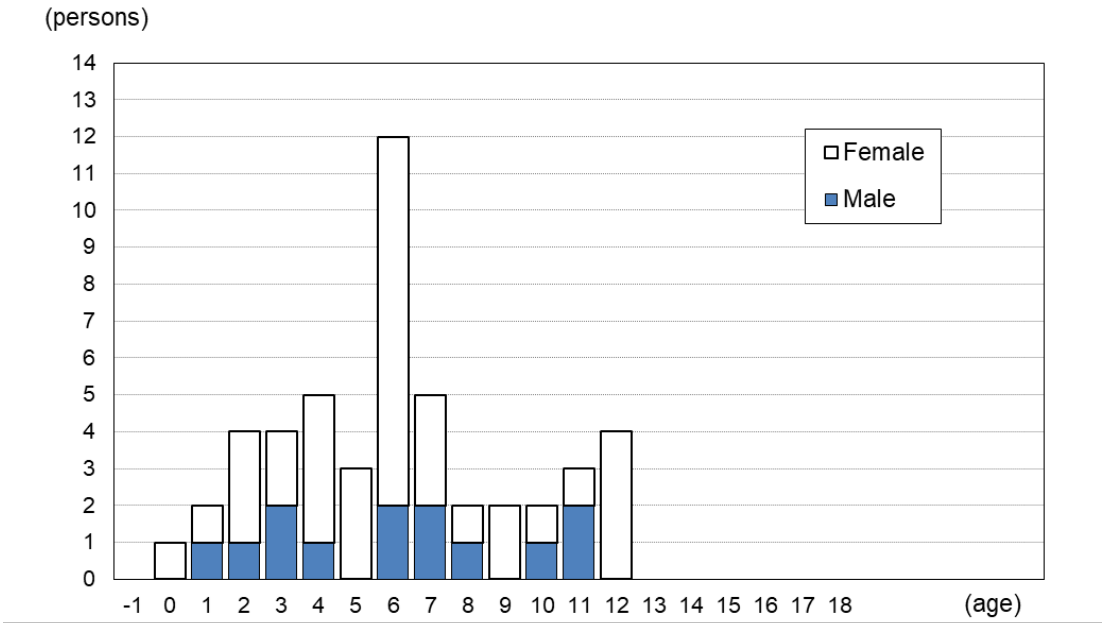
Table 6: Results of FNAC (The mean age and mean tumor size in parentheses indicate the range.)

A. Municipalities surveyed in FY2020	
・Malignant or suspicious for malignancy	30*
・Male to female ratio	6:24
・Mean age ± SD (min-max)	17.5 ± 3.3 (12–24)
	6.6 ± 3.3 (1–12) at the time of the earthquake
・Mean tumor size ± SD (min-max)	11.2 ± 4.9 mm (5.4–30.1 mm)
B. Municipalities surveyed in FY2021	
・Malignant or suspicious for malignancy	19*
・Male to female ratio	7:12
・Mean age ± SD (min-max)	17.1 ± 2.2 (13–21)
	5.4 ± 2.9 (0–10) at the time of the earthquake
・Mean tumor size±SD (min-max)	17.9 ±10.5 mm (7.1–46.7 mm)
C. Total	
・Malignant or suspicious for malignancy	49*
・Male to female ratio	13:36
・Mean age ± SD (min-max)	17.3 ± 2.9 (12–24)
	6.1 ± 3.2 (0–12) at the time of the earthquake
・Mean tumor size ± SD (min-max)	13.8 ± 8.2 mm (5.4–46.7 mm)

* Appendix 6 shows surgical cases.

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

The age distribution of 49 people with malignant or suspected malignant nodules based on their age as of March 11, 2011, is in Figure 4. 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

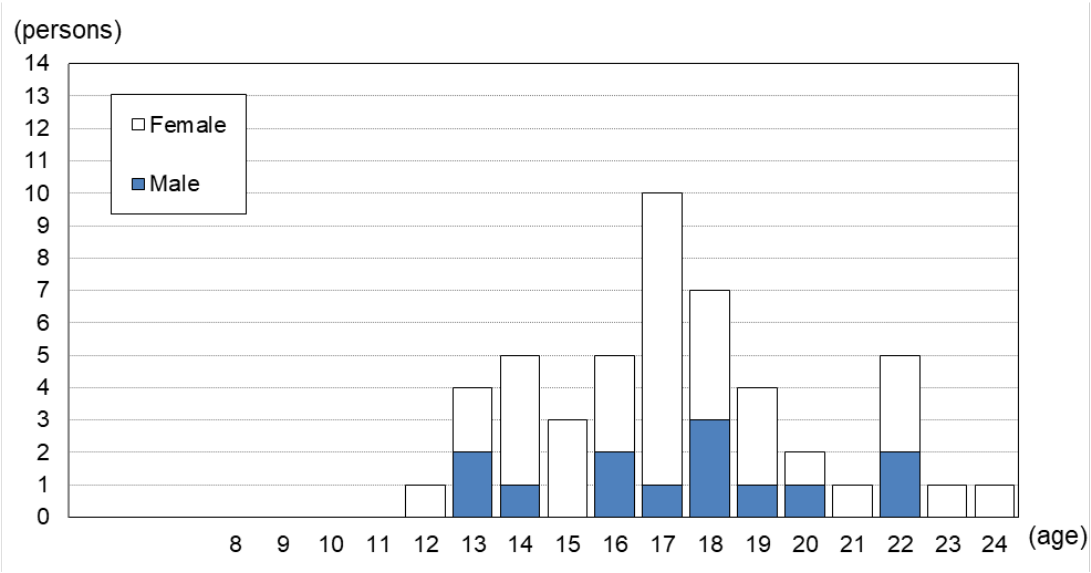


Figure 5: Age distributions as of the date of confirmatory examination

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

Of those 49 people with malignant or suspicious findings, 29 (59.2%) had participated in the Basic Survey (for external radiation dose estimation), and all 29 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	2	5	2	7	0	3	0	0	4	15
< 2	1	1	1	2	1	1	0	0	3	4
< 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
Total	3	8	3	9	2	4	0	0	8	21

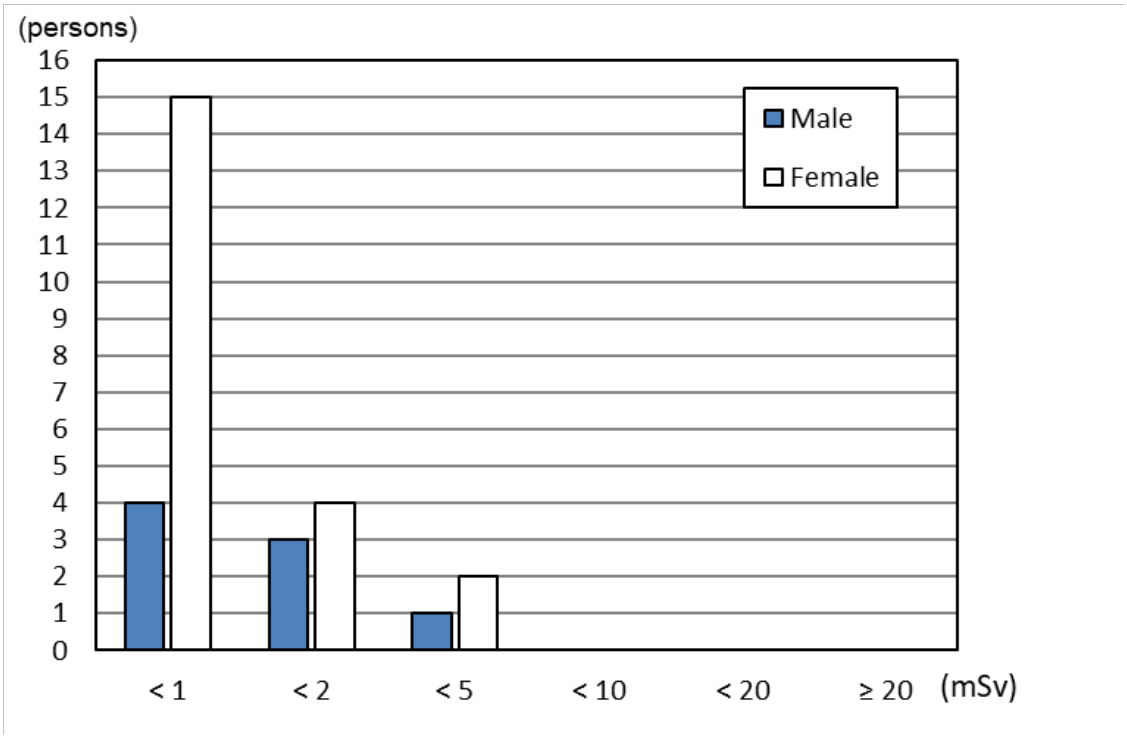


Figure 6: Effective dose distribution of the Basic Survey participants

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 : 49	1.2 ± 0.2 (4.1%)	3.5 ± 0.4 (4.1%)	1.3±0.7 (10.2%)	74.3±308.2 (20.4%)	14.3%	14.3%
Other : 954	1.2 ± 0.2 (5.2%)	3.6 ± 0.8 (7.4%)	1.3±1.1 (8.6%)	30.3±79.9 (15.7%)	8.9%	7.5%

Table 9: Urinary iodine test results [8]

(μg/day)

	Minimum	25th percentile	Median	75th percentile	Maximum
Malignant or suspicious : 47	36	127	175	410	2,471
Other : 941	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.
8) Urinary iodine tests have not been carried out since March 8, 2024 (details as follows).

Temporary suspension of urine tests

The reagents have been unavailable since March 2024. This has resulted in the suspension of related urine tests.

1 Reason:

The manufacturer and distributor of the test reagents were found to have failed to comply with procedures stipulated in the "Act on Securing Quality, Efficacy, and Safety of Products Including Pharmaceuticals and Medical Devices" (Pharmaceutical and Medical Device Act), so the product could no longer be used due to non-compliance with the law.

2 Date of suspension:

Effective March 8, 2024

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 and Nakadori, 0.06% in 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 confirmatory exam (persons)	Those with malignant or suspicious findings (persons) and rate (%)	
	a	b	b/a		c	c/a
13 municipalities[1)]	14,787	156	1.1	129	6	0.04
Nakadori[2)]	65,595	739	1.1	617	28	0.04
Hamadori[3)]	20,786	293	1.4	236	12	0.06
Aizu[4)]	12,791	158	1.2	134	3	0.02
Total	113,959	1,346	1.2	1,116	49	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 September 30, 2024, all 2,759 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 September 30, 2024. The number of support sessions provided, including telephone counseling, 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 proceed 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 September 30, 2024

	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	58	7.8
Namie	2,478	954	235	38.5	210 22.0	547 57.3	197 20.6	246	25.8
Iitate	731	346	20	47.3	88 25.4	202 58.4	56 16.2	27	7.8
Minamisoma	8,849	3,975	571	44.9	1,201 30.2	2,253 56.7	521 13.1	669	16.8
Date	7,412	4,039	166	54.5	1,143 28.3	2,284 56.5	612 15.2	182	4.5
Tamura	4,577	2,281	52	49.8	803 35.2	1,227 53.8	251 11.0	97	4.3
Hirono	647	289	28	44.7	68 23.5	166 57.4	55 19.0	27	9.3
Naraha	916	369	44	40.3	73 19.8	221 59.9	75 20.3	54	14.6
Tomioka	1,980	715	122	36.1	153 21.4	412 57.6	150 21.0	134	18.7
Kawauchi	225	98	7	43.6	20 20.4	59 60.2	19 19.4	10	10.2
Okuma	1,771	670	117	37.8	145 21.6	392 58.5	133 19.9	125	18.7
Futaba	839	247	48	29.4	51 20.6	155 62.8	41 16.6	57	23.1
Katsurao	148	65	3	43.9	14 21.5	39 60.0	12 18.5	7	10.8
Fukushima	37,320	18,605	1,416	49.9	4,862 26.1	11,047 59.4	2,696 14.5	1,431	7.7
Nihonmatsu	6,920	3,713	160	53.7	1,126 30.3	2,156 58.1	431 11.6	161	4.3
Motomiya	4,232	2,211	78	52.2	663 30.0	1,302 58.9	246 11.1	81	3.7
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	1,991	9.7
Koori	1,375	789	25	57.4	224 28.4	467 59.2	98 12.4	32	4.1
Kunimi	1,022	559	20	54.7	126 22.5	349 62.4	84 15.0	24	4.3
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	263	6.2
Nishigo	2,856	1,345	77	47.1	399 29.7	740 55.0	206 15.3	80	5.9
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	34	3.8
Subtotal	144,902	69,179	5,500	47.7	18,197 26.3	41,028 59.3	9,954 14.4	5,827	8.4

*1) The number of participants who received the examination at facilities outside Fukushima (as of August 31, 2024).

*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	42,529	18,581	1,371	43.7	2,130	12,306	4,145	1,358	7.3
					11.5	66.2	22.3		
Sukagawa	10,705	4,583	181	42.8	773	3,055	755	196	4.3
					16.9	66.7	16.5		
Soma	4,771	1,781	167	37.3	325	1,204	252	193	10.8
					18.2	67.6	14.1		
Kagamiishi	1,834	818	28	44.6	142	552	124	25	3.1
					17.4	67.5	15.2		
Shinchi	983	424	29	43.1	61	279	84	35	8.3
					14.4	65.8	19.8		
Nakajima	706	266	9	37.7	54	169	43	7	2.6
					20.3	63.5	16.2		
Yabuki	2,326	978	22	42.0	217	639	122	27	2.8
					22.2	65.3	12.5		
Ishikawa	1,860	790	25	42.5	161	489	140	27	3.4
					20.4	61.9	17.7		
Yamatsuri	685	306	13	44.7	66	207	33	8	2.6
					21.6	67.6	10.8		
Asakawa	913	409	21	44.8	73	268	68	17	4.2
					17.8	65.5	16.6		
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	38	4.5
					21.0	66.4	12.6		
Hanawa	1,070	419	8	39.2	83	262	74	11	2.6
					19.8	62.5	17.7		
Samegawa	457	191	4	41.8	43	129	19	4	2.1
					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	22	3.3
					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	4	1.9
					19.0	66.2	14.8		
Kitakata	5,939	2,227	66	37.5	393	1,515	319	77	3.5
					17.6	68.0	14.3		
Nishiaizu	618	201	5	32.5	43	133	25	4	2.0
					21.4	66.2	12.4		
Tadami	475	212	5	44.6	38	150	24	6	2.8
					17.9	70.8	11.3		
Inawashiro	1,760	696	23	39.5	137	454	105	22	3.2
					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	28	2.8
					18.1	64.1	17.7		
Aizubange	2,012	790	27	39.3	140	504	146	36	4.6
					17.7	63.8	18.5		
Yanaizu	393	148	3	37.7	31	98	19	4	2.7
					20.9	66.2	12.8		
Aizuwakamatsu	15,770	5,983	316	37.9	950	4,003	1,030	344	5.7
					15.9	66.9	17.2		
Yugawa	451	211	4	46.8	38	130	43	6	2.8
					18.0	61.6	20.4		
Subtotal	108,034	44,780	2,471	41.4	6,870	29,644	8,266	2,549	5.7
					15.3	66.2	18.5		
Total	252,936	113,959	7,971	45.1	25,067	70,672	18,220	8,376	7.4
					22.0	62.0	16.0		

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

As of August 31, 2024

Prefecture	Number of medical facilities	Participants (persons)
Hokkaido	7	**195**
Aomori	3	**94**
Iwate	4	**182**
Miyagi	2	**1,757**
Akita	1	**131**
Yamagata	3	**355**
Ibaraki	5	**477**
Tochigi	9	**542**
Gunma	2	**154**
Saitama	4	**443**
Chiba	5	**353**
Tokyo	23	**1,366**
Kanagawa	7	**538**
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	3	**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	4	**56**
Saga	1	**6**
Nagasaki	3	**20**
Kumamoto	1	**19**
Oita	1	**12**
Miyazaki	1	**12**
Kagoshima	2	**6**
Okinawa	1	**22**
Total	150	**7,971**

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

Appendix 3: TUE primary examination results, by the municipality

As of September 30, 2024

	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	954	954	298	640	16	0	16	5	0	649
		100.0	31.2	67.1	1.7	0.0	1.7	0.5	0.0	68.0
Iitate	346	346	104	232	10	0	10	1	0	240
		100.0	30.1	67.1	2.9	0.0	2.9	0.3	0.0	69.4
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	18,605	18,605	5,413	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	20,620	5,589	14,805	226	0	226	128	0	14,945
		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	1,345	402	925	18	0	18	6	0	937
		100.0	29.9	68.8	1.3	0.0	1.3	0.4	0.0	69.7
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	69,179	69,179	19,999	48,432	748	0	748	381	1	48,848
		100.0	28.9	70.0	1.1	0.0	1.1	0.6	0.0	70.6

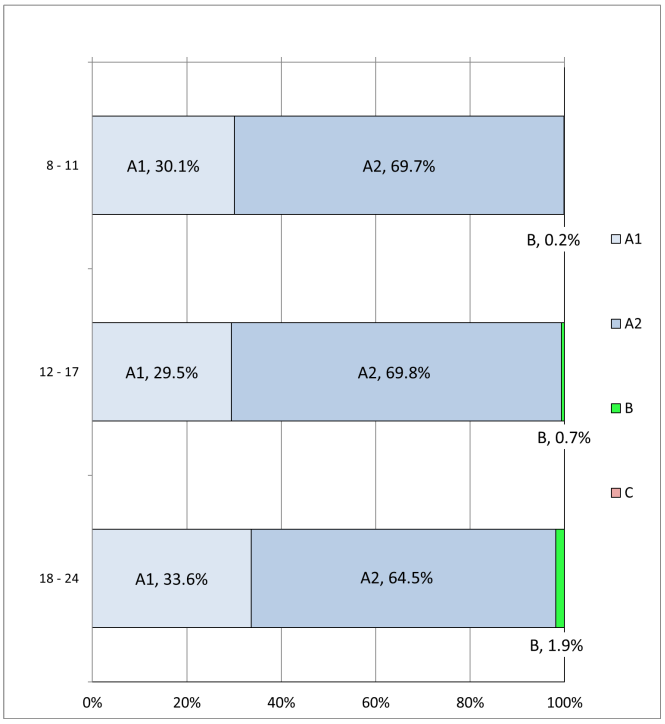
	a. Number of participants (persons)	b. Those with finalized results (persons)	Number of participants by grade (persons)				Number of participants with nodules (persons)		Number of participants with cysts (persons)	
			Percentages by grade (%)							
			A		B	C	Percentage (%)		Percentage (%)	
		b/a (%)	A1	A2			≥5.1mm	≤5.0mm	≥20.1mm	≤20.0m
Municipalities surveyed in FY2021										
Iwaki	18,581	18,581	5,309	13,017	255	0	255	107	0	13,154
		100.0	28.6	70.1	1.4	0.0	1.4	0.6	0.0	70.8
Sukagawa	4,583	4,583	1,256	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	978	978	279	694	5	0	5	4	0	697
		100.0	28.5	71.0	0.5	0.0	0.5	0.4	0.0	71.3
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	409	409	102	304	3	0	3	4	0	306
		100.0	24.9	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	419	106	303	10	0	10	0	0	308
		100.0	25.3	72.3	2.4	0.0	2.4	0.0	0.0	73.5
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	790	790	203	572	15	0	15	5	0	582
		100.0	25.7	72.4	1.9	0.0	1.9	0.6	0.0	73.7
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
Aizuwakamatsu	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	44,780	44,780	12,847	31,335	598	0	598	284	0	31,678
		100.0	28.7	70.0	1.3	0.0	1.3	0.6	0.0	70.7
Total	113,959	113,959	32,846	79,767	1,346	0	1,346	665	1	80,526
		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

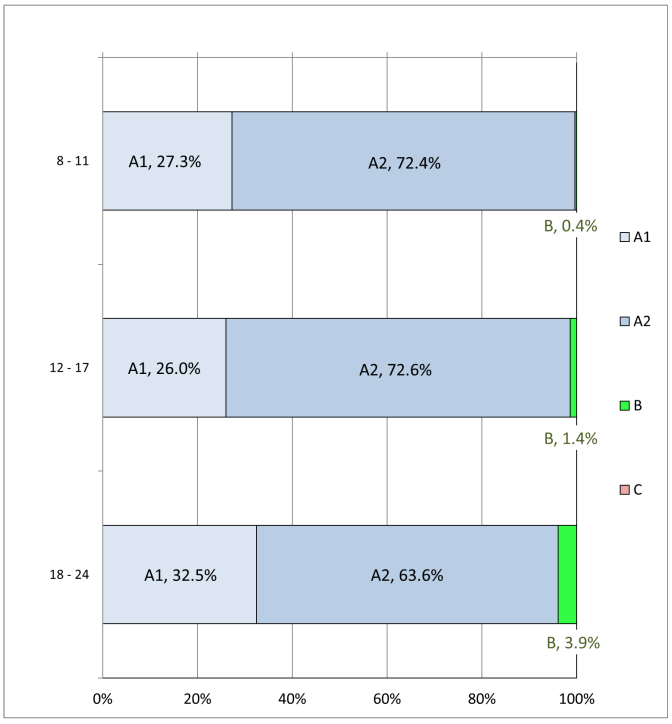
(persons)
As of September 30, 2024

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	2,807	3,204	6,011	5,382	6,283	11,665	159	385	544	0	0	0	8,348	9,872	18,220
Total	17,252	15,594	32,846	39,405	40,362	79,767	431	915	1,346	0	0	0	57,088	56,871	113,959

Results by age group (Male)



Results by age group (Female)

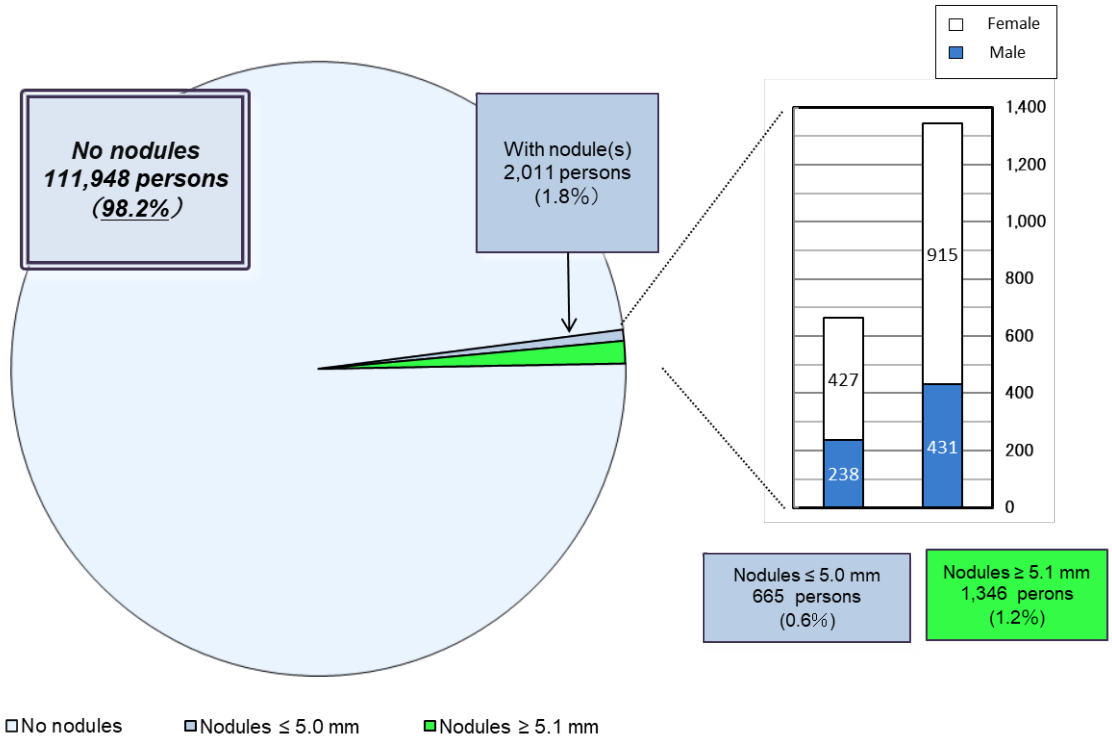


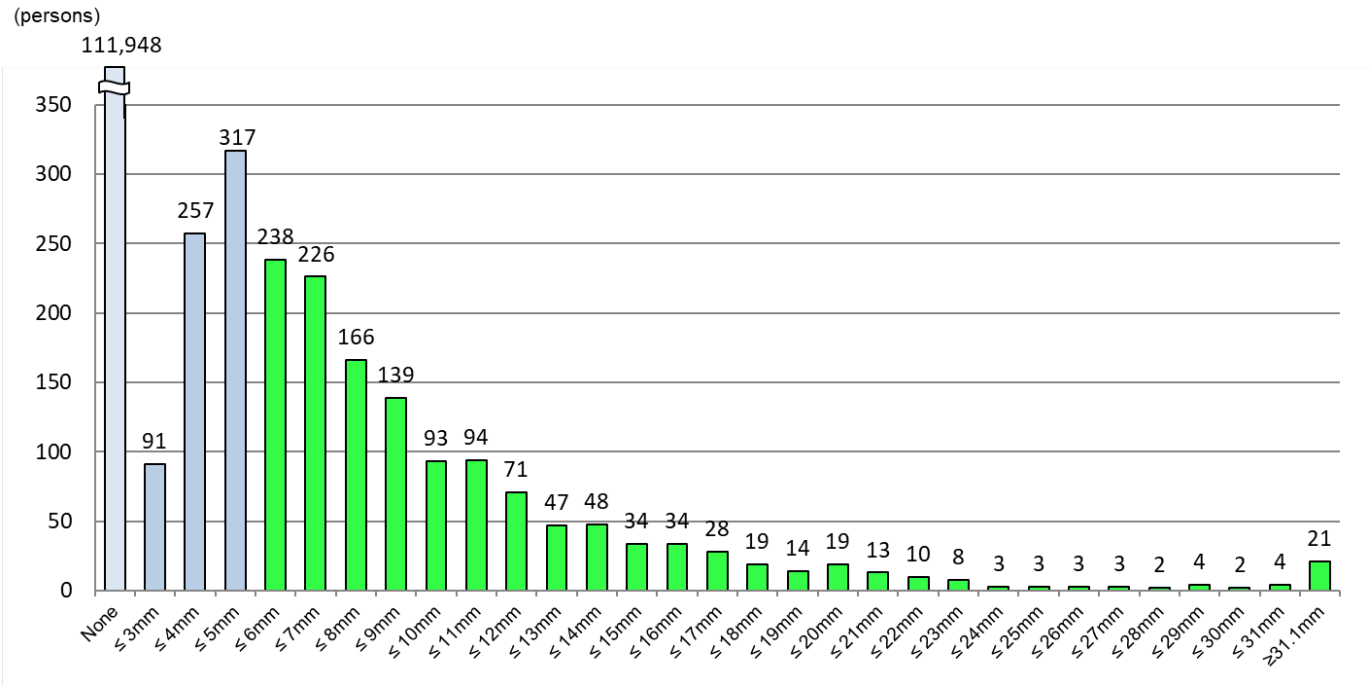
Appendix 4-2: Nodule characteristics

As of September 30, 2024

(persons)

Nodule size	Total	Male	Female	Grade	
None	111,948	56,419	55,529	A1	98.2%
≤ 3.0mm	91	27	64	A2	0.6%
3.1–5.0mm	574	211	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	113,959	57,088	56,871		



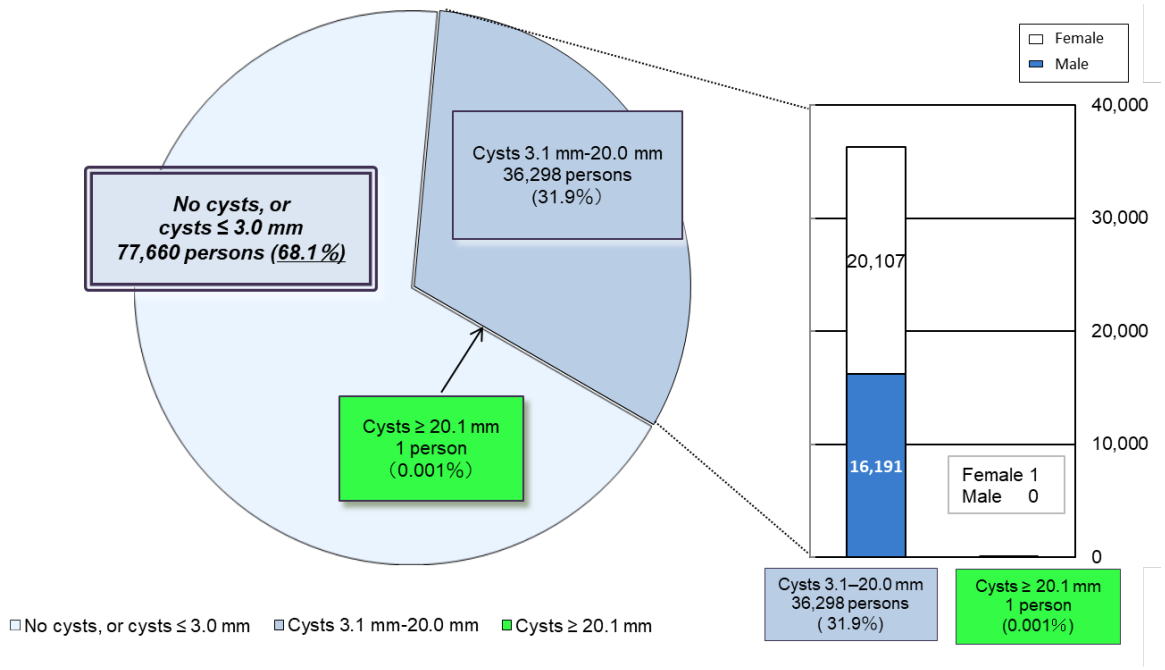


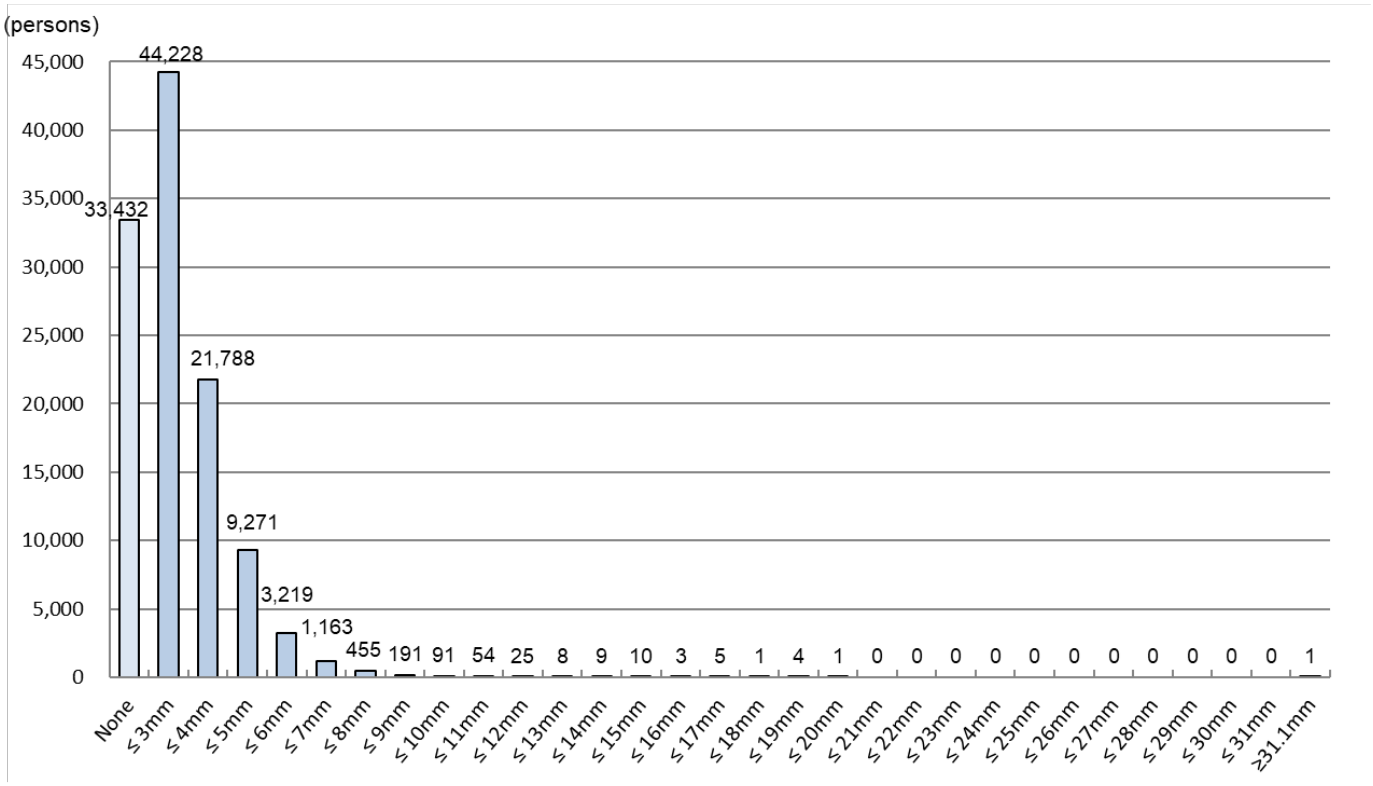
Appendix 4 – 3: Cyst characteristics

As of September 30, 2024

(persons)

Cyst size	Total	Male	Female	Grade	
None	33,432	17,463	15,969	A1	68.1%
≤ 3.0mm	44,228	23,434	20,794	A2	31.9%
3.1–5.0mm	31,059	14,334	16,725		
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	113,959	57,088	56,871		





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

As of September 30, 2024

	Those who participated in primary examination (persons) a	Those refered to confirmatory examination (persons) b	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	
			c	d	e	f	g	h	i	j	FNAC 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)	14,787	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)	65,595	739	617	27	309	281	607	4	61	542	66
		1.1	83.5	4.4	50.1	45.5	98.4	0.7	10.0	89.3	12.2
Hamadori 3)	20,786	293	236	3	104	129	234	2	18	214	17
		1.4	80.5	1.3	44.1	54.7	99.2	0.9	7.7	91.5	7.9
Aizu 4)	12,791	158	134	4	66	64	131	1	6	124	8
		1.2	84.8	3.0	49.3	47.8	97.8	0.8	4.6	94.7	6.5
Total	113,959	1,346	1,116	42	541	533	1,098	7	97	994	99
		1.2	82.9	3.8	48.5	47.8	98.4	0.6	8.8	90.5	10.0

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: Surgical cases for malignant or suspicious for malignancy

1. Municipalities surveyed in FY2020	
Malignant or suspicious for malignancy:	30 (surgical cases: 27, papillary thyroid carcinomas: 27)
2. Municipalities surveyed in FY2021	
Malignant or suspicious for malignancy:	19 (surgical cases: 19, papillary thyroid carcinomas: 18, others: 1)
3. Total	
Malignant or suspicious for malignancy:	49 (surgical cases: 46, papillary thyroid carcinomas: 45, others: 1)

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

As of September 30, 2024

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 who were 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 was carried out for 2 years: FY2023 and FY2024.

1.3-2 For those 19 years old or older

The examination was 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 September 30, 2024)

Fukushima Prefecture commissioned Fukushima Medical University (FMU) to 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	150 medical facilities

1.4-2 Confirmatory examination facilities

In Fukushima Prefecture	7 medical facilities, including FMU
Outside Fukushima Prefecture	41 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

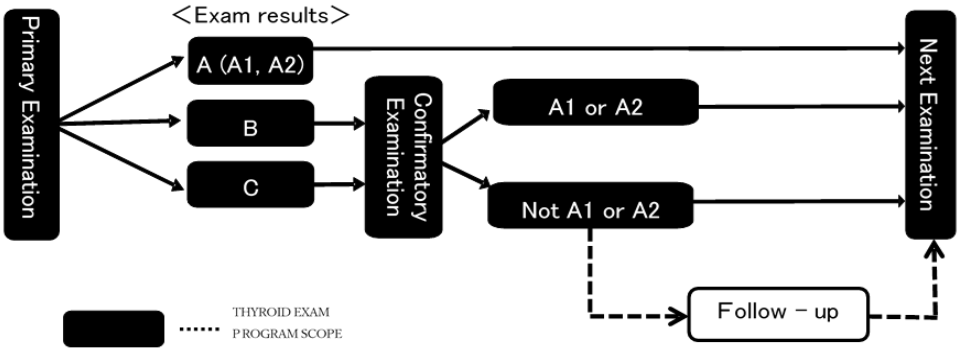


Figure 1: Flow chart

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:

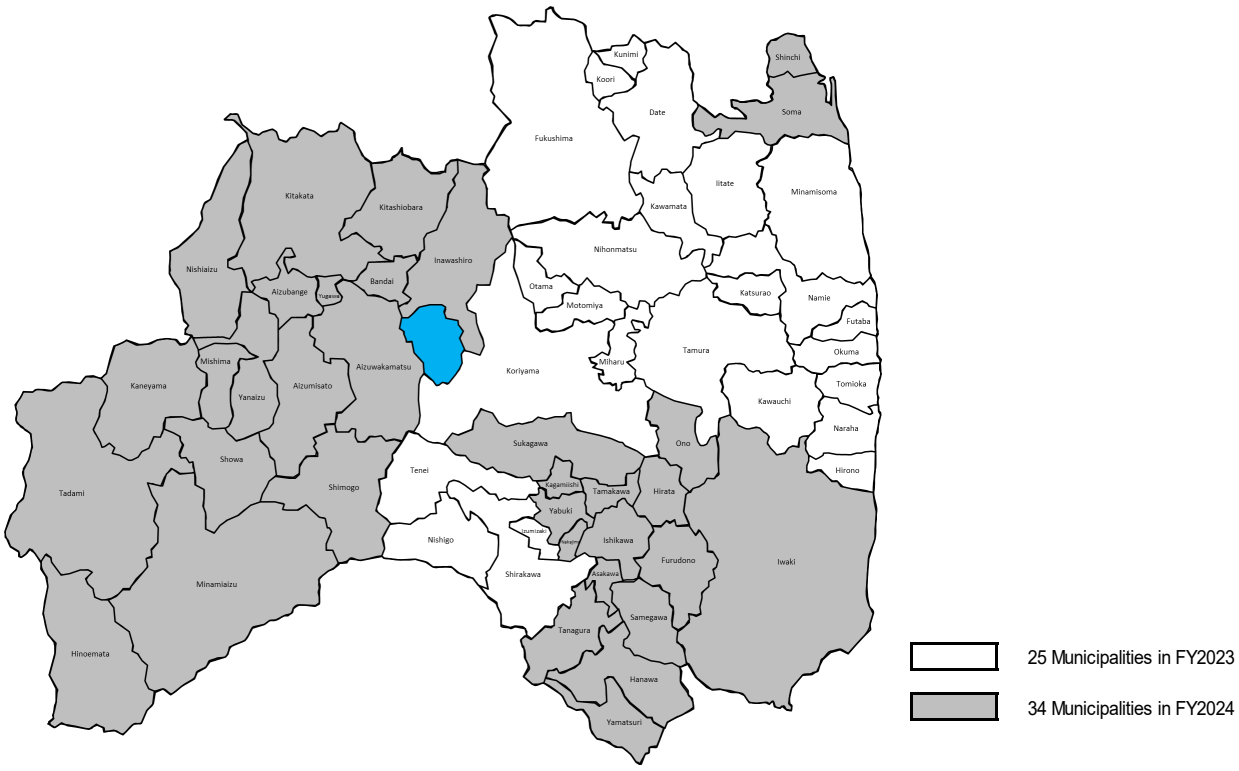


Figure 2: Municipalities covered for primary examinations in FY2023 and FY2024

2. Results as of September 30, 2024

2.1 Results of the Primary Examination

2.1-1 Implementation status

The primary examination was completed for 53,022 participants (25.0%) by September 30, 2024. (Refer to Appendix 1 for the status by municipalities in Fukushima, and Appendix 2 for by prefectures outside Fukushima.)

The results of 47,951 (90.4%) examinees have been finalized, and individual reports have been sent to them. (Refer to Appendix 3 for the primary examination results by the municipality.)

Of these, 12,925 (27.0%) had Grade A1 results, 34,320 (71.6%) had Grade A2, 706 (1.5%) had Grade B, and none had Grade C.

Table 1: Progress and results of the primary examination

	Eligible persons	Participants (persons)		Those who participated outside Fukushima	Participants with finalized results (persons)								
			Participation rate (%)			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	121,814	40,250	(33.0)	2,960	39,021	(96.9)	10,504	(26.9)	27,994	(71.7)	523	(1.3)	0	(0.0)
FY2024	90,089	12,772	(14.2)	1,174	8,930	(69.9)	2,421	(27.1)	6,326	(70.8)	183	(2.0)	0	(0.0)
Total	211,903	53,022	(25.0)	4,134	47,951	(90.4)	12,925	(27.0)	34,320	(71.6)	706	(1.5)	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)
FY2023	39,021	519	(1.3)	244	(0.6)	4	(0.0)	28,308	(72.5)
FY2024	8,930	182	(2.0)	82	(0.9)	1	(0.0)	6,432	(72.0)
Total	47,951	701	(1.5)	326	(0.7)	5	(0.0)	34,740	(72.4)

- 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) took place in FY2023. Examinations for those born in FY1994 (approx. 22,000) and FY1999 (approx. 20,000) were 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)	121,814	8,420	58,639	54,755
	Participants	(b)	40,250	5,001	32,142	3,107
	Participation rate (%)	(b/a)	33.0	59.4	54.8	5.7
FY2024	Age group*				12 to 17 years old	18 to 24 years old
	Eligible persons	(a)	90,089		41,651	48,438
	Participants	(b)	12,772		9,668	3,104
	Participation rate (%)	(b/a)	14.2		23.2	6.4
Total	Eligible persons	(a)	211,903	8,420	100,290	103,193
	Participants	(b)	53,022	5,001	41,810	6,211
	Participation rate (%)	(b/a)	25.0	59.4	41.7	6.0

* 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 the two Full-Scale Surveys (fifth- and sixth-round surveys).

Among 42,851 (sum of *1) participants with Grade A1 and A2 results in the fifth-round survey, 42,526 (sum of *2, 99.2%) had Grade A results, and 325 (sum of *3, 0.8%) had Grade B results in the sixth-round survey.

Among 360 participants with Grade B results in the fifth-round survey, 74 (sum of *4, 20.6%) had Grade A results, and 286 (79.4%) 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*	Results of the sixth-round survey**			
				A		B	C
			a (%)	A1 b (b/a)	A2 c (c/a)	d (d/a)	e (e/a)
Results of the fifth-round survey	A	A1	11,815 *1 (100.0)	8,509 *2 (72.0)	3,250 *2 (27.5)	56 *3 (0.5)	0 (0.0)
		A2	31,036 *1 (100.0)	3,013 *2 (9.7)	27,754 *2 (89.4)	269 *3 (0.9)	0 (0.0)
	B		360 (100.0)	7 *4 (1.9)	67 *4 (18.6)	286 (79.4)	0 (0.0)
	C		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Did not participate		4,740 (100.0)	1,396 (29.5)	3,249 (68.5)	95 (2.0)	0 (0.0)
Total			47,951 (100.0)	12,925 (27.0)	34,320 (71.6)	706 (1.5)	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.

2.2 Results of the Confirmatory Examination

2.2-1 Implementation status

By September 30, 2024, of 706 eligible persons, 461 (65.3%) had participated in the confirmatory examination, and 412 (89.4%) had completed the entire procedure.

Of those 412 participants, 33 (A1: 1, A2: 32) (8.0%) were confirmed to meet A1 or A2 diagnostic criteria by primary examination standards (including those with other thyroid conditions). After the detailed examination, 379 (92.0%) were confirmed to be outside 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 (%)									
			Participation Rate (%)		Determination rate (%)	A1		A2		Other than A1 or A2			
												FNAC	
	a	b	(b/a)	c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/f)
FY2023	523	365	(69.8)	336	(92.1)	1	(0.3)	27	(8.0)	308	(91.7)	19	(6.2)
FY2024	183	96	(52.5)	76	(79.2)	0	(0.0)	5	(6.6)	71	(93.4)	6	(8.5)
Total	706	461	(65.3)	412	(89.4)	1	(0.2)	32	(7.8)	379	(92.0)	25	(6.6)

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

Among those who underwent FNAC, 12 participants were diagnosed with lesions malignant or suspicious for malignancy: 3 were male and 9 were female. Participants' ages at the confirmatory examination ranged from 12 to 21 years (mean age: 17.4 ± 3.0 years). The tumor diameters were from 8.2 mm to 18.6 mm (mean tumor diameter: 12.6 ± 3.2 mm).

Of these 12 participants, 6 had Grade A (A1:2, A2:4), 3 had Grade B results in the fifth-round survey, and the remaining 3 participants did not participate. Among 4 participants with Grade A2, 3 met nodule criteria, and 1 met both cyst and nodule criteria.

Table 6: Results of FNAC (The mean age and mean tumor size in parentheses indicate the range.)

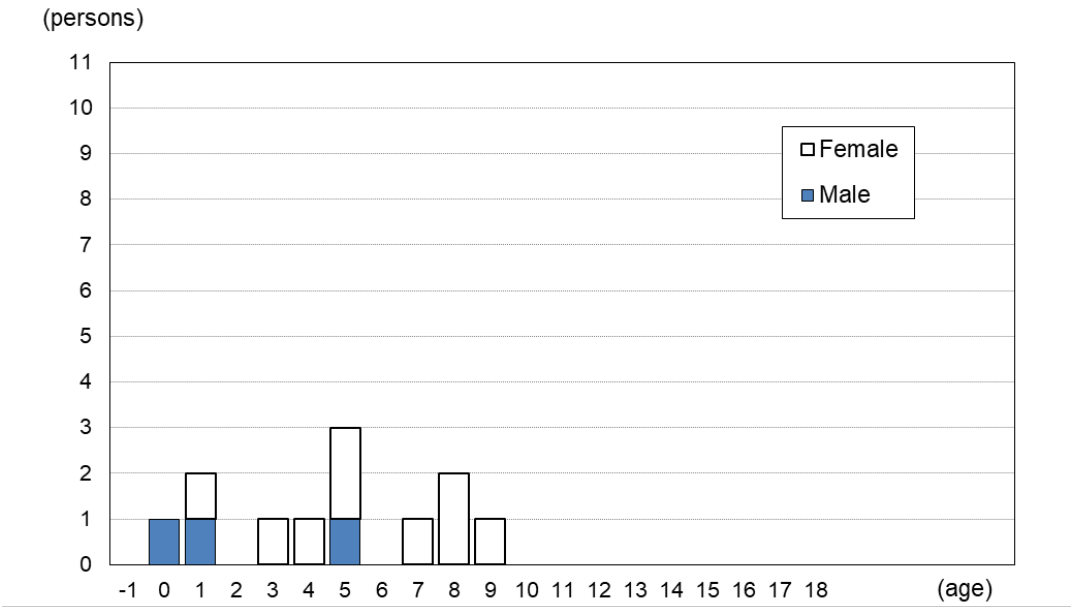
Those referred to confirmatory examination at the sixth-round survey

- Malignant or suspicious for malignancy: 12*
- Male to female ratio: 3:9
- Mean age ± SD (min-max) 17.4 ± 3.0 (12–21)
  4.7 ± 3.0 (0–9) at the time of the earthquake
- Mean tumor size ± SD (min-max) 12.6 ± 3.2 mm (8.2–18.6 mm)

*Refer to Appendix 5 for surgical cases

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

Figure 4 shows the age distribution of 12 people with malignant or suspected malignant nodules based on their age as of March 11, 2011. The age distribution based on their age at the time of confirmatory examination is in Figure 5.



Note: Those aged between 11 and 18 at the time of the disaster are not included in the sixth-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

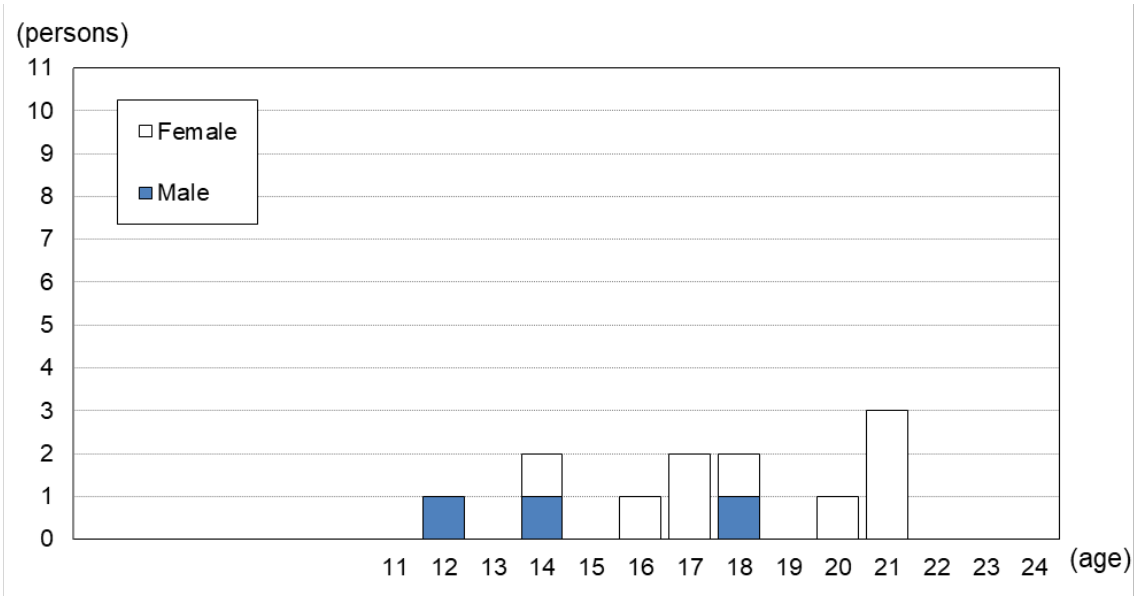


Figure 5: Age distributions as of the date of confirmatory examination

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

Of those 12 people with malignant or suspicious findings, 9 (75.0%) had participated in the Basic Survey (for external radiation exposure dose estimation), and all 9 received their results. The highest effective dose documented was 1.8 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	1	0	2	0	0	0	0	1	3
< 2	1	2	0	2	0	0	0	0	1	4
< 5	0	0	0	0	0	0	0	0	0	0
< 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
Total	2	3	0	4	0	0	0	0	2	7

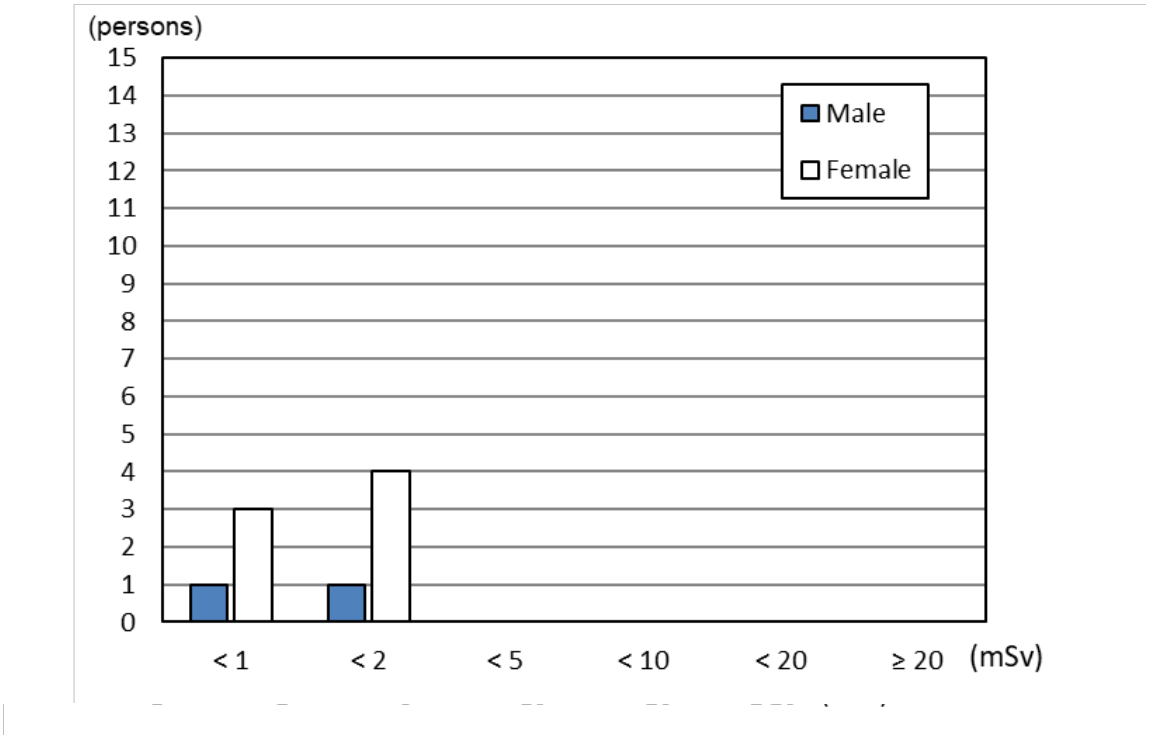


Figure 6: Effective dose distribution of the Basic Survey participants

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 : 12	1.2±0.2 (8.3%)	3.5±0.6 (16.7%)	1.4±0.6 (0.0%)	31.7±32.7 (41.7%)	16.7%	25.0%
Other : 342	1.2±0.2 (4.4%)	3.7±0.5 (9.6%)	1.4±1.3 (9.4%)	32.3±174.3 (12.3%)	6.7%	8.5%

Table 9: Urinary iodine test results [8]

(μg/day)

	Minimum	25th percentile	Median	75th percentile	Maximum
Malignant or suspicious : 10	88	135	285	476	757
Other : 164	39	115	187	357	5,521

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.
8) Urinary iodine tests have not been carried out since March 8, 2024 (details as follows).

Temporary suspension of urine tests

The reagents have been unavailable since March 2024. This has resulted in the suspension of related urine tests.

1 Reason:

The manufacturer and distributor of the test reagents were found to have failed to comply with the procedures stipulated in the "Act on Securing Quality, Efficacy, and Safety of Products Including Pharmaceuticals and Medical Devices" (Pharmaceutical and Medical Device Act), so the product could no longer be used due to non-compliance with the law.

2 Date of suspension:

Effective March 8, 2024

3. Mental Health Care

We provide 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 2023; as of September 30, 2024, all 1,152 participants (100%) have visited these consultation booths.

3.2 Outreach programs (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 September 30, 2024, we delivered 12 on-location sessions (5 at elementary schools, 6 at junior high schools, and 1 at a high school) for 1,195 students. In total, 16,888 people have participated since the start of these sessions.

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 sixth-round survey, 200 participants (75 males and 125 females) have received support as of September 30, 2024. The number of support sessions, including telephone counseling, was 315 in total. Of these, 200 (63.5%) received support at the participants' first examination and 115 (36.5%) 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 municipality

As of September 30, 2024

	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	11	12–17	18–24	c[3]	c/b
Municipalities surveyed in FY2023									
Kawamata	1,282	399	10	31.1	29	330	40	13	3.3
					7.3	82.7	10.0		
Namie	2,063	427	94	20.7	29	293	105	105	24.6
					6.8	68.6	24.6		
Iitate	620	181	6	29.2	10	141	30	6	3.3
					5.5	77.9	16.6		
Minamisoma	7,561	1,987	295	26.3	163	1,503	321	317	16.0
					8.2	75.6	16.2		
Date	6,096	2,299	81	37.7	201	1,785	313	84	3.7
					8.7	77.6	13.6		
Tamura	3,783	1,282	31	33.9	108	1,018	156	27	2.1
					8.4	79.4	12.2		
Hirono	538	97	10	18.0	10	70	17	11	11.3
					10.3	72.2	17.5		
Naraha	766	98	17	12.8	4	59	35	19	19.4
					4.1	60.2	35.7		
Tomioka	1,640	247	55	15.1	17	157	73	50	20.2
					6.9	63.6	29.6		
Kawauchi	192	50	2	26.0	1	35	14	3	6.0
					2.0	70.0	28.0		
Okuma	1,521	251	67	16.5	14	171	66	69	27.5
					5.6	68.1	26.3		
Futaba	717	94	15	13.1	4	70	20	16	17.0
					4.3	74.5	21.3		
Katsurao	126	31	2	24.6	3	19	9	3	9.7
					9.7	61.3	29.0		
Fukushima	31,363	10,977	801	35.0	666	8,901	1,410	800	7.3
					6.1	81.1	12.8		
Nihonmatsu	5,779	2,065	94	35.7	167	1,681	217	98	4.7
					8.1	81.4	10.5		
Motomiya	3,566	1,234	45	34.6	105	964	165	40	3.2
					8.5	78.1	13.4		
Otama	951	399	5	42.0	28	318	53	6	1.5
					7.0	79.7	13.3		
Koriyama	38,693	13,011	1,105	33.6	282	10,785	1,944	1,072	8.2
					2.2	82.9	14.9		
Koori	1,139	476	16	41.8	48	353	75	18	3.8
					10.1	74.2	15.8		
Kunimi	827	286	11	34.6	16	222	48	9	3.1
					5.6	77.6	16.8		
Tenei	621	191	7	30.8	9	153	29	6	3.1
					4.7	80.1	15.2		
Shirakawa	7,161	2,589	133	36.2	120	2,093	376	122	4.7
					4.6	80.8	14.5		
Nishigo	2,410	833	39	34.6	36	686	111	33	4.0
					4.3	82.4	13.3		
Izumizaki	759	219	4	28.9	7	187	25	2	0.9
					3.2	85.4	11.4		
Miharu	1,640	527	15	32.1	18	432	77	15	2.8
					3.4	82.0	14.6		
Subtotal	121,814	40,250	2,960	33.0	2,095	32,426	5,729	2,944	7.3
					5.2	80.6	14.2		

*1) The number of participants who received the examination at facilities outside Fukushima (as of August 31, 2024).

*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 (sixth-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	11	12–17	18–24	c[3)]	c/b
Municipalities surveyed in FY2024									
Iwaki	35,468	2,102	620	5.9	18	793	1,291	541	25.7
					0.9	37.7	61.4		
Sukagawa	8,982	2,719	103	30.3	7	2,220	492	81	3.0
					0.3	81.6	18.1		
Soma	4,019	966	88	24.0	9	784	173	89	9.2
					0.9	81.2	17.9		
Kagamiishi	1,550	486	12	31.4	0	406	80	10	2.1
					0.0	83.5	16.5		
Shinchi	827	243	16	29.4	1	179	63	15	6.2
					0.4	73.7	25.9		
Nakajima	586	148	0	25.3	0	132	16	1	0.7
					0.0	89.2	10.8		
Yabuki	1,975	599	17	30.3	2	497	100	12	2.0
					0.3	83.0	16.7		
Ishikawa	1,535	442	8	28.8	2	385	55	9	2.0
					0.5	87.1	12.4		
Yamatsuri	564	189	10	33.5	0	160	29	5	2.6
					0.0	84.7	15.3		
Asakawa	768	224	11	29.2	0	182	42	9	4.0
					0.0	81.3	18.8		
Hirata	692	207	5	29.9	0	179	28	4	1.9
					0.0	86.5	13.5		
Tanagura	1,707	523	16	30.6	2	447	74	9	1.7
					0.4	85.5	14.1		
Hanawa	866	233	11	26.9	1	198	34	7	3.0
					0.4	85.0	14.6		
Samegawa	385	118	1	30.6	1	105	12	2	1.7
					0.8	89.0	10.2		
Ono	1,044	293	5	28.1	1	252	40	4	1.4
					0.3	86.0	13.7		
Tamakawa	774	196	5	25.3	1	161	34	0	0.0
					0.5	82.1	17.3		
Furudono	571	189	7	33.1	0	149	40	4	2.1
					0.0	78.8	21.2		
Hinoemata	58	4	0	6.9	0	4	0	0	0.0
					0.0	100.0	0.0		
Minamiaizu	1,483	264	7	17.8	0	237	27	5	1.9
					0.0	89.8	10.2		
Kaneyama	90	22	0	24.4	0	18	4	0	0.0
					0.0	81.8	18.2		
Showa	89	16	1	18.0	0	14	2	1	6.3
					0.0	87.5	12.5		
Mishima	106	17	0	16.0	0	15	2	0	0.0
					0.0	88.2	11.8		
Shimogo	527	72	2	13.7	0	64	8	3	4.2
					0.0	88.9	11.1		
Kitakata	4,940	353	29	7.1	2	256	95	27	7.6
					0.6	72.5	26.9		
Nishiaizu	491	70	4	14.3	0	63	7	2	2.9
					0.0	90.0	10.0		
Tadami	401	108	2	26.9	1	95	12	2	1.9
					0.9	88.0	11.1		
Inawashiro	1,467	305	15	20.8	1	256	48	12	3.9
					0.3	83.9	15.7		
Bandai	357	63	5	17.6	0	55	8	5	7.9
					0.0	87.3	12.7		
Kitashiobara	324	45	2	13.9	0	42	3	3	6.7
					0.0	93.3	6.7		
Aizumisato	1,953	338	10	17.3	0	287	51	7	2.1
					0.0	84.9	15.1		
Aizubange	1,671	281	10	16.8	2	236	43	9	3.2
					0.7	84.0	15.3		
Yanaizu	326	55	0	16.9	0	52	3	0	0.0
					0.0	94.5	5.5		
Aizuwakamatsu	13,118	816	150	6.2	8	486	322	134	16.4
					1.0	59.6	39.5		
Yugawa	375	66	2	17.6	0	48	18	3	4.5
					0.0	72.7	27.3		
Subtotal	90,089	12,772	1,174	14.2	59	9,457	3,256	1,015	7.9
					0.5	74.0	25.5		
Total	211,903	53,022	4,134	25.0	2,154	41,883	8,985	3,959	7.5
					4.1	79.0	16.9		

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

As of August 31, 2024

Prefecture	Number of medical facilities	Participants (persons)
Hokkaido	7	**105**
Aomori	3	**56**
Iwate	4	**93**
Miyagi	2	**1,042**
Akita	1	**72**
Yamagata	3	**165**
Ibaraki	5	**229**
Tochigi	9	**311**
Gunma	2	**65**
Saitama	4	**222**
Chiba	5	**112**
Tokyo	23	**699**
Kanagawa	7	**257**
Niigata	3	**151**
Toyama	2	**10**
Ishikawa	1	**4**

Prefecture	Number of medical facilities	Participants (persons)
Fukui	1	**11**
Yamanashi	2	**29**
Nagano	4	**58**
Gifu	2	**16**
Shizuoka	3	**38**
Aichi	6	**82**
Mie	1	**8**
Shiga	1	**7**
Kyoto	3	**17**
Osaka	10	**53**
Hyogo	3	**49**
Nara	3	**12**
Wakayama	1	**2**
Tottori	1	**0**
Shimane	1	**4**
Okayama	3	**22**

Prefecture	Number of medical facilities	Participants (persons)
Hiroshima	2	**12**
Yamaguchi	1	**5**
Tokushima	1	**5**
Kagawa	1	**6**
Ehime	3	**11**
Kochi	2	**8**
Fukuoka	4	**25**
Saga	1	**2**
Nagasaki	3	**12**
Kumamoto	1	**10**
Oita	1	**13**
Miyazaki	1	**9**
Kagoshima	2	**3**
Okinawa	1	**12**
Total	150	**4,134**

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

Appendix 3: TUE primary examination results by the municipality

As of September 30, 2024

	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 FY2023										
Kawamata	399	395	93	295	7	0	7	3	0	300
		99.0	23.5	74.7	1.8	0.0	1.8	0.8	0.0	75.9
Namie	427	403	112	285	6	0	5	8	1	285
		94.4	27.8	70.7	1.5	0.0	1.2	2.0	0.2	70.7
Iitate	181	175	44	128	3	0	3	0	0	131
		96.7	25.1	73.1	1.7	0.0	1.7	0.0	0.0	74.9
Minamisoma	1,987	1,909	488	1,391	30	0	30	11	0	1,410
		96.1	25.6	72.9	1.6	0.0	1.6	0.6	0.0	73.9
Date	2,299	2,274	564	1,683	27	0	27	20	0	1,697
		98.9	24.8	74.0	1.2	0.0	1.2	0.9	0.0	74.6
Tamura	1,282	1,242	344	885	13	0	13	8	0	892
		96.9	27.7	71.3	1.0	0.0	1.0	0.6	0.0	71.8
Hirono	97	94	30	60	4	0	4	1	0	62
		96.9	31.9	63.8	4.3	0.0	4.3	1.1	0.0	66.0
Naraha	98	88	28	58	2	0	2	0	0	59
		89.8	31.8	65.9	2.3	0.0	2.3	0.0	0.0	67.0
Tomioka	247	233	58	172	3	0	3	4	0	175
		94.3	24.9	73.8	1.3	0.0	1.3	1.7	0.0	75.1
Kawauchi	50	46	14	31	1	0	1	0	0	32
		92.0	30.4	67.4	2.2	0.0	2.2	0.0	0.0	69.6
Okuma	251	241	78	159	4	0	4	1	0	160
		96.0	32.4	66.0	1.7	0.0	1.7	0.4	0.0	66.4
Futaba	94	88	20	68	0	0	0	0	0	68
		93.6	22.7	77.3	0.0	0.0	0.0	0.0	0.0	77.3
Katsurao	31	30	6	24	0	0	0	0	0	24
		96.8	20.0	80.0	0.0	0.0	0.0	0.0	0.0	80.0
Fukushima	10,977	10,868	2,979	7,751	138	0	136	58	2	7,830
		99.0	27.4	71.3	1.3	0.0	1.3	0.5	0.0	72.0
Nihonmatsu	2,065	2,043	619	1,396	28	0	28	8	0	1,418
		98.9	30.3	68.3	1.4	0.0	1.4	0.4	0.0	69.4
Motomiya	1,234	1,202	343	846	13	0	13	6	0	853
		97.4	28.5	70.4	1.1	0.0	1.1	0.5	0.0	71.0
Otama	399	394	111	272	11	0	11	2	0	278
		98.7	28.2	69.0	2.8	0.0	2.8	0.5	0.0	70.6
Koriyama	13,011	12,461	3,317	8,976	168	0	167	73	1	9,085
		95.8	26.6	72.0	1.3	0.0	1.3	0.6	0.0	72.9
Koori	476	470	131	331	8	0	8	4	0	336
		98.7	27.9	70.4	1.7	0.0	1.7	0.9	0.0	71.5
Kunimi	286	282	86	187	9	0	9	2	0	193
		98.6	30.5	66.3	3.2	0.0	3.2	0.7	0.0	68.4
Tenei	191	153	37	114	2	0	2	1	0	116
		80.1	24.2	74.5	1.3	0.0	1.3	0.7	0.0	75.8
Shirakawa	2,589	2,441	603	1,808	30	0	30	20	0	1,820
		94.3	24.7	74.1	1.2	0.0	1.2	0.8	0.0	74.6
Nishigo	833	787	211	566	10	0	10	8	0	574
		94.5	26.8	71.9	1.3	0.0	1.3	1.0	0.0	72.9
Izumizaki	219	195	58	135	2	0	2	1	0	136
		89.0	29.7	69.2	1.0	0.0	1.0	0.5	0.0	69.7
Miharu	527	507	130	373	4	0	4	5	0	374
		96.2	25.6	73.6	0.8	0.0	0.8	1.0	0.0	73.8
Subtotal	40,250	39,021	10,504	27,994	523	0	519	244	4	28,308
		96.9	26.9	71.7	1.3	0.0	1.3	0.6	0.0	72.5

	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 FY2024										
Iwaki	2,102	1,840	565	1,221	54	0	54	20	0	1,250
		87.5	30.7	66.4	2.9	0.0	2.9	1.1	0.0	67.9
Sukagawa	2,719	915	277	610	28	0	28	7	0	624
		33.7	30.3	66.7	3.1	0.0	3.1	0.8	0.0	68.2
Soma	966	631	165	456	10	0	10	9	0	462
		65.3	26.1	72.3	1.6	0.0	1.6	1.4	0.0	73.2
Kagamiishi	486	149	37	110	2	0	2	0	0	112
		30.7	24.8	73.8	1.3	0.0	1.3	0.0	0.0	75.2
Shinchi	243	194	55	132	7	0	7	2	0	135
		79.8	28.4	68.0	3.6	0.0	3.6	1.0	0.0	69.6
Nakajima	148	115	37	78	0	0	0	1	0	78
		77.7	32.2	67.8	0.0	0.0	0.0	0.9	0.0	67.8
Yabuki	599	440	129	305	6	0	6	2	0	309
		73.5	29.3	69.3	1.4	0.0	1.4	0.5	0.0	70.2
Ishikawa	442	314	68	242	4	0	3	2	1	245
		71.0	21.7	77.1	1.3	0.0	1.0	0.6	0.3	78.0
Yamatsuri	189	158	34	123	1	0	1	2	0	124
		83.6	21.5	77.8	0.6	0.0	0.6	1.3	0.0	78.5
Asakawa	224	163	42	119	2	0	2	1	0	120
		72.8	25.8	73.0	1.2	0.0	1.2	0.6	0.0	73.6
Hirata	207	185	41	141	3	0	3	2	0	143
		89.4	22.2	76.2	1.6	0.0	1.6	1.1	0.0	77.3
Tanagura	523	392	97	290	5	0	5	4	0	294
		75.0	24.7	74.0	1.3	0.0	1.3	1.0	0.0	75.0
Hanawa	233	179	45	133	1	0	1	4	0	132
		76.8	25.1	74.3	0.6	0.0	0.6	2.2	0.0	73.7
Samegawa	118	89	27	61	1	0	1	1	0	62
		75.4	30.3	68.5	1.1	0.0	1.1	1.1	0.0	69.7
Ono	293	266	62	199	5	0	5	2	0	203
		90.8	23.3	74.8	1.9	0.0	1.9	0.8	0.0	76.3
Tamakawa	196	138	43	92	3	0	3	2	0	93
		70.4	31.2	66.7	2.2	0.0	2.2	1.4	0.0	67.4
Furudono	189	143	35	105	3	0	3	1	0	107
		75.7	24.5	73.4	2.1	0.0	2.1	0.7	0.0	74.8
Hinoemata	4	4	2	2	0	0	0	0	0	2
		100.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0
Minamiaizu	264	258	63	192	3	0	3	2	0	195
		97.7	24.4	74.4	1.2	0.0	1.2	0.8	0.0	75.6
Kaneyama	22	22	6	16	0	0	0	0	0	16
		100.0	27.3	72.7	0.0	0.0	0.0	0.0	0.0	72.7
Showa	16	16	7	9	0	0	0	0	0	9
		100.0	43.8	56.3	0.0	0.0	0.0	0.0	0.0	56.3
Mishima	17	17	2	15	0	0	0	0	0	15
		100.0	11.8	88.2	0.0	0.0	0.0	0.0	0.0	88.2
Shimogo	72	71	17	53	1	0	1	0	0	53
		98.6	23.9	74.6	1.4	0.0	1.4	0.0	0.0	74.6
Kitakata	353	205	42	157	6	0	6	6	0	156
		58.1	20.5	76.6	2.9	0.0	2.9	2.9	0.0	76.1
Nishiaizu	70	69	11	56	2	0	2	0	0	58
		98.6	15.9	81.2	2.9	0.0	2.9	0.0	0.0	84.1
Tadami	108	108	20	85	3	0	3	2	0	86
		100.0	18.5	78.7	2.8	0.0	2.8	1.9	0.0	79.6
Inawashiro	305	288	91	192	5	0	5	1	0	194
		94.4	31.6	66.7	1.7	0.0	1.7	0.3	0.0	67.4
Bandai	63	58	12	46	0	0	0	0	0	46
		92.1	20.7	79.3	0.0	0.0	0.0	0.0	0.0	79.3
Kitashiobara	45	43	10	32	1	0	1	0	0	33
		95.6	23.3	74.4	2.3	0.0	2.3	0.0	0.0	76.7
Aizumisato	338	330	86	241	3	0	3	3	0	243
		97.6	26.1	73.0	0.9	0.0	0.9	0.9	0.0	73.6
Aizubange	281	271	73	192	6	0	6	4	0	197
		96.4	26.9	70.8	2.2	0.0	2.2	1.5	0.0	72.7
Yanaizu	55	55	17	38	0	0	0	0	0	38
		100.0	30.9	69.1	0.0	0.0	0.0	0.0	0.0	69.1
Aizuwakamatsu	816	740	180	547	13	0	13	2	0	557
		90.7	24.3	73.9	1.8	0.0	1.8	0.3	0.0	75.3
Yugawa	66	64	23	36	5	0	5	0	0	41
		97.0	35.9	56.3	7.8	0.0	7.8	0.0	0.0	64.1
Subtotal	12,772	8,930	2,421	6,326	183	0	182	82	1	6,432
		69.9	27.1	70.8	2.0	0.0	2.0	0.9	0.0	72.0
Total	53,022	47,951	12,925	34,320	706	0	701	326	5	34,740
		90.4	27.0	71.6	1.5	0.0	1.5	0.7	0.0	72.4

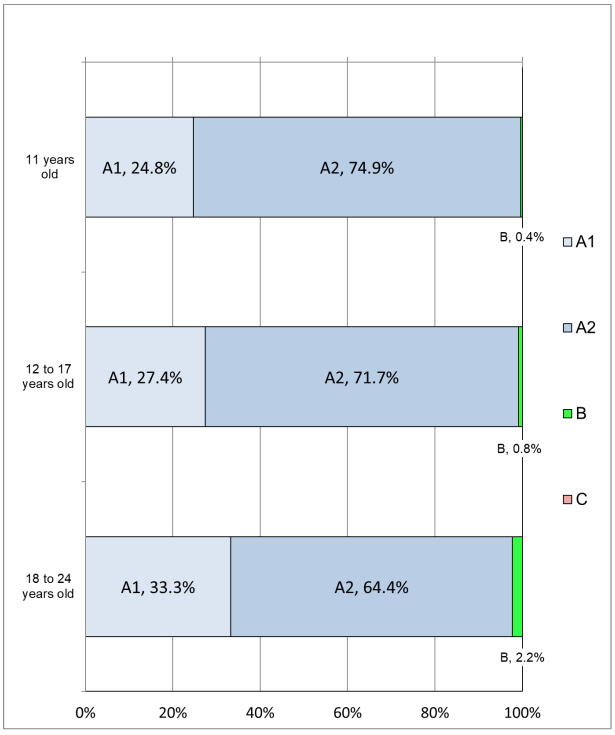
Appendix 4-1: TUE examination results by age and gender

(persons)

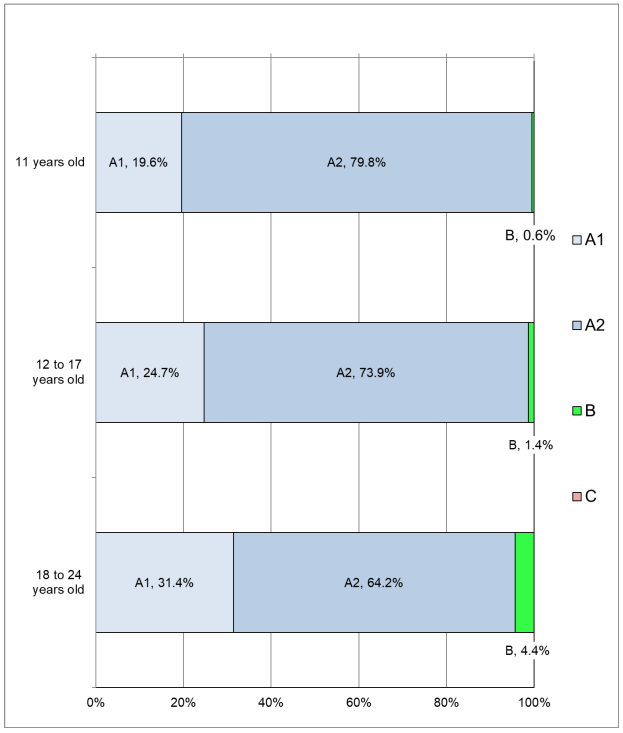
As of September 30, 2024

Result / Gender / Age group	A						B			C			Total		
	A1			A2											
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
11 years old	278	202	480	841	823	1,664	4	6	10	0	0	0	1,123	1,031	2,154
12 to 17 years old	5,303	4,572	9,875	13,872	13,656	27,528	164	256	420	0	0	0	19,339	18,484	37,823
18 to 24 years old	1,156	1,414	2,570	2,237	2,891	5,128	78	198	276	0	0	0	3,471	4,503	7,974
Total	6,737	6,188	12,925	16,950	17,370	34,320	246	460	706	0	0	0	23,933	24,018	47,951

Results by age group (Male)



Results by age group (Female)

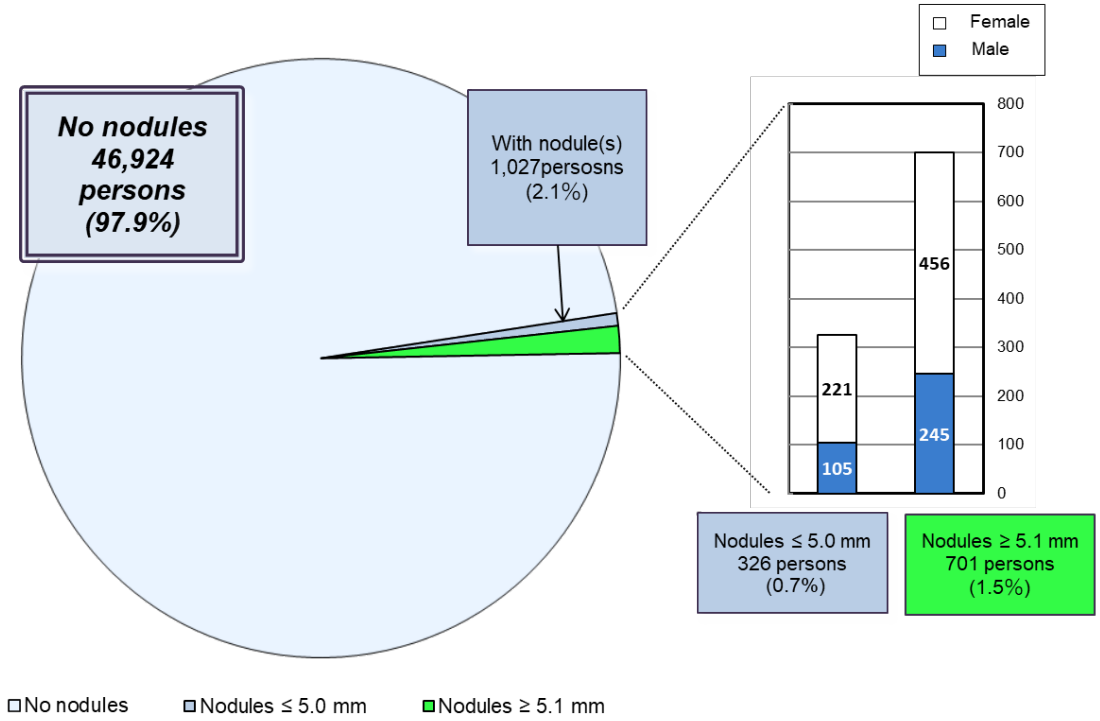


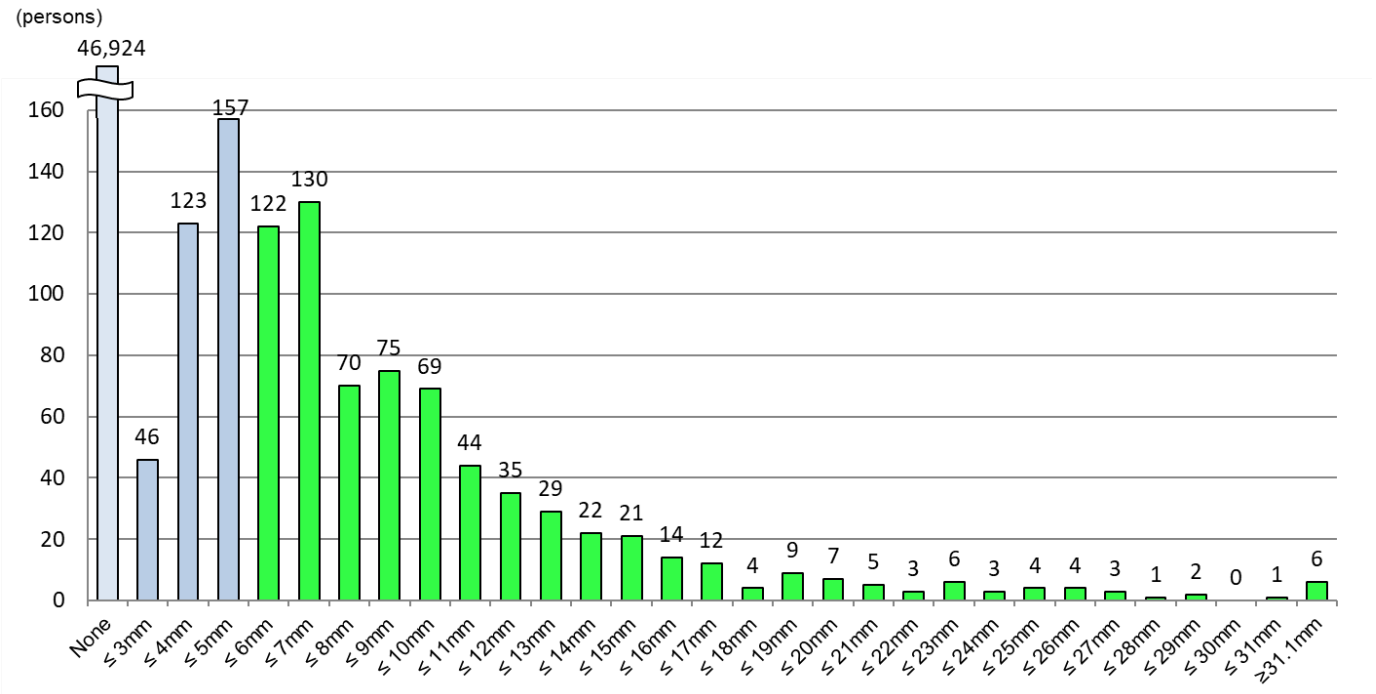
Appendix 4-2: Nodule characteristics

As of September 30, 2024

(persons)

Nodule size	Total	Male	Female	Grade	
None	46,924	23,583	23,341	A1	97.9%
≤ 3.0mm	46	17	29	A2	0.7%
3.1–5.0mm	280	88	192		
5.1–10.0mm	466	176	290	B	1.5%
10.1–15.0mm	151	43	108		
15.1–20.0mm	46	14	32		
20.1–25.0mm	21	8	13		
≥ 25.1mm	17	4	13		
Total	47,951	23,933	24,018		



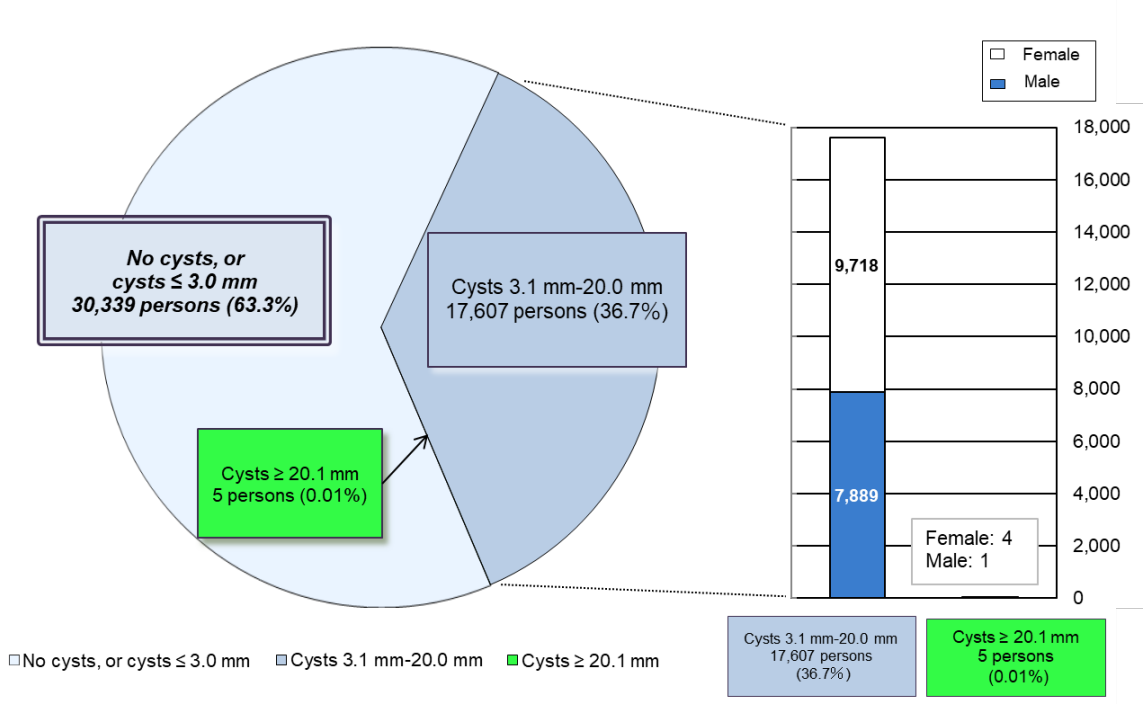


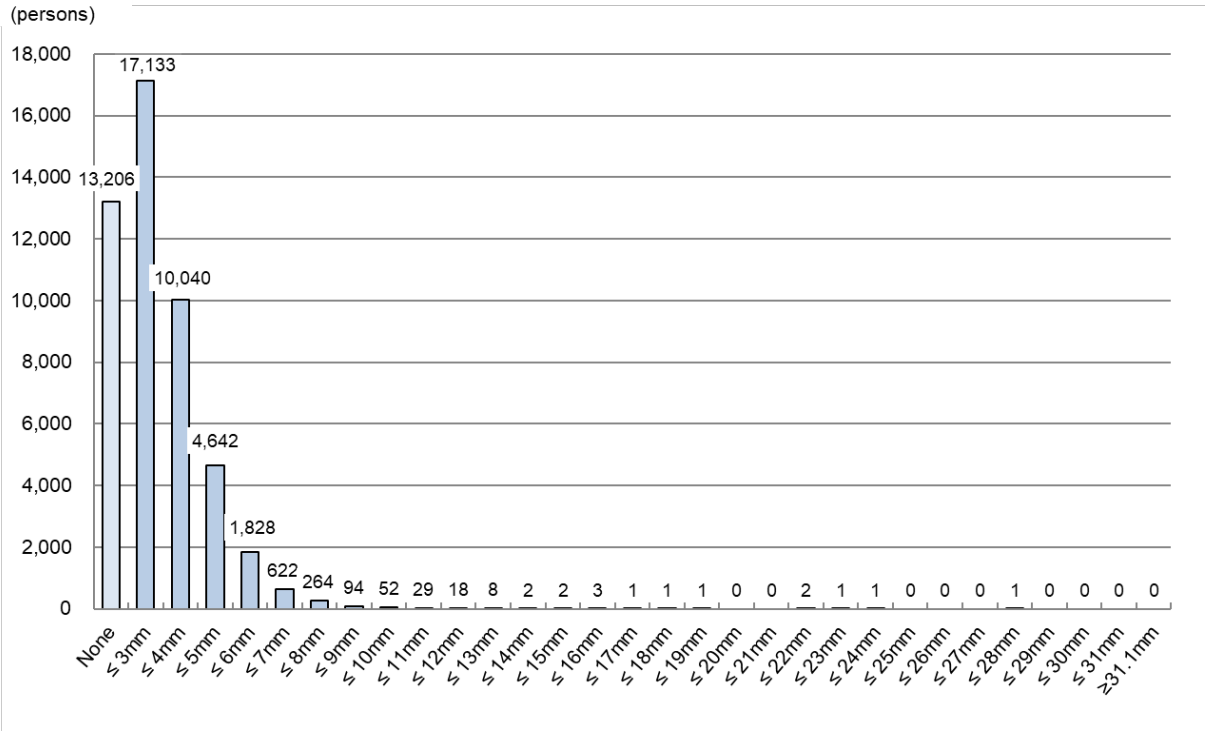
Appendix 4-3: Cyst characteristics

As of September 30, 2024

(persons)

Cyst size	Total	Male	Female	Grade	
None	13,206	6,843	6,363	A1	63.3%
≤ 3.0mm	17,133	9,200	7,933	A2	36.7%
3.1–5.0mm	14,682	6,849	7,833		
5.1–10.0mm	2,860	1,025	1,835		
10.1–15.0mm	59	14	45		
15.1–20.0mm	6	1	5		
20.1–25.0mm	4	1	3	B	0.01%
≥ 25.1mm	1	0	1		
Total	47,951	23,933	24,018		





Appendix 5: Surgical cases for malignant or suspicious for malignancy

For TUE the sixth-round full-scale survey)
Malignant or suspicious for malignancy: 12
(surgical cases: 5, papillary thyroid carcinomas: 5)

Report on the TUE Full-Scale Survey (Survey for Age 25)

As of September 30, 2024

1. Summary

1.1 Eligible Persons

Among Fukushima, residents 18 years old or younger at the time of the disaster (those born between April 2, 1992, and April 1, 2012), those who turn 25 years old during each fiscal year, including those who moved out of Fukushima Prefecture, are invited to receive a thyroid ultrasound examination (TUE).

This report includes the Survey status of those born from FY1992 to FY1998 (those born between April 2, 1992, and April 1, 1999)

1.2 Implementation Period

The Survey for Age 25 (hereinafter “Age 25 Survey”) started in FY2017 for those who turned 25 years old during each fiscal year. Suppose residents are unable to receive the examination in the year they turn 25. In that case, they are entitled to one any time through the fiscal year before the year they turn 30 (see Figure 1 for the implementation schedule of the Age 25 Survey).

Year of exam / Birth year of examinees	FY2017 Age	FY2018 Age	FY2019 Age	FY2020 Age	FY2021 Age	FY2022 Age	FY2023 Age	FY2024 Age
FY1992	25★	26	27	28	29	30★	31	32
FY1993	24	25★	26	27	28	29	30★	31
FY1994	23	24	25★	26	27	28	29	30★
FY1995	22	23	24	25★	26	27	28	29
FY1996	21	22	23	24	25★	26	27	28
FY1997	20	21	22	23	24	25★	26	27
FY1998	19	20	21	22	23	24	25★	26
FY1999	18	19	20	21	22	23	24	25★

・Beginning in FY2017, examinations are offered to those who turn age 25 in each fiscal year.
・Invitations for the examination will be sent to those who turn age 25 in the fiscal year marked with ★.

Figure 1: Implementation schedule for the Age 25 Survey

2. Overview of Age 25 Survey as of September 30, 2024

2.1 Results of the Primary Examination

2.1-1 Implementation status

Primary examinations for the Age 25 Survey started in May 2017 for those who turned 25 years old (those born between FY1992 and FY1998), and 12,867 (8.6%) persons participated. (See Appendix 1 and Appendix 2 for implementation status by areas in Fukushima and outside Fukushima Prefecture, respectively.)

The results for 12,855 (99.9%) participants have been finalized, and individual reports have been sent to them. (See Appendix 3 for details by area.)

Of these, 5,441 (42.3%) had Grade A1 results, 6,704 (52.2%) had Grade A2, 710 (5.5%) 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)									
							Details by grade (%)							
							A				Those referred to confirmatory exam			
							A1		A2		B		C	
	a	b	Participation rate (%) (b/a)	Those who participated outside Fukushima	c	Judgment rate (%) (c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/c)
Born in FY1992	22,650	2,343	(10.3)	770	2,343	(100.0)	980	(41.8)	1,258	(53.7)	105	(4.5)	0	(0.0)
Born in FY1993	21,888	2,348	(10.7)	858	2,348	(100.0)	1,069	(45.5)	1,160	(49.4)	119	(5.1)	0	(0.0)
Born in FY1994	22,093	1,974	(8.9)	757	1,974	(100.0)	832	(42.1)	1,035	(52.4)	107	(5.4)	0	(0.0)
Born in FY1995	21,056	2,068	(9.8)	766	2,066	(99.9)	860	(41.6)	1,077	(52.1)	129	(6.2)	0	(0.0)
Born in FY1996	21,019	1,854	(8.8)	673	1,851	(99.8)	771	(41.7)	962	(52.0)	118	(6.4)	0	(0.0)
Born in FY1997	20,299	1,396	(6.9)	520	1,396	(100.0)	577	(41.3)	739	(52.9)	80	(5.7)	0	(0.0)
Born in FY1998	20,838	884	(4.2)	315	877	(99.2)	352	(40.1)	473	(53.9)	52	(5.9)	0	(0.0)
Total	149,843	12,867	(8.6)	4,659	12,855	(99.9)	5,441	(42.3)	6,704	(52.2)	710	(5.5)	0	(0.0)

Table 2: Numbers and percentages of participants with nodules/cysts (see Appendix 4 for details)

	Participants with finalized results (persons)	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)
Born in FY1992	2,343	104	(4.4)	53	(2.3)	1	(0.0)	1,305	(55.7)
Born in FY1993	2,348	119	(5.1)	42	(1.8)	0	(0.0)	1,209	(51.5)
Born in FY1994	1,974	107	(5.4)	39	(2.0)	0	(0.0)	1,094	(55.4)
Born in FY1995	2,066	127	(6.1)	38	(1.8)	2	(0.1)	1,134	(54.9)
Born in FY1996	1,851	117	(6.3)	37	(2.0)	1	(0.1)	1,012	(54.7)
Born in FY1997	1,396	79	(5.7)	21	(1.5)	1	(0.1)	778	(55.7)
Born in FY1998	877	51	(5.8)	20	(2.3)	1	(0.1)	494	(56.3)
Total	12,855	704	(5.5)	250	(1.9)	6	(0.0)	7,026	(54.7)

・Percentages are rounded to a lower decimal place. This applies to other tables as well.
・The numbers and results of the Age 25 Survey participants are and will be presented by birth year (fiscal year), not by survey year.

2.1-2 Comparison with previous examination results

Table 3 compares the results of the Age 25 Survey and the previous survey.

Among 7,354 participants (sum of *1) with Grade A1 or A2 results in the previous survey, 7,162 (sum of *2, 97.4%) had Grade A1 or A2 results, and 192 (sum of *3, 2.6%) had Grade B results in the Age 25 Survey.

Among 259 participants with Grade B results in the previous survey, 61 (sum of *4, 23.6%) had Grade A (A1 or A2) results, and 198 (76.4%) had Grade B results in the Age 25 Survey.

Table 3: Comparison with the previous Survey results

			Results of the previous survey*	Results of the Age 25 survey**			
				A		B	C
				A1	A2		
			a (%)	b (b/a)	c (c/a)	d (d/a)	e (e/a)
Results of the previous survey	A	A1	2,971 *1 (100.0)	2,403 *2 (80.9)	540 *2 (18.2)	28 *3 (0.9)	0 (0.0)
		A2	4,383 *1 (100.0)	724 *2 (16.5)	3,495 *2 (79.7)	164 *3 (3.7)	0 (0.0)
	B		259 (100.0)	7 *4 (2.7)	54 *4 (20.8)	198 (76.4)	0 (0.0)
	C		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Did not participate		5,242 (100.0)	2,307 (44.0)	2,615 (49.9)	320 (6.1)	0 (0.0)
Total			12,855 (100.0)	5,441 (42.3)	6,704 (52.2)	710 (5.5)	0 (0.0)

* Results of the previous survey, just from the Age 25 Survey participants, with finalized results
** Results of the Age 25 Survey participants diagnosed for each grade in the previous survey. The lower figures are proportions (%).

2.2 Results of the Confirmatory Examination

2.2-1 Implementation status

Of those 710 eligible persons, 592 (83.4%) participated, of whom 575 (97.1%) completed the entire process of the confirmatory examination.

Of the 575 participants, 44 (7.7%) were confirmed to meet Grade A diagnostic criteria by primary examination standards (A1: 5, A2: 39) (including those with other thyroid conditions). The remaining 531 (92.3%) were confirmed to be out of A1/A2 criteria.

Table 4: Progress of the Confirmatory Examinatio

	Those referred to confirmatory exams (persons)	Participants (persons)		Those with finalized results (%)									
			Participation Rate (%)	Judgment rate (%)		A1		A2		Other than A1 or A2		FANC	
	a	b	(b/a)	c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/f)
Those born in FY1992	105	88	(83.8)	85	(96.6)	0	(0.0)	4	(4.7)	81	(95.3)	8	(9.9)
Those born in FY1993	119	104	(87.4)	104	(100.0)	1	(1.0)	9	(8.7)	94	(90.4)	10	(10.6)
Those born in FY1994	107	86	(80.4)	85	(98.8)	2	(2.4)	7	(8.2)	76	(89.4)	7	(9.2)
Those born in FY1995	129	115	(89.1)	111	(96.5)	0	(0.0)	4	(3.6)	107	(96.4)	11	(10.3)
Those born in FY1996	118	103	(87.3)	102	(99.0)	2	(2.0)	7	(6.9)	93	(91.2)	11	(11.8)
Those born in FY1997	80	64	(80.0)	64	(100.0)	0	(0.0)	7	(10.9)	57	(89.1)	4	(7.0)
Those born in FY1998	52	32	(61.5)	24	(75.0)	0	(0.0)	1	(4.2)	23	(95.8)	1	(4.3)
Total	710	592	(83.4)	575	(97.1)	5	(0.9)	39	(6.8)	531	(92.3)	52	(9.8)

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

Among those who underwent FNAC, 25 were classified as malignant or suspicious for malignancy: 4 were male and 21 were female. Participants' age at the time of the confirmatory examination ranged from 24 to 29 years (mean age: 25.6 ± 1.2 years). The minimum and maximum tumor diameters were 5.3 mm and 49.9 mm (mean tumor diameter: 13.7 ± 10.2 mm).

Of these 25 participants, 6 had Grade A results (A1: 1, A2: 5), and 5 had Grade B results in the previous survey. The remaining 14 people did not participate in the previous survey. Of those 5 participants with Grade A2 results, 2 were with nodules and 3 were with cysts

Table 5. Results of FNAC

(The numbers in the parentheses indicate the ranges of mean age and mean tumor size)

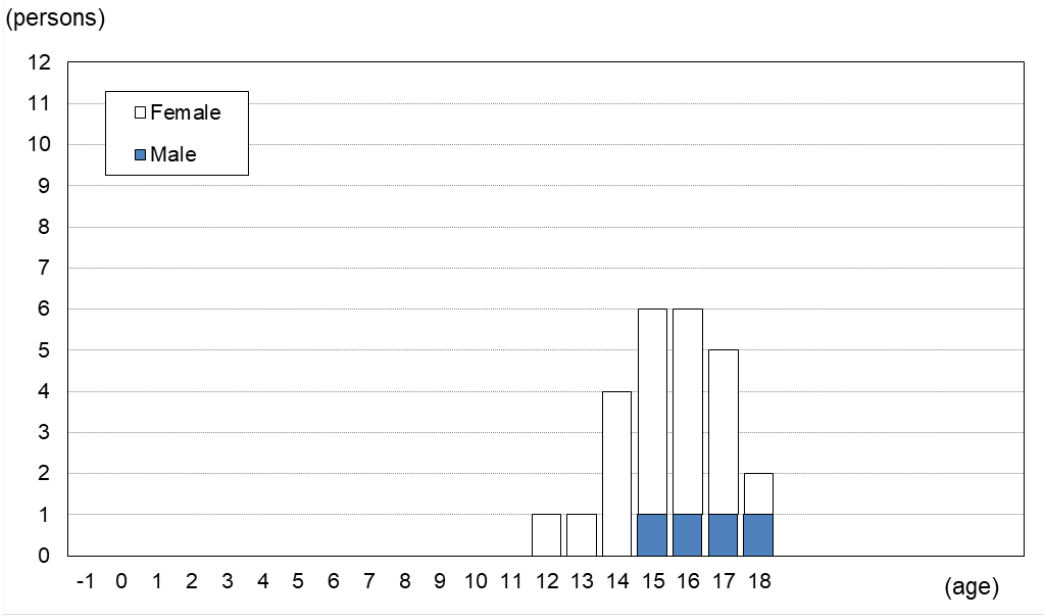
Among those who underwent the Age 25 Survey:

- Malignant or suspicious for malignancy: 25*
- Male to female ratio: 4:21
- Mean age ± SD (min-max): 25.6 ± 1.2 (24–29),
  15.5 ± 1.5 (12–18) at the time of the earthquake
- Mean tumor size ± SD (min-max): 13.7 ± 10.2 mm (5.3–49.9 mm)

*Appendix 5 shows surgery cases.

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

Age distribution of those 25 people with malignant or suspicious nodules based on their age as of March 11, 2011, is per Figure 2, and age distribution based on their age at the time of confirmatory examination is per Figure 3.



*-1 – 10 are not included in the Age 25 Survey for those born between FY1992 and FY1998.
Age -1 covers those born between April 2, 2011, and April 1, 2012.
Those who were born between March 12, 2011, and April 1, 2011, are included as age 0.

Figure 2: Age as of March 11, 2011

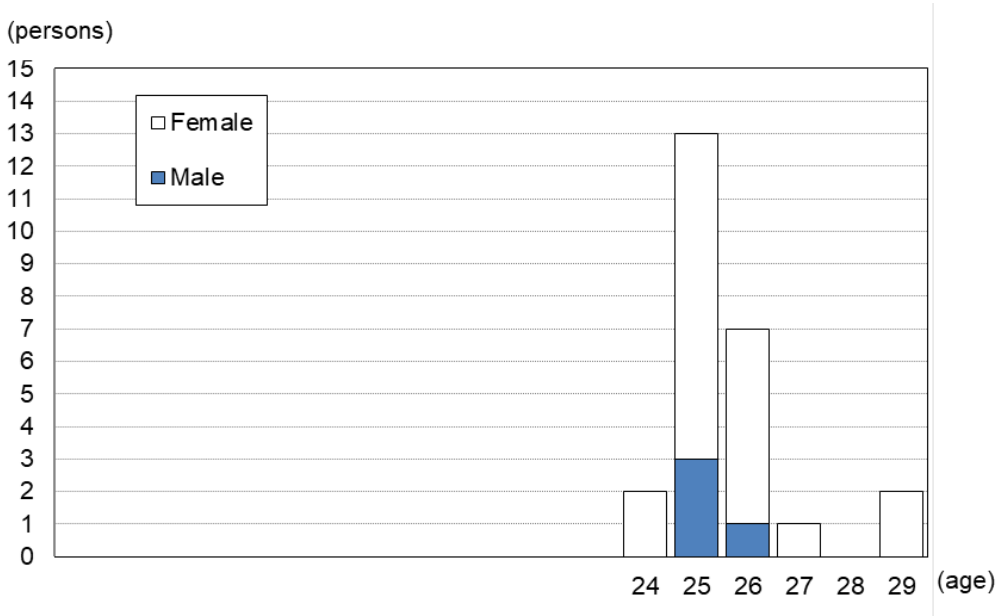


Figure 3: Age at the time of confirmatory examination

2.2-4 Basic Survey results of those with malignant or suspicious nodules by FNAC

Of the 25 people with malignant or suspicious nodules, 15 (60.0%) had participated in the Basic Survey (for external radiation dose estimation), and all 15 received their results. The highest effective dose documented was 1.9 mSv.

Table 6: A breakdown of dose estimates for Basic Survey participants

Effective dose (mSv)	Age at the time of the disaster									
	0-5		6-10		11-15		16-18		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
< 1	0	0	0	0	0	5	1	4	1	9
< 2	0	0	0	0	1	2	1	1	2	3
< 5	0	0	0	0	0	0	0	0	0	0
< 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
Total	0	0	0	0	1	7	2	5	3	12

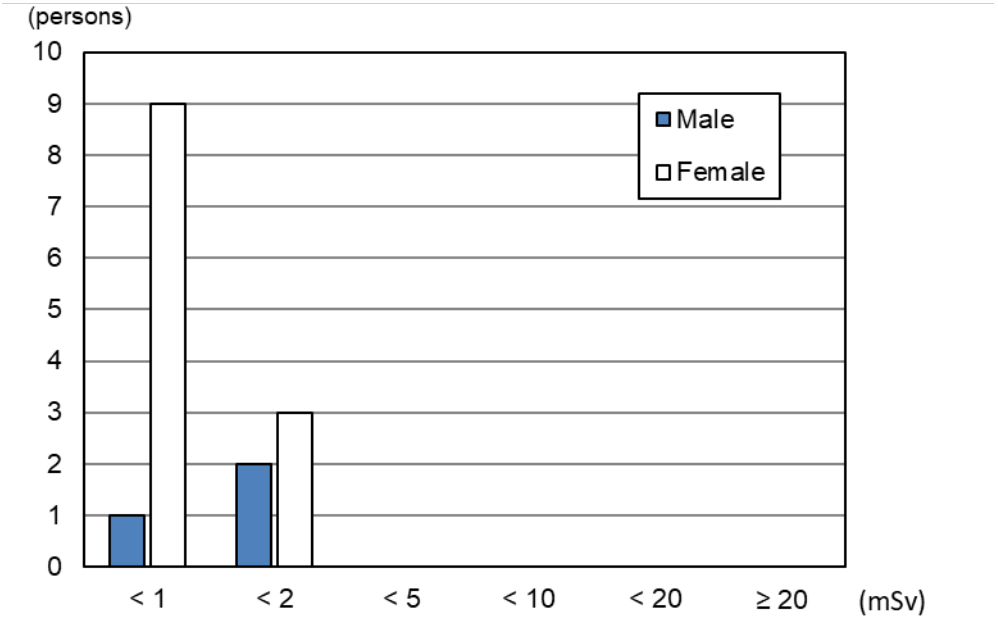


Figure 4: Effective doses of the Basic Survey participants

2.2-5 Blood and urinary iodine test results

Table 7: 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 : 25	1.2 ± 0.1 (4.0%)	3.3 ± 0.4 (8.0%)	1.6 ± 1.5 (20.0%)	35.5±36.4 (40.0%)	16.0%	16.0%
Other : 525	1.2 ± 0.2 (6.5%)	3.3 ± 0.4 (7.6%)	1.2 ± 0.7 (6.9%)	74.1±565.2 (20.4%)	11.2%	10.1%

Table 8: Urinary iodine test results [8]

(μg/day)

	Minimum	25th percentile	Median	75th percentile	Maximum
Malignant or suspicious : 24	65	101	171	280	953
Other : 497	29	120	184	340	11,060

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 interval varies according to age.
8) Urinary iodine tests have not been carried out since March 8, 2024. (details as follows)

Temporary suspension of urine tests
The reagents have been unavailable since March 2024. This has affected the suspension of the relevant urine tests.

1 Reason:
The manufacturer and distributor of the test reagent were found to be failed to comply with the procedures stipulated in the "Act on Securing Quality, Efficacy, and Safety of Products Including Pharmaceuticals and Medical Devices" (Pharmaceutical and Medical Device Act), and the product could no longer be used due to non-compliance with the law.

2 Date of suspension:
Effective March 8, 2024

3 Mental Health Care

3.1 Support for Primary Examination Participants

Since April 2017, medical doctors have offered person-to-person explanations of examination results, showing ultrasound images in private consultation booths at examination venues in public facilities. As of September 30, 2024, of those 1,177 participants, 1,176 (99.9%) visited these consultation booths.

3.2 Support for Confirmatory Examination Participants

A support team has been set up within Fukushima Medical University to offer psychological support to address the anxieties and concerns of confirmatory examination participants during the examination. The team also answers questions and offers counseling via our website.

Since the start of the Age 25 survey, 152 participants (32 males and 120 females) have received support as of September 30, 2024. The number of support sessions provided was 290 in total. Of these, 152 sessions (52.4%) were offered at the participants' first examination and 138 (47.6%) at subsequent examinations.

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

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Appendix 1：Implementation status of the Primary Survey by area

As of September 30, 2024

	Eligible persons	Participants (persons)		Participation rate (%)	Participants living outside the prefecture (persons)	Proportion of participants living outside the prefecture (%)
			Those who participated outside Fukushima [1]			
	a	b		b/a	c[2]	c/b
Number of eligible persons for Age 25 Survey (Those born in from FY1992 to FY1998)						
13 municipalities[3]	19,936	1,775	674	8.9	662	37.3
Nakadori[4]	79,762	7,013	2,499	8.8	2,225	31.7
Hamadori[5]	28,895	2,837	1,045	9.8	959	33.8
Aizu[6]	21,250	1,242	441	5.8	412	33.2
Total	149,843	12,867	4,659	8.6	4,258	33.1

1) The number of those who received examinations at medical facilities outside the prefecture (as of August 31, 2024)
2) The number of those whose place of residence is outside the prefecture
3) 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
4) 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
5) Iwaki City, Soma City, Shinchi Town
6) 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 2: Implementation status by prefecture

As of August 31, 2024

Prefecture	No. of medical facilities	Participants (persons)
Hokkaido	7	76
Aomori	3	20
Iwate	4	61
Miyagi	2	494
Akita	1	18
Yamagata	3	59
Ibaraki	5	220
Tochigi	9	223
Gunma	2	50
Saitama	4	282
Chiba	5	224
Tokyo	23	1,971
Kanagawa	7	437
Niigata	3	81
Toyama	2	8
Ishikawa	1	6

Prefecture	No. of medical facilities	Participants (persons)
Fukui	1	4
Yamanashi	2	13
Nagano	4	28
Gifu	2	6
Shizuoka	3	46
Aichi	6	80
Mie	1	4
Shiga	1	9
Kyoto	3	34
Osaka	10	72
Hyogo	3	34
Nara	3	3
Wakayama	1	6
Tottori	1	3
Shimane	1	1
Okayama	3	9

Prefecture	No. of medical facilities	Participants (persons)
Hiroshima	2	17
Yamaguchi	1	2
Tokushima	1	3
Kagawa	1	2
Ehime	3	3
Kochi	2	2
Fukuoka	4	24
Saga	1	1
Nagasaki	3	2
Kumamoto	1	6
Oita	1	3
Miyazaki	1	3
Kagoshima	2	2
Okinawa	1	7
Total	150	4,659

The number of those who received examinations at medical facilities outside Fukushima prefecture

Appendix 3: Primary Survey results by area

As of September 30, 2024

	Number of participants (persons)	Those with finalized results (persons)	Number of participants by final result (persons) Details by grade (%)				Those with nodules (persons) (%)		Those with cysts (persons) (%)	
	a	b b/a (%)	A		B	C	≥ 5.1mm	≤ 5.0mm	≥ 20.1mm	≤ 20.0mm
			A1	A2						
Number of eligible persons for Age 25 Survey (Those born in from FY1992 to FY1998)										
13 municipalities 1)	1,775	1,774	765	911	98	0	97	32	1	954
		99.9	43.1	51.4	5.5	0.0	5.5	1.8	0.1	53.8
Nakadori 2)	7,013	7,003	2,959	3,675	369	0	367	135	2	3,849
		99.9	42.3	52.5	5.3	0.0	5.2	1.9	0.0	55.0
Hamadorl 3)	2,837	2,837	1,218	1,464	155	0	154	53	1	1,524
		100.0	42.9	51.6	5.5	0.0	5.4	1.9	0.0	53.7
Aizu 4)	1,242	1,241	499	654	88	0	86	30	2	699
		99.9	40.2	52.7	7.1	0.0	6.9	2.4	0.2	56.3
Total	12,867	12,855	5,441	6,704	710	0	704	250	6	7,026
		99.9	42.3	52.2	5.5	0.0	5.5	1.9	0.0	54.7

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

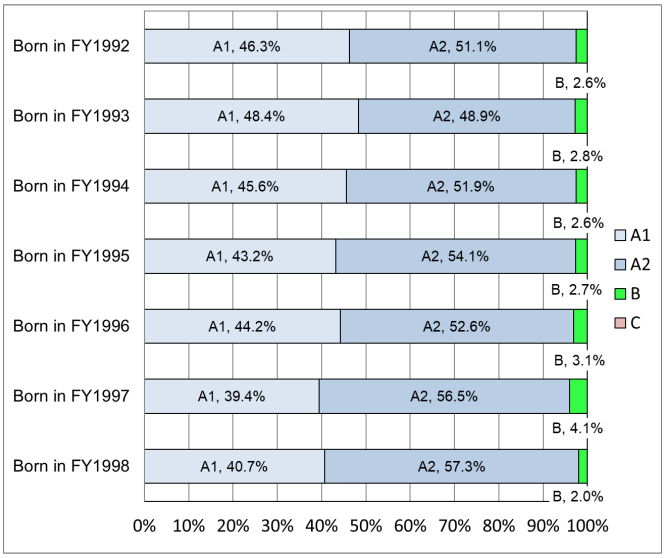
Appendix 4-1: Summary for participants with finalized results, by gender

As of September 30, 2024

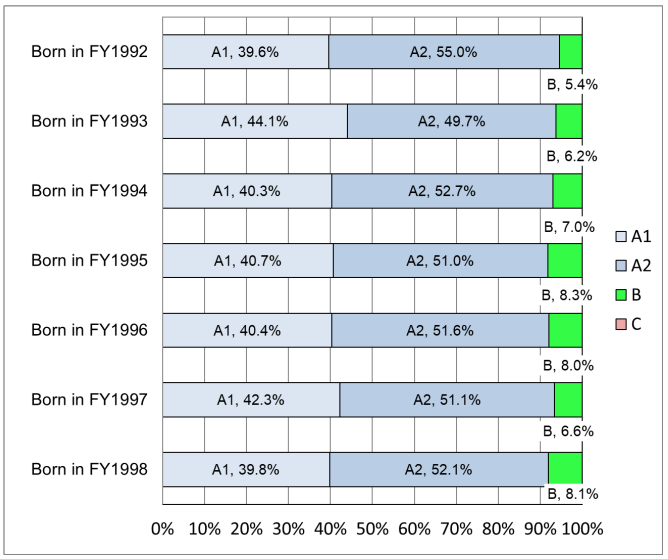
(persons)

Grade / Gender / Participants	A						B			C			Total		
	A1			A2											
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Those born in FY1992	360	620	980	397	861	1,258	20	85	105	0	0	0	777	1,566	2,343
Those born in FY1993	383	686	1,069	387	773	1,160	22	97	119	0	0	0	792	1,556	2,348
Those born in FY1994	318	514	832	362	673	1,035	18	89	107	0	0	0	698	1,276	1,974
Those born in FY1995	322	538	860	403	674	1,077	20	109	129	0	0	0	745	1,321	2,066
Those born in FY1996	269	502	771	320	642	962	19	99	118	0	0	0	608	1,243	1,851
Those born in FY1997	185	392	577	265	474	739	19	61	80	0	0	0	469	927	1,396
Those born in FY1998	125	227	352	176	297	473	6	46	52	0	0	0	307	570	877
Total	1,962	3,479	5,441	2,310	4,394	6,704	124	586	710	0	0	0	4,396	8,459	12,855

Examination results by age group (Male)



Examination results by age group (Female)

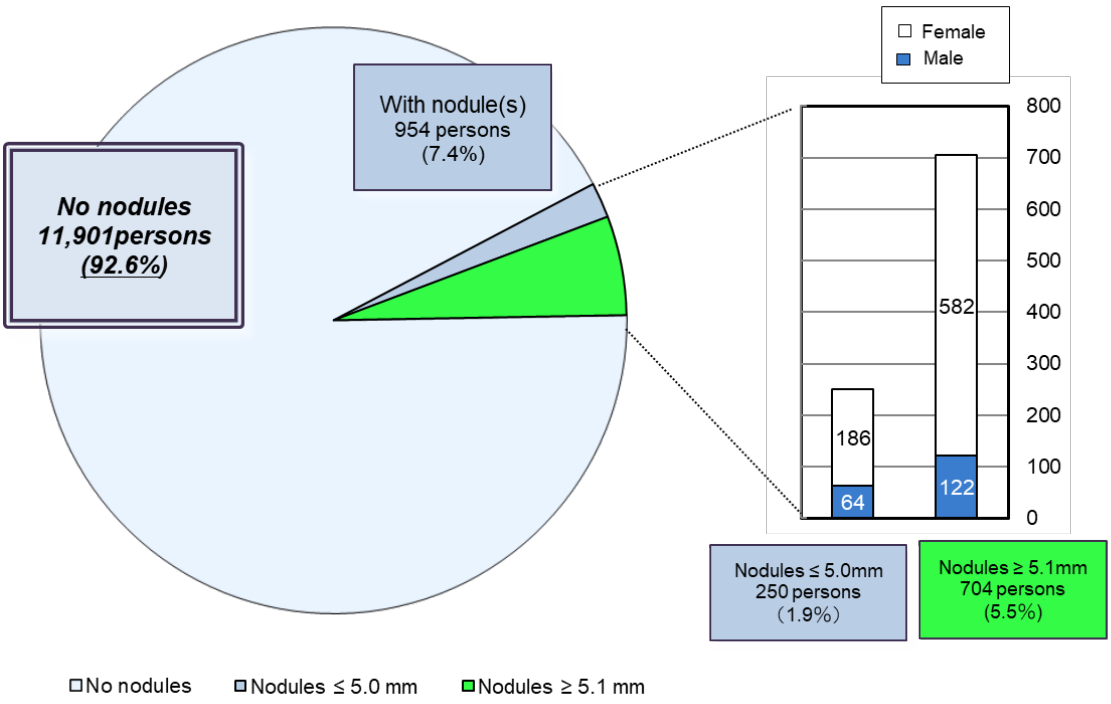


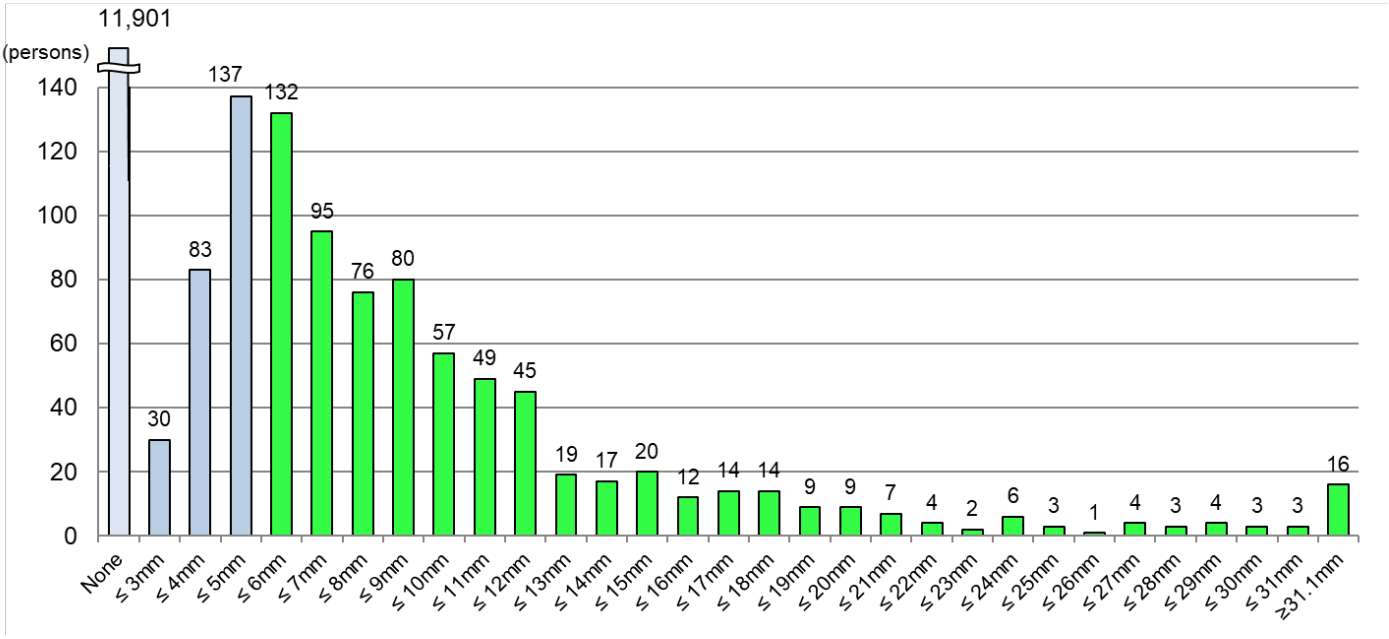
Appendix 4-2:Nodule characteristics

As of September 30, 2024

(persons)

Nodule size	Total	Male	Female	Grade	
None	11,901	4,210	7,691	A1	92.6%
≤ 3.0mm	30	8	22	A2	1.9%
3.1–5.0mm	220	56	164		
5.1–10.0mm	440	79	361	B	5.5%
10.1–15.0mm	150	30	120		
15.1–20.0mm	58	7	51		
20.1–25.0mm	22	3	19		
≥ 25.1mm	34	3	31		
Total	12,855	4,396	8,459		



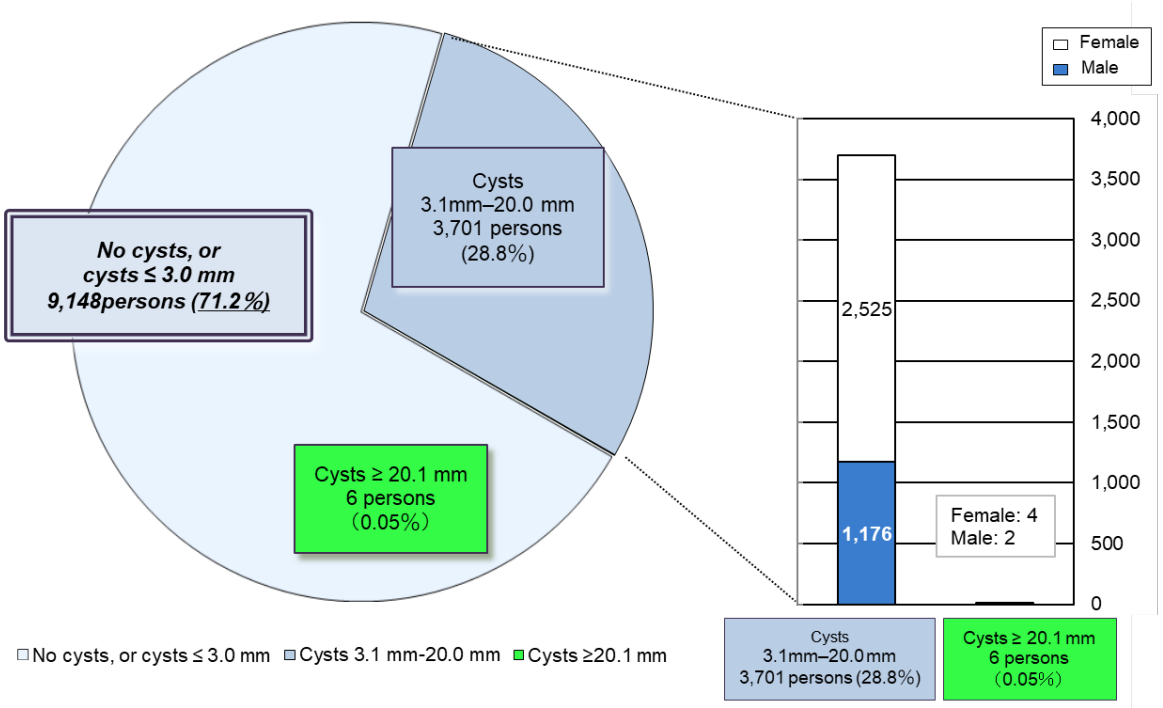


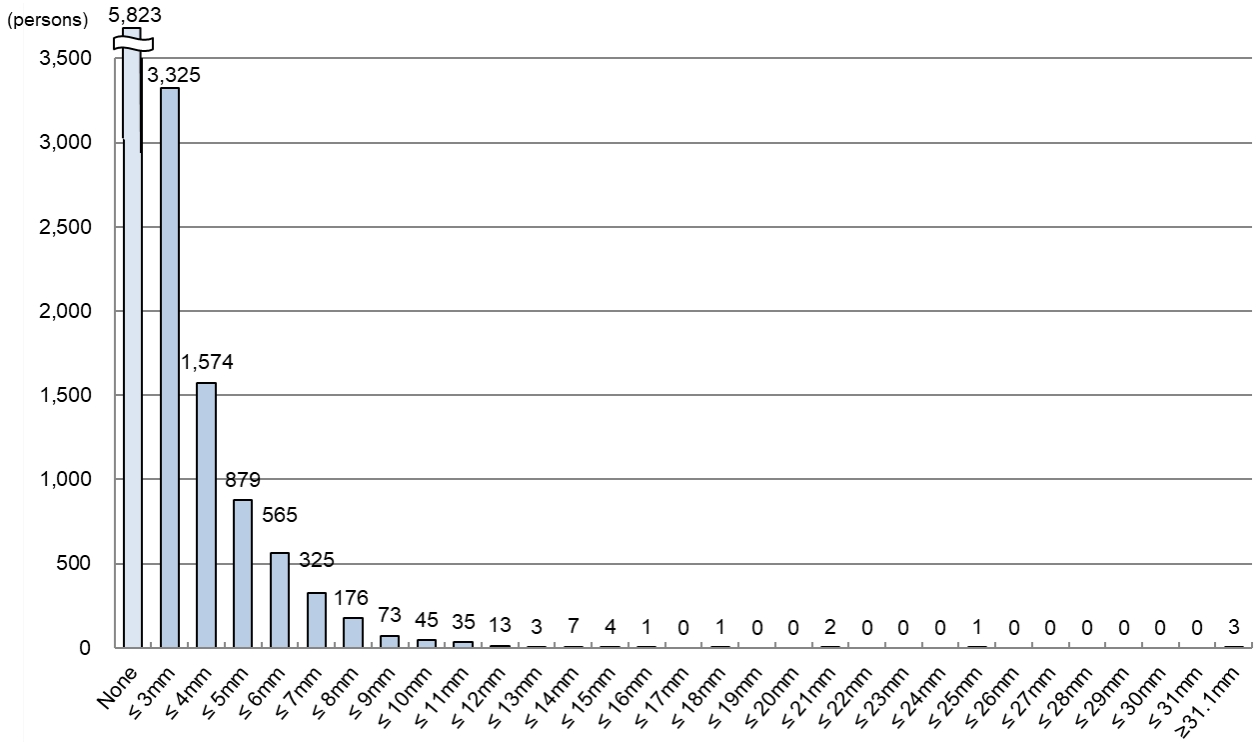
Appendix 4-3 : Cyst characteristics

As of September 30, 2024

(persons)

Cyst size	Total	Male	Female	Grade	
None	5,823	2,042	3,781	A1	71.2%
≤ 3.0mm	3,325	1,176	2,149	A2	28.8%
3.1–5.0mm	2,453	833	1,620		
5.1–10.0mm	1,184	331	853		
10.1–15.0mm	62	11	51		
15.1–20.0mm	2	1	1		
20.1–25.0mm	3	0	3	B	0.05%
≥ 25.1mm	3	2	1		
Total	12,855	4,396	8,459		





Appendix 5 Surgery cases for malignancy or suspicion of malignancy

Among those who underwent the Age 25 Survey:

- Malignant or suspicious for malignancy 25
  - Surgical cases 18
    - Papillary thyroid carcinomas 17
    - Follicular thyroid carcinomas 1

Report on the TUE Full-Scale Survey (Survey for Age 30)

As of September 30, 2024

1. Summary

1.1 Eligible Persons

Among Fukushima residents 18 years old or younger at the time of the disaster (those born between April 2, 1992, and April 1, 2012), those who turn 30 years old during each fiscal year are invited to receive a thyroid ultrasound examination (TUE).

This report summarizes the results for those born in FY1992 and FY1993 (born between April 2, 1992 and April 1, 1994).

1.2 Implementation Period

The Survey for Age 30 (hereinafter “Age 30 Survey”) started in FY2022 for those who turn 30 years old during each fiscal year. Suppose residents cannot receive the examination in the year when they turn 30. In that case, they are entitled to one any time through the fiscal year before the year they turn 35 (see Figure 1 for the implementation schedule of the Age 30 Survey).

Year of exam / Birth year of examinees	FY2022 Age	FY2023 Age	FY2024 Age	FY2025 Age	FY2026 Age	FY2027 Age	FY2028 Age
FY1992	30★	31	32	33	34	35★	36
FY1993	29	30★	31	32	33	34	35★
FY1994	28	29	30★	31	32	33	34

・The examinations are offered to those who turn 30 years old in each fiscal year.
・Invitations for the examination will be sent to those who turn age 30 in the fiscal year marked with ★.

Figure 1: Implementation Schedule for the Age 30 Survey

2. Overview of Age 30 Survey as of September 30, 2024

2.1 Results of the Primary Examination

2.1-1 Implementation status

Primary examinations for the Age 30 Survey started in April 2022 for those who turned 30 years old (those born in FY1992 and FY1993), of whom 2,996 (6.7%) people participated. (See Appendix 1 and Appendix 2 for implementation status by area and implementation status outside Fukushima Prefecture, respectively.)

The results for 2,971 (99.2%) participants have been finalized, and individual reports have been sent to them. (See Appendix 3 for The Survey results by area.)

Of these, 1,271 (42.8%) had Grade A1 results, 1,432 (48.2%) had Grade A2, 268 (9.0%) 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)									
							Details by grade (%)							
			Participation rate (%)	Those who participated outside Fukushima		Judgment rate (%)	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)
Born in FY1992	22,625	1,616	(7.1)	602	1,615	(99.9)	717	(44.4)	754	(46.7)	144	(8.9)	0	(0.0)
Born in FY1993	21,864	1,380	(6.3)	545	1,356	(98.3)	554	(40.9)	678	(50.0)	124	(9.1)	0	(0.0)
Total	44,489	2,996	(6.7)	1,147	2,971	(99.2)	1,271	(42.8)	1,432	(48.2)	268	(9.0)	0	(0.0)

Table 2 Number and percentage of participants with nodules/cysts (see Appendix 4 for details)

	Participants with finalized results (persons)	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)
Born in FY1992	1,615	143	(8.9)	63	(3.9)	1	(0.1)	822	(50.9)
Born in FY1993	1,356	124	(9.1)	56	(4.1)	0	(0.0)	713	(52.6)
Total	2,971	267	(9.0)	119	(4.0)	1	(0.0)	1,535	(51.7)

・Percentages are rounded to a lower decimal place. This applies to other tables as well.
・The number and results of the Age 30 Survey participants are, and will be, presented by birth year (fiscal year), not by survey year.

2.1-2 Comparison with previous examination results

Table 3 compares the results of the Age 30 Survey and the Age 25 Survey.

Among 1,636 participants (sum of *1) with Grade A1 or A2 results in the Age 25 Survey, 1,554 (sum of *2, 95.0%) had Grade A1 or A2 results, and 82 (sum of *3, 5.0%) had Grade B results in the Age 30 Survey.

Among 88 participants with Grade B results in the Age 25 survey, 18 (sum of *4, 20.5%) had Grade A (A1 or A2) results, and 70 (79.5%) had Grade B results in the Age 30 Survey.

Table 3: Comparison with the Age 25 Survey results

			Results of the Age 25 survey*	Results of the Age 30 survey**			
				A			
				A1	A2	B	C
			a (%)	b (b/a)	c (c/a)	d (d/a)	e (e/a)
Results of the Age 25 survey	A	A1	683 *1 (100.0)	539 *2 (78.9)	126 *2 (18.4)	18 *3 (2.6)	0 (0.0)
		A2	953 *1 (100.0)	175 *2 (18.4)	714 *2 (74.9)	64 *3 (6.7)	0 (0.0)
	B		88 (100.0)	4 *4 (4.5)	14 *4 (15.9)	70 (79.5)	0 (0.0)
	C		0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	Did not participate		1,247 (100.0)	553 (44.3)	578 (46.4)	116 (9.3)	0 (0.0)
Total			2,971 (100.0)	1,271 (42.8)	1,432 (48.2)	268 (9.0)	0 (0.0)

* Results of the Age 25 Survey participants with finalized results.

** Results of the Age 30 Survey participants diagnosed for each grade in the Age 25 Survey. The lower figures are their proportion (%).

2.2 Results of the Confirmatory Examination

2.2-1 Implementation status

Of 268 eligible persons, 192 (71.6%) participated, of whom 162 (84.4%) completed the entire process of the confirmatory examination.

Of the aforementioned 162 participants, 11 (6.8%) were confirmed to meet Grade A diagnostic criteria by primary examination standards (A1:1, A2:10) (including those with other thyroid conditions). The remaining 151 (93.2%) were confirmed to be out of A1/A2 criteria.

Table 4: Progress of the Confirmatory Examination

	Those referred to confirmatory exams (persons)	Participants (persons)		Those with finalized results (%)									
			Participation Rate (%)		Judgment rate (%)	A1		A2		Other than A1 or A2			
												FANC	
	a	b	(b/a)	c	(c/b)	d	(d/c)	e	(e/c)	f	(f/c)	g	(g/f)
Those born in FY1992	144	122	(84.7)	116	(95.1)	1	(0.9)	7	(6.0)	108	(93.1)	17	(15.7)
Those born in FY1993	124	70	(56.5)	46	(65.7)	0	(0.0)	3	(6.5)	43	(93.5)	1	(2.3)
Total	268	192	(71.6)	162	(84.4)	1	(0.6)	10	(6.2)	151	(93.2)	18	(11.9)

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

Among those who underwent FNAC, 7 participants (all female) were classified as malignant or suspicious for malignancy. Participants' age at the time of the confirmatory examination ranged from 29 to 30 years (mean age: 29.9 ± 0.4 years), and the minimum and maximum tumor diameters were 9.8 mm and 19.0 mm (mean tumor diameter: 13.1 ± 4.0 mm).
Of these 7 participants, 3 had a Grade A result (A1:1, A2:2), 1 had a Grade B result in the Age 25 Survey, and 3 of them did not participate in the Age 25 Survey. For 2 participants with A2 were with cyst criteria.

Table 5. Results of FNAC

(The numbers in the parentheses indicate the ranges of mean age and mean tumor size.)

Among those who underwent the Age 30 Survey:
- Malignant or suspicious for malignancy: 7*
- Male to female ratio: 0:7
- Mean age ± SD (min-max): 29.9 ± 0.4 (29–30),
  17.7 ± 0.8 (16–18) at the time of the earthquake
- Mean tumor size ± SD (min-max): 13.1 ± 4.0 mm (9.8–19.0 mm)

*Appendix 5 shows surgery cases.

3 Mental Health Care

3.1 Support for Primary Examination Participants

At examination venues, we set up consultation booths where our medical doctors offer consultation and explain examination results using ultrasonographic images. As of September 30, 2024, all 352 (100%) examinees have visited the booths.

3.2 Support for Confirmatory Examination Participants

A support team has been set up within Fukushima Medical University to offer psychological support to address the anxieties and concerns of confirmatory examination participants during the examination. The team also answers questions and offers counseling via our website.

Since the start of the Age 30 Survey, 55 participants (12 males and 43 females) have received support as of September 30, 2024. The number of support sessions provided was 103 in total. Of these, 55 sessions (53.4%) were offered at the participants' first examination, and 48 (46.6%) at subsequent examinations.

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

Appendix 1: Implementation status of the Primary Survey, by area

As of September 30, 2024

	Eligible persons	Participants (persons)		Participation rate (%)	Participants living outside the prefecture (persons)	Proportion of participants living outside the prefecture (%)
			Those who participated outside Fukushima [1]			
	a	b		b/a	c[2]	c/b
Number of eligible persons for Age 30 Survey (Those born in FY1992 and FY1993)						
13 municipalities[3]	5,986	431	154	7.2	153	35.5
Nakadori[4]	23,629	1,681	632	7.1	614	36.5
Hamadori[5]	8,481	587	247	6.9	252	42.9
Aizu[6]	6,393	297	114	4.6	112	37.7
Total	44,489	2,996	1,147	6.7	1,131	37.8

1) The number of those who received examinations at medical facilities outside the prefecture (as of August 31, 2024)
2) The number of those whose place of residence is outside the prefecture
3) 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
4) 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
5) Iwaki City, Soma City, Shinchi Town
6) 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 2: Implementation status of the Survey, by prefecture

As of August 31, 2024

Prefecture	No. of medical facilities	Participants (persons)	Prefecture	No. of medical facilities	Participants (persons)	Prefecture	No. of medical facilities	Participants (persons)
Hokkaido	7	**14**	Fukui	1	**1**	Hiroshima	2	**2**
Aomori	3	**8**	Yamanashi	2	**4**	Yamaguchi	1	**1**
Iwate	4	**9**	Nagano	4	**11**	Tokushima	1	**1**
Miyagi	2	**122**	Gifu	2	**1**	Kagawa	1	**1**
Akita	1	**4**	Shizuoka	3	**4**	Ehime	3	**1**
Yamagata	3	**18**	Aichi	6	**23**	Kochi	2	**1**
Ibaraki	5	**67**	Mie	1	**1**	Fukuoka	4	**5**
Tochigi	9	**51**	Shiga	1	**2**	Saga	1	**3**
Gunma	2	**19**	Kyoto	3	**7**	Nagasaki	3	**1**
Saitama	4	**77**	Osaka	10	**24**	Kumamoto	1	**2**
Chiba	5	**40**	Hyogo	3	**4**	Oita	1	**0**
Tokyo	23	**505**	Nara	3	**2**	Miyazaki	1	**1**
Kanagawa	7	**88**	Wakayama	1	**1**	Kagoshima	2	**0**
Niigata	3	**11**	Tottori	1	**2**	Okinawa	1	**2**
Toyama	2	**0**	Shimane	1	**0**			
Ishikawa	1	**1**	Okayama	3	**5**	Total	150	**1,147**

・The number of those who received examinations at medical facilities outside Fukushima prefecture

Appendix 3: Primary Survey results, by area

As of September 30, 2024

	Number of participants (persons)	Those with finalized results (persons)	Number of participants by final result (persons) Details by grade (%)				Those with nodules (persons) (%)		Those with cysts (persons) (%)	
	a	b	A		B	C	≥ 5.1mm	≤ 5.0mm	≥ 20.1mm	≤ 20.0mm
		b/a (%)	A1	A2						
Number of eligible persons (Those born in FY1992 and FY1993)										
13 municipalities 1)	431	428	202	186	40	0	40	15	0	207
		99.3	47.2	43.5	9.3	0.0	9.3	3.5	0.0	48.4
Nakadori 2)	1,681	1,666	683	828	155	0	154	74	1	890
		99.1	41.0	49.7	9.3	0.0	9.2	4.4	0.1	53.4
Hamadori 3)	587	582	262	269	51	0	51	21	0	282
		99.1	45.0	46.2	8.8	0.0	8.8	3.6	0.0	48.5
Aizu 4)	297	295	124	149	22	0	22	9	0	156
		99.3	42.0	50.5	7.5	0.0	7.5	3.1	0.0	52.9
Total	2,996	2,971	1,271	1,432	268	0	267	119	1	1,535
		99.2	42.8	48.2	9.0	0.0	9.0	4.0	0.0	51.7

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

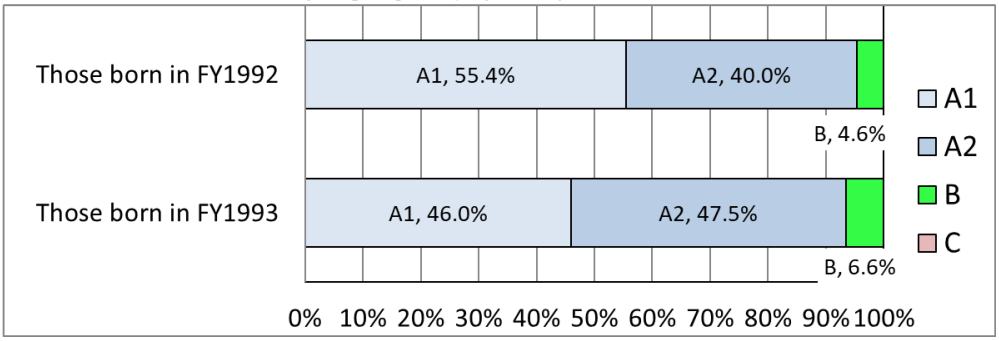
Appendix 4-1: Summary for participants with finalized results, by gender

As of September 30, 2024

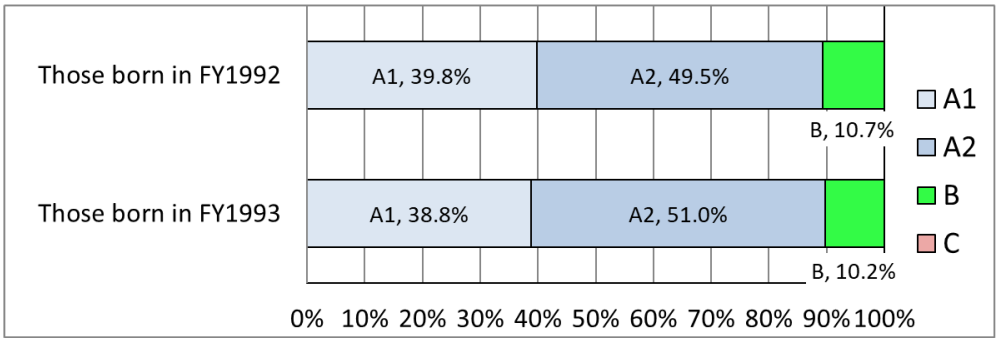
(persons)

Grade / Gender / Participants	A						B			C			Total		
	A1			A2											
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Those born in FY1992	265	452	717	191	563	754	22	122	144	0	0	0	478	1,137	1,615
Those born in FY1993	182	372	554	188	490	678	26	98	124	0	0	0	396	960	1,356
Total	447	824	1,271	379	1,053	1,432	48	220	268	0	0	0	874	2,097	2,971

Examination results by age group (Male)



Examination results by age group (Female)

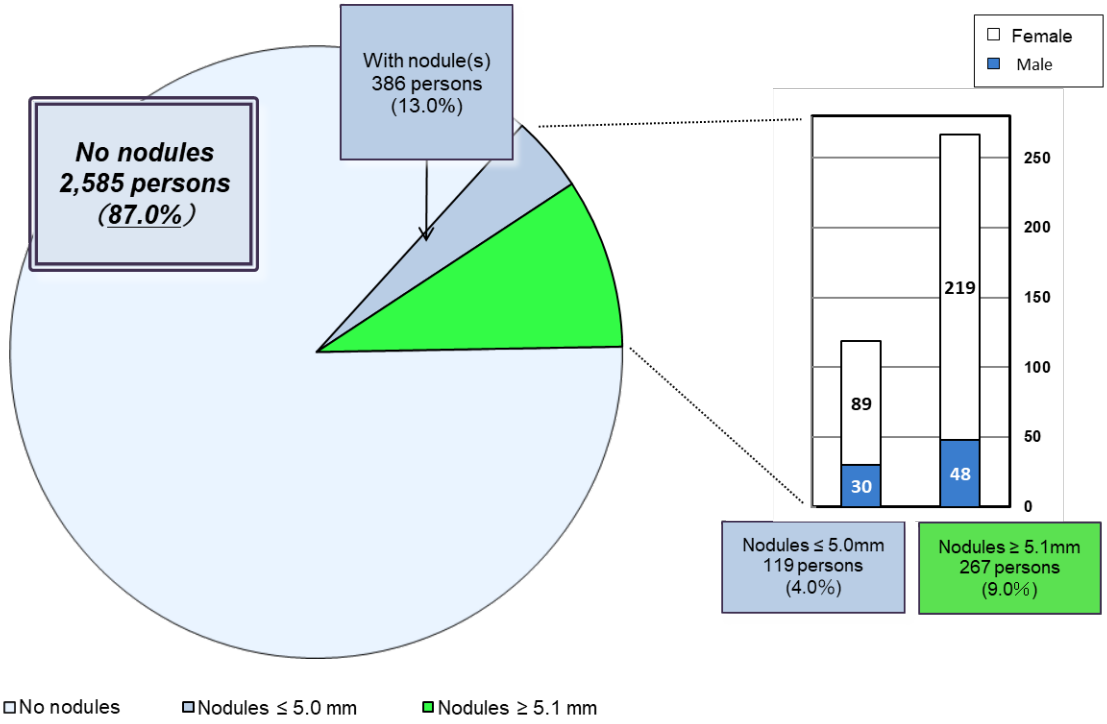


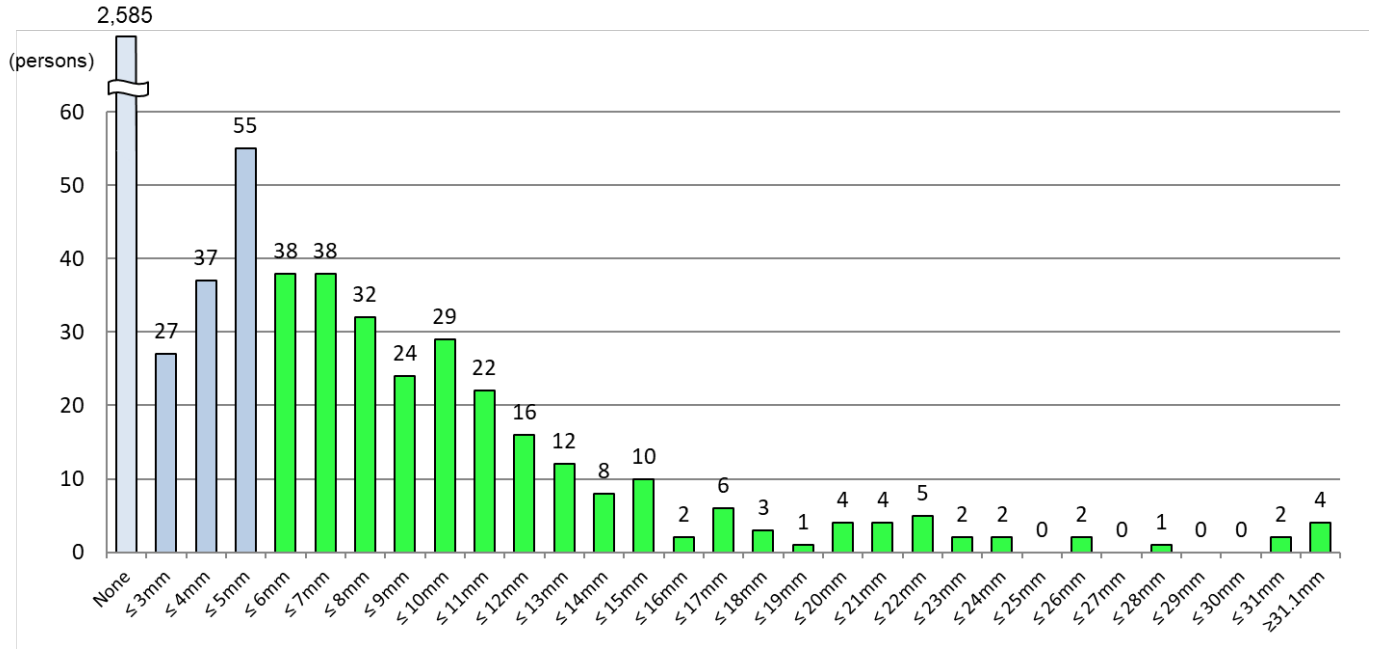
Appendix 4.2: Nodule characteristics

As of September 30, 2024

(persons)

Nodule size	Total	Male	Female	Grade	
None	2,585	796	1,789	A1	87.0%
≤ 3.0mm	27	7	20	A2	4.0%
3.1–5.0mm	92	23	69		
5.1–10.0mm	161	33	128	B	9.0%
10.1–15.0mm	68	7	61		
15.1–20.0mm	16	4	12		
20.1–25.0mm	13	1	12		
≥ 25.1mm	9	3	6		
Total	2,971	874	2,097		



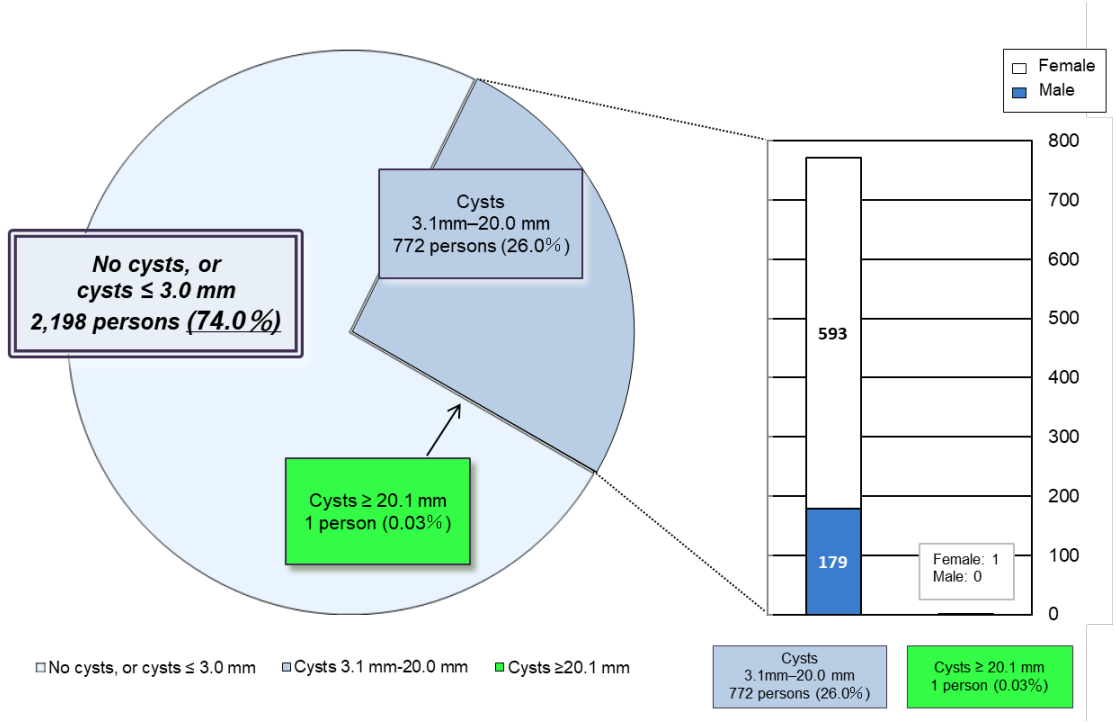


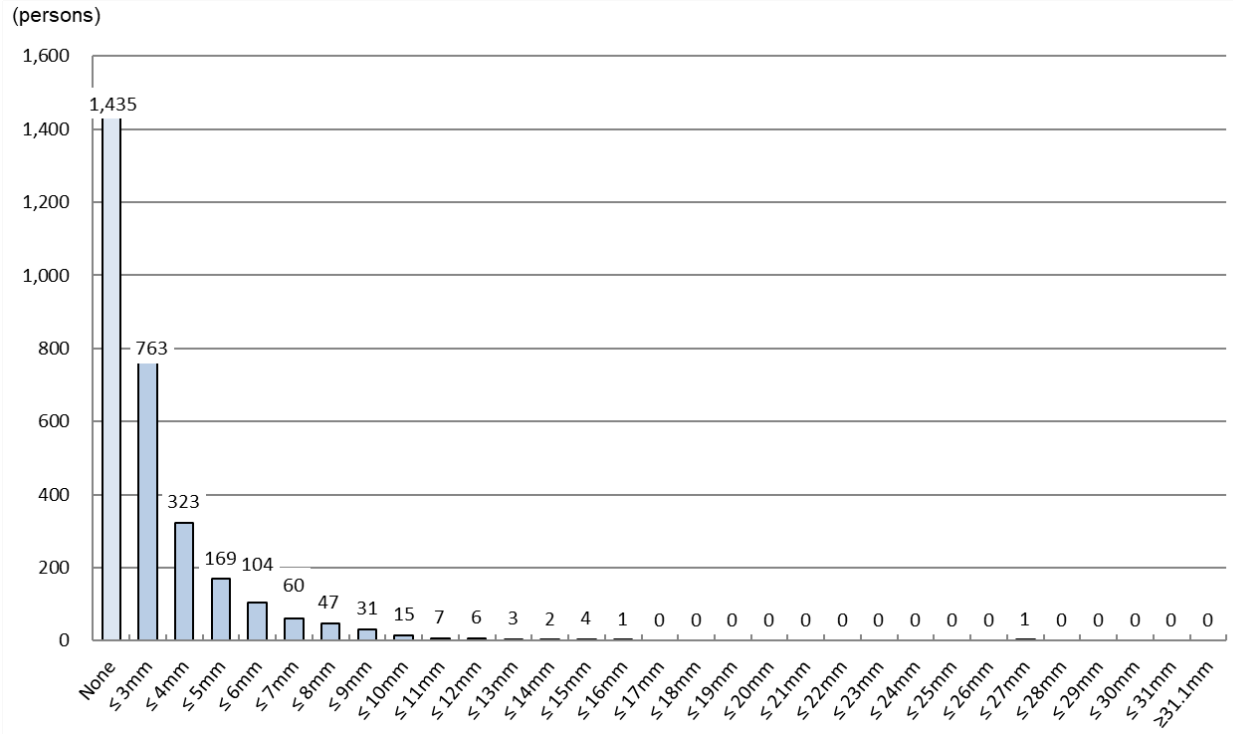
Appendix 4.3: Cyst characteristics

As of September 30, 2024

(persons)

Cyst size	Total	Male	Female	Grade	
None	1,435	484	951	A1	74.0%
≤ 3.0mm	763	211	552	A2	26.0%
3.1–5.0mm	492	123	369		
5.1–10.0mm	257	55	202		
10.1–15.0mm	22	1	21		
15.1–20.0mm	1	0	1		
20.1–25.0mm	0	0	0	B	0.03%
≥ 25.1mm	1	0	1		
Total	2,971	874	2,097		





Appendix 5: Surgical cases for malignancy or suspicion of malignancy

Among those who underwent the Age 30 Survey:

- Malignant or suspicious for malignancy 7
  - Surgical cases 4
  - Papillary thyroid carcinomas 4

Progress on the Thyroid Ultrasound Examination at Schools

February 5, 2025
Citizens Healthcare Survey Division
Fukushima Prefecture

1 Thyroid Ultrasound Examination at Schools

See Reference 1 of this document.
Thyroid Ultrasound Examination at Schools

2 Progress of Discussions in the Oversight Committee

2.1 Results of a Survey on the Current Status of Thyroid Examination at Schools
See Reference 2 of this document
Results of a Survey on the Current Status of Thyroid Examination at Schools

2.2 Interviews with Thyroid Ultrasound Examination eligible persons and related parties
See Reference 3 of this document
Results of Interviews with Eligible Students and Related Parties about
The Thyroid Ultrasound Examination

3 Guidance Flow for Thyroid Ultrasound Examination at Schools

See Reference 4 Flow Chart of this document

Thyroid Ultrasound Examination at Schools

○ Background of the start of the examination at schools

During the preliminary examination phase conducted throughout the prefecture, municipalities expressed their intention to offer examinations at schools to ensure that those who wish to be examined have an equal opportunity to take the examination, to address the issue of traveling to examination venues, and to reduce the burden on parents and guardians.

Additionally, municipal boards of education requested that the examination be conducted at schools, citing the impact on classes if a large number of students had to take time off from school to undergo the examination. In response to these requests, and after consultation with the prefectural government, examinations at schools began in November 2011.

○ Request for cooperation with various related organizations

For examinations at public elementary and junior high schools, we visited each municipal office and municipal board of education, explained the situation, and solicited their consent.

Additionally, municipal boards of education notified schools of their request for cooperation in administering the examination.

For high schools and private schools, we visited them individually, explained the examination, and solicited their consent.

○ Sending out Examination Notices and receiving Consent Forms and Medical Questionnaires

Documents related to Thyroid Ultrasound Examination (Consent Form, Medical Questionnaire, Examination Guide, etc.) have been mailed individually to all eligible persons, including guidance about how to send the Consent Form and Medical Questionnaire back to Fukushima Medical University (hereinafter referred to as FMU).

If, at the scheduled time and place of an examination, the consent of parents or guardians cannot be confirmed, e.g., because a completed Consent Form has not been submitted, the examination is not conducted.

○ Examination results

Results are mailed directly from FMU to examinees.

Reference 2

Results of a Survey on the Current Status of Thyroid Examination at Schools

January 15, 2021
Citizens Healthcare Survey Division
Fukushima Prefecture

1 Method of implementation, etc.

1-1 Implementation period

September - December 2020

1-2 Implementation method

Fukushima Prefecture's Citizens Healthcare Survey Division staff visited schools, interviewed school personnel, and observed examination venues at some schools.

1-3 Number of schools surveyed

Total of 26 schools (3 of which also received observational visits)

- 12 elementary schools, 9 junior high schools, 4 high schools, and 1 other compulsory education school
- Area: 11 schools in 13 municipalities (including evacuation zones), 8 schools in Nakadori, 4 schools in Hamadori, 3 schools in Aizu
- Size: 8 large schools (more than 3 classes per grade), 4 medium schools (about 2 classes per grade), 14 small schools (no more than 1 class per grade)
- Survey schedule: 17 schools this year, 9 schools last year

1-4 Persons interviewed

We asked schools to respond through the person in charge of examinations at the school and interviewed either the head teachers and school nurses or both at each school.

2 Results

2-1 Results of the observation of the examination

A. Examination flow

(1) Home room teachers or school nurses guided examinees to the examination venue (for those who were not eligible or who did not consent, one school guided them with their classmates to the venue, and two schools allowed them to remain in the classroom).
(2) Staff at the venue explain to examinees how to participate in the examination.
(3) The teacher in charge of the class returns to the classroom, while examinees wait at the venue.
(4) Examination staff guide examinees to the examination booth.
(5) After the examination, examinees return to their classrooms.

B. Students

They were calm and followed the instructions of the examination staff and teachers.

C. Measures to prevent the spread of COVID-19

- Open windows and use blower fans to improve ventilation.
- Place a vinyl curtain between the examiner and the examinee.
- Keep equipment (chairs, etc.) clean with alcohol-based disinfectants
- Change pillowcases for each recipient.

2-2 Results of interviews at schools

A. Work/process being done by schools

(a) Before the examination

- Coordinate schedules (coordination with internal school events, etc.)
- Verify school registration data and inform FMU
- Request Consent Form submission (school distributes document to students)
- Have a briefing session with FMU staff (examination staff)
- Disseminate information to faculty and staff within the school

(a) During the examination

- Guide students to the venue from the classroom
- Distribute examination forms to examinees (test staff may also distribute forms)

(c) After the examination

- Distribute examination information to students who could not participate in the examination due to absence from school, etc.
- Distribute examination flyers to all eligible participants

*It is observed that many schools felt burdened by the work involved in examinations, especially at larger schools.

B. The time or the class in the school allocated for the examination

- Many schools conducted the examination program during regular class time, while some schools conducted it during event time.
- Many schools thought it would be difficult to conduct examinations after school hours due to students' commute (using school buses, etc.), club activities, teachers' working hours, and the problem of securing a place or space for examinations.

C. How does the school respond to those who do not participate in the examination while it is being conducted?

- Those who did not participate in the examination remained in the classroom at many schools.
- Some schools brought all students to the examination venue, and those who were not participating or not eligible could return to the classroom after making sure they would not undergo the examination.
- We were not aware of any cases where students were teased or made to feel bad for not taking the examination at school.

*Non-participants include not only those who do not agree to participate, but also those who are not eligible, e.g., those who moved to Fukushima from outside the prefecture.

D. How do you think students eligible for the examination and their parents/guardians perceive the implementation of the program at the school?

- At all schools, school personnel are not sure because there was no specific feedback from parents.
- Some schools mentioned that most parents seemed willing to have examinations conducted at school because of the convenience.
- Some school personnel mentioned that parents may take the examinations for granted because they have been conducted every other year for nearly 10 years.

E. How do you think eligible participants and their parents/guardians perceive the change in notifications for the examination?

- Representatives of all schools that have conducted examinations this fiscal year expressed uncertainty because they have not received feedback from parents.
- Some schools told us that some students did not know if they were eligible for the examination.

Reference 3

Results of Interviews with Eligible Students and Related Parties about The Thyroid Ultrasound Examination

May 17, 2021
Citizens Healthcare Survey Division
Fukushima Prefecture

1 Purpose

To hear opinions, views, etc., on Thyroid Ultrasound Examinations from those who are eligible to participate and related parties directly, and use the information to guide future discussions by the Oversight Committee on how the examinations should be conducted.

2 Outline of Implementation

2-1. Effective Date

Conducted over 5 days in March 2021

2-2. Implementation method

Interviews are conducted by a facilitator with each eligible participant (one at a time) for about an hour.

*Two prefectural staff members attended the interview.

The "Thyroid Ultrasound Examination Notice" and other information were presented to the participants as materials on the day of the interview (Ref. 4).

2-3. Facilitator

Dr. EGUCHI Yuichiro, MD, Vice President, LOCO Medical Group, Eguchi Hospital

*A doctor who fulfills the following conditions and who has experience in conducting interviews was asked to be the facilitator.

(a) Someone not directly involved in the Thyroid Ultrasound Examination and the Fukushima Health Management Survey.

(b) Someone with relevant medical knowledge

2-4. Interviewees

Relevant organizations recommended the interviewees.

Interviewees were asked to speak for themselves rather than on behalf of their communities, schools, organizations, other examination participants, or their parents or guardians.

(a) Individuals eligible to participate in the examination (3 in total)

High school students in the prefecture (one each from Nakadori, Aizu, and Hamadori)

(b) Parents/guardians (6 in total)

Parents of junior high school students (one each from Nakadori, Aizu, and Hamadori)

Parents of high school students (one each from Nakadori, Aizu, and Hamadori)

3 Summary of Interview Results (Interview results are shown in References 5 and 6)

3-1 Are you undergoing the examination due to feelings of anxiety or worry?

(a) The person eligible to take the examination himself/herself

- Rather than being anxious, I sense that it will probably be fine.
- I've participated since elementary school, so it's a natural progression.

(b) Parents/Guardians

- Initially, I was very concerned, so I made sure the child received appropriate medical attention.
- As time passes, worries have diminished, and we're having fewer conversations about anxiety.

3-2 Do you think it is natural to undergo the examination on a regular basis?

(a) The person eligible to take the examination himself/herself

- It is similar to regular school health check-ups.

(b) Parents/Guardians

- When I receive an examination notice, I let the child undergo the examination, not as a matter of habit, because it was done in the past, but rather, being naturally cautious, people like me tend to favor having the examination.
- Yes, I think it's natural to take the examination and continue in the program until it's over.

3-3 What is good about taking (having) the examination?

(a) The person eligible to take the examination himself/herself

- Sense of security.
- I don't (particularly) think it is good, but it's something I have done from the beginning.

(b) Parents/Guardians

- Reassurance.

3-4 Is there anything you don't like about the examination (or having it done) or anything that worries you?

(a) The person eligible to take the examination himself/herself

- Nothing in particular.

(b) Parents/Guardians

- Nothing in particular.
- I was concerned when a confirmatory examination was recommended, but relieved when the results came back clear.

3-5 Do you think that the examinations are mandatory because they are carried out during classes at school?

(a) The person eligible to take the examination himself/herself

- It is similar to the school medical checkup. I just think it's convenient.
- I think I am OK taking it because I see no disadvantages.
- Since the school schedules time for our participation, it seems strange not to undergo the examination.

(b) Parents/Guardians

- It seems half-forced, but as a parent, I appreciate having the examination scheduled during school hours.
- I think it's just like a school medical checkup, so I don't feel that much pressure.

3-6 If the examinations are being conducted outside the school, do you receive them?

(a) The person eligible to take the examination himself/herself

- If it's voluntary at the hospital, and if it's my choice, I would choose not to go even if my parents recommended it.

(b) Parents/Guardians

- It may be difficult to participate in every round. It is easier to participate under the present scheme. I think that any mother would feel the same.
- Regardless of the examination venue, I would have my child receive the examination. I think that prefectural experts and parents alike want to make sure that the children are safe.
- I am inclined not to, based on my understanding.

3-7 If you were to graduate from high school, would you undergo the examination if invited (would you want your child to receive the examination)?

(a) The person eligible to take the examination himself/herself

- I think I would take it if I went to college in the prefecture, but not if I were outside the prefecture. So, if there is an environment where I can take it, yes.
- I would not take it; I have taken it 4 or 5 times, and the results were normal, so I feel confident that it will be ok.

(b) Parents/Guardians

- I would like them to participate. They may be less inclined if their daily lives become busier.

3-8 If you do not want to participate after high school graduation, what kind of support would incline you to reconsider?

(b) Parents/Guardians

- First of all, accessibility to the examination is important so that the child can take it easily from different locations.
- It would be good to have a chance anytime the child comes back home.

3-9 Are you aware of any disadvantages of the examination?

(a) The person eligible to take the examination himself/herself

- I don't think there are many disadvantages.

(b) Parents/Guardians

- I don't think there are any disadvantages.
- The disadvantage is that there may be concerns after the examination, such as finding a cyst that was not found during the last examination.

3-10 It is said that some thyroid cancers will never be found without examination. What do you think about the possibility of finding thyroid cancer through an examination that could result in surgery and subsequent medical treatment that may have to be continued?

(a) The person eligible to take the examination himself/herself

- I am more worried about not knowing that I have cancer.
- I cannot ignore it if I come to know that I have cancer.

(b) Parents/Guardians

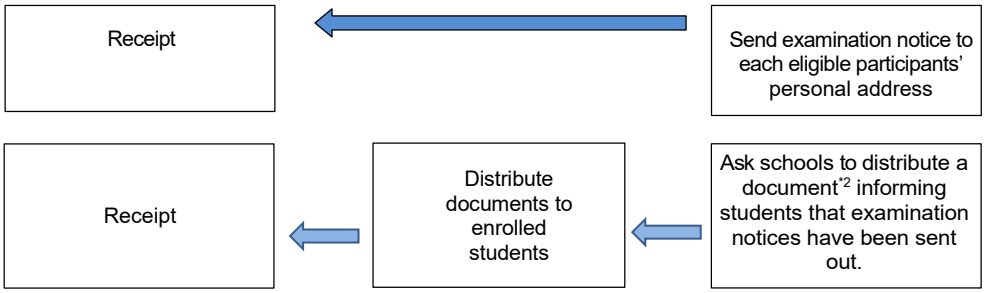
- The information on Thyroid Ultrasound Examination is extremely limited. So, I think more explanatory briefing sessions about the advantages and disadvantages should be held.
- It is better to find out early than to find out too late.
- Fukushima residents have had anxiety and worry beyond COVID-19. So far, I have participated for the sake of safety and security. What to do after a cancer is found is up to each individual.

Reference 4: Flow Chart

Guidance Flow for Thyroid Ultrasound Examination at Schools

Eligible Participants	Schools	Fukushima Medical University (FMU) (Fukushima Prefecture)

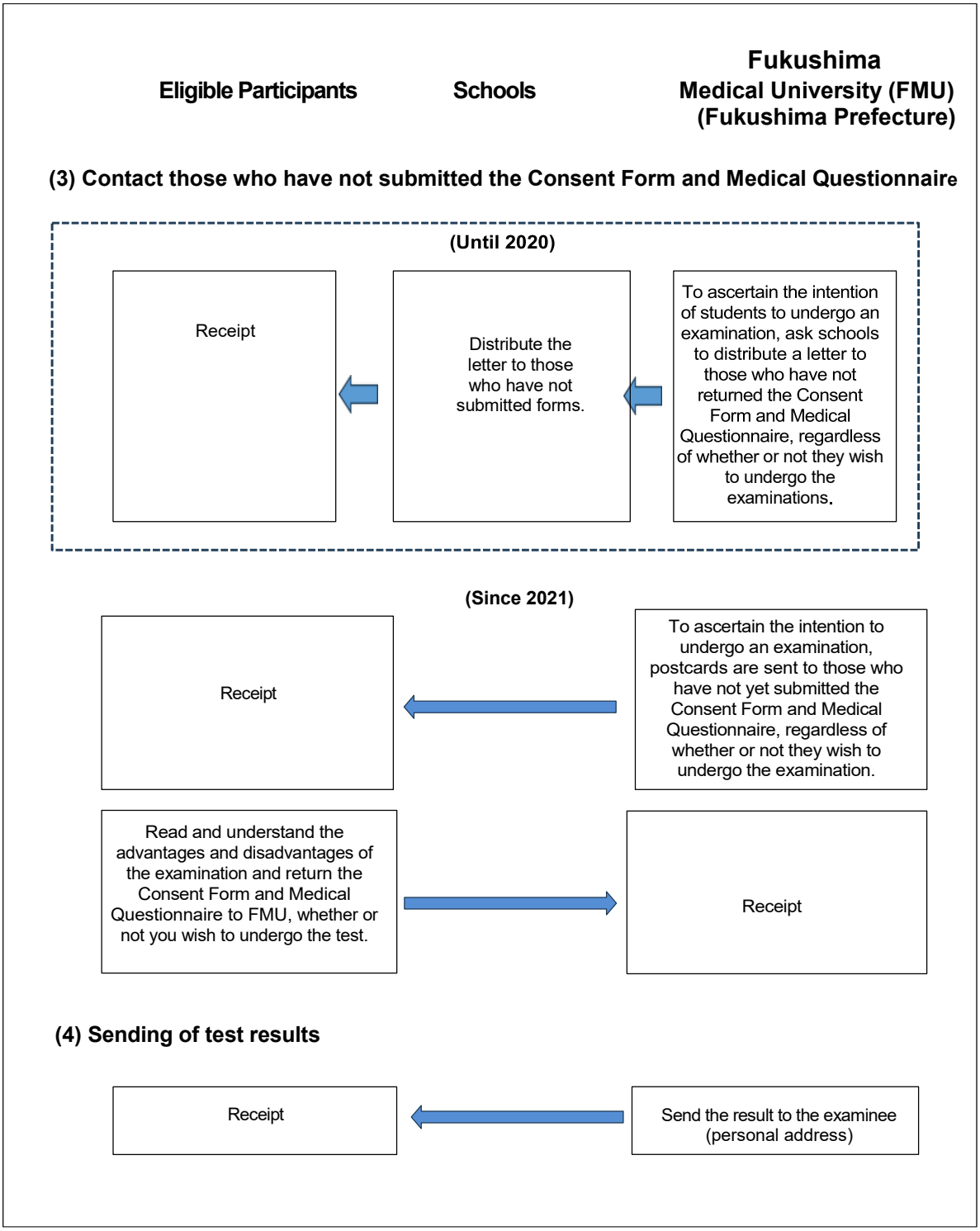
(1) Sending of Thyroid Ultrasound Examination notices *1



*1: Consent Form and Medical Questionnaire (Examination Notice), Booklet on Advantages and Disadvantages of Examination, and Examination Guide are enclosed and sent to eligible participants (personal address).

*2: A document informing eligible participants that the examination is voluntary, and that the participant is requested to acknowledge the notice and enclosed document, and that the participant is requested to return the Consent Form and Medical Questionnaire directly to Fukushima Medical University.

(2) Return of Consent Form and Medical Questionnaire


Eligible Participants
Schools
Fukushima Medical University (FMU) (Fukushima Prefecture)
(3) Contact those who have not submitted the Consent Form and Medical Questionnaire
(Until 2020)
To ascertain the intention of students to undergo an examination, ask schools to distribute a letter to those who have not returned the Consent Form and Medical Questionnaire, regardless of whether or not they wish to undergo the examinations.
Distribute the letter to those who have not submitted forms.
Receipt
(Since 2021)
To ascertain the intention to undergo an examination, postcards are sent to those who have not yet submitted the Consent Form and Medical Questionnaire, regardless of whether or not they wish to undergo the examination.
Receipt
Read and understand the advantages and disadvantages of the examination and return the Consent Form and Medical Questionnaire to FMU, whether or not you wish to undergo the test.
Receipt
(4) Sending of test results
Send the result to the examinee (personal address)
Receipt

Progress of Discussions about the Thyroid Ultrasound Examination

February 5, 2025
Citizens Healthcare Survey Division, Fukushima Prefecture

The Thyroid Ultrasound Examination program proceeds while receiving extensive advice from the Fukushima Prefectural Oversight Committee for the Fukushima Health Management Survey, including experts with various professional standpoints. In addition, the Thyroid Examination Evaluation Subcommittee was established to deepen discussions and conduct appropriate evaluations based on expert knowledge from pathological, clinical, epidemiological, and other scientific viewpoints.

Other Survey reports have also been compiled from time to time. Reports that have been discussed and summarized by various committees and subcommittees are listed below.

1 Thyroid Ultrasound Examination
(1) Interim summary on Thyroid Ultrasound Examination (March 2015)
(2) Subcommittee summary of the results of the second-round full-scale survey (June 2021)
(3) Subcommittee summary of the results of the Thyroid Ultrasound Examination from the preliminary survey to the fourth-round full-scale survey (July 2023).

2 Reports related to surveys other than the Thyroid Ultrasound Examination
(1) Fukushima Health Management Survey (overall)
Interim summary of the Fukushima Health Management Survey (March 2016)
(2) Basic Survey
About the "Basic Survey" (July 2021)
(3) Comprehensive Health Check
About the "Comprehensive Health Check" (July 2021)
(4) Mental Health and Lifestyle Survey
About the “Mental Health and Lifestyle Survey” (January 2021)
(5) Pregnancy and Birth Survey
About the “Pregnancy and Birth Survey” (August 2020)
About the follow-up survey of the “Pregnancy and Birth Survey” (May 2022)
(6) Provision of data and personal information to third parties
Report on the Provision of the Fukushima Health Management Survey Data to the Third Parties for Academic Research Purposes (June 2019)