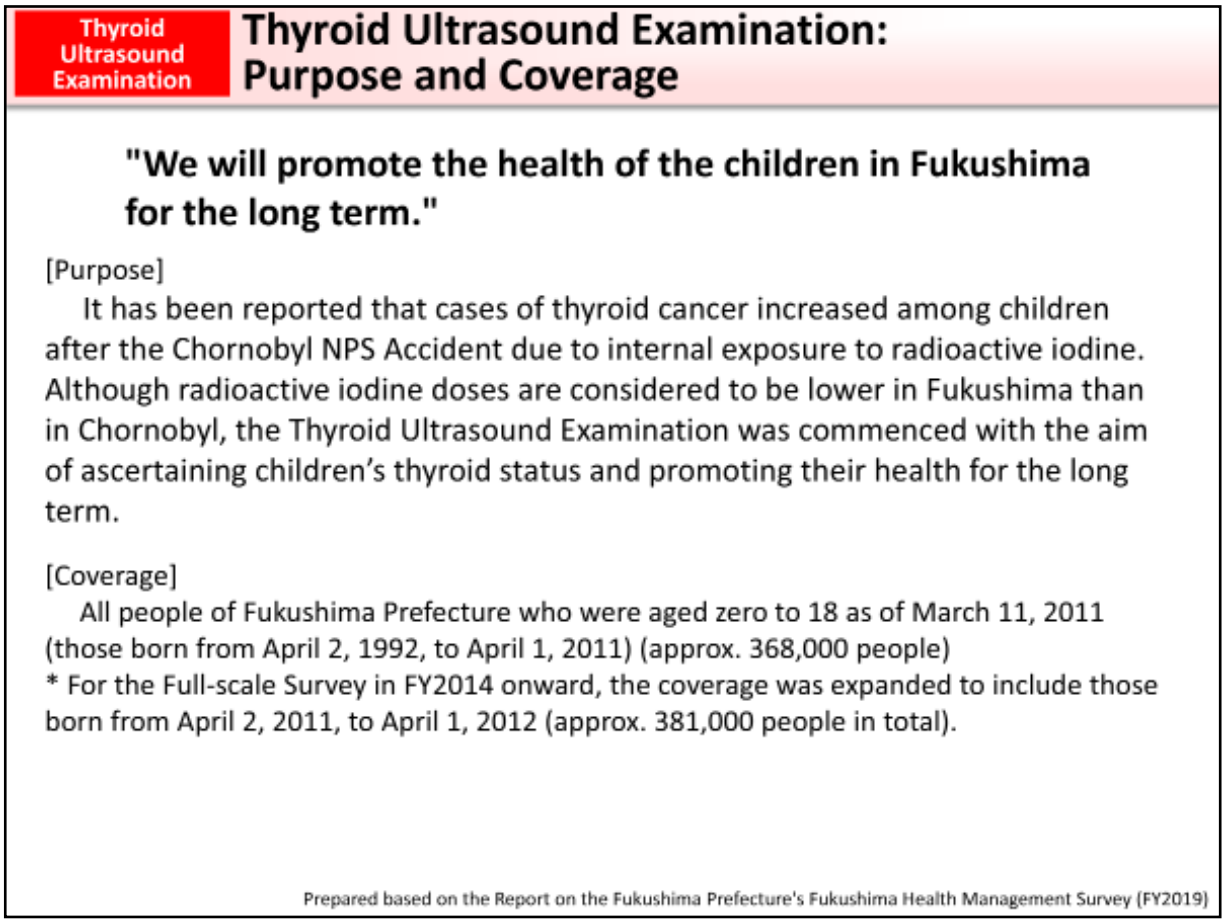


It has been reported that cases of thyroid cancer increased among children after the Chornobyl NPS Accident due to internal exposure to radioactive iodine. Compared with the Chornobyl NPS Accident, the amount of radioactive materials discharged into the environment after the accident in Fukushima was much smaller, and estimated internal and external doses of the residents were even smaller. Therefore, it is predicted that there would be no epidemiologically detectable thyroid health risks (p.141 of Vol. 1, “Evaluation of the Interim Report on Thyroid Cancer Compiled by the Expert Meeting on Health Management After the TEPCO’s Fukushima Daiichi NPS Accident”). However, as concerns remain about effects of radiation due to the accident on children’s thyroid glands, the Thyroid Ultrasound Examination has been continued under the framework of the Fukushima Health Management Survey with the aim of ascertaining children’s thyroid status and promoting their health into the future.

Included in this reference material on March 31, 2013
Updated on March 31, 2024

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Outline (1/3)

● Examination schedule

	Category	Period	Eligible persons
First examination	**Preliminary Baseline Survey** Ascertain children's thyroid status	Oct. 2011 - March 2014	Residents who were residing in Fukushima Prefecture at the time of the disaster and were approximately 18 years old or younger (those born from April 2, 1992, to April 1, 2011)
Second examination	**Full-scale Survey** Make comparison with the results of the Preliminary Baseline Survey	April 2014 - March 2016	Those born from April 2, 1992, to April 1, 2012
⟆		⟆	Once every two years until becoming 20 years old, then once every five years after becoming 25 years old, for example, at the ages of 25, 30 and so on
Fifth examination		April 2020 - March 2023	
Sixth examination		April 2023 - March 2025	

Due to the impact of the COVID-19 pandemic, the fifth-round survey was conducted during the period of three years from FY2020 to FY2022.

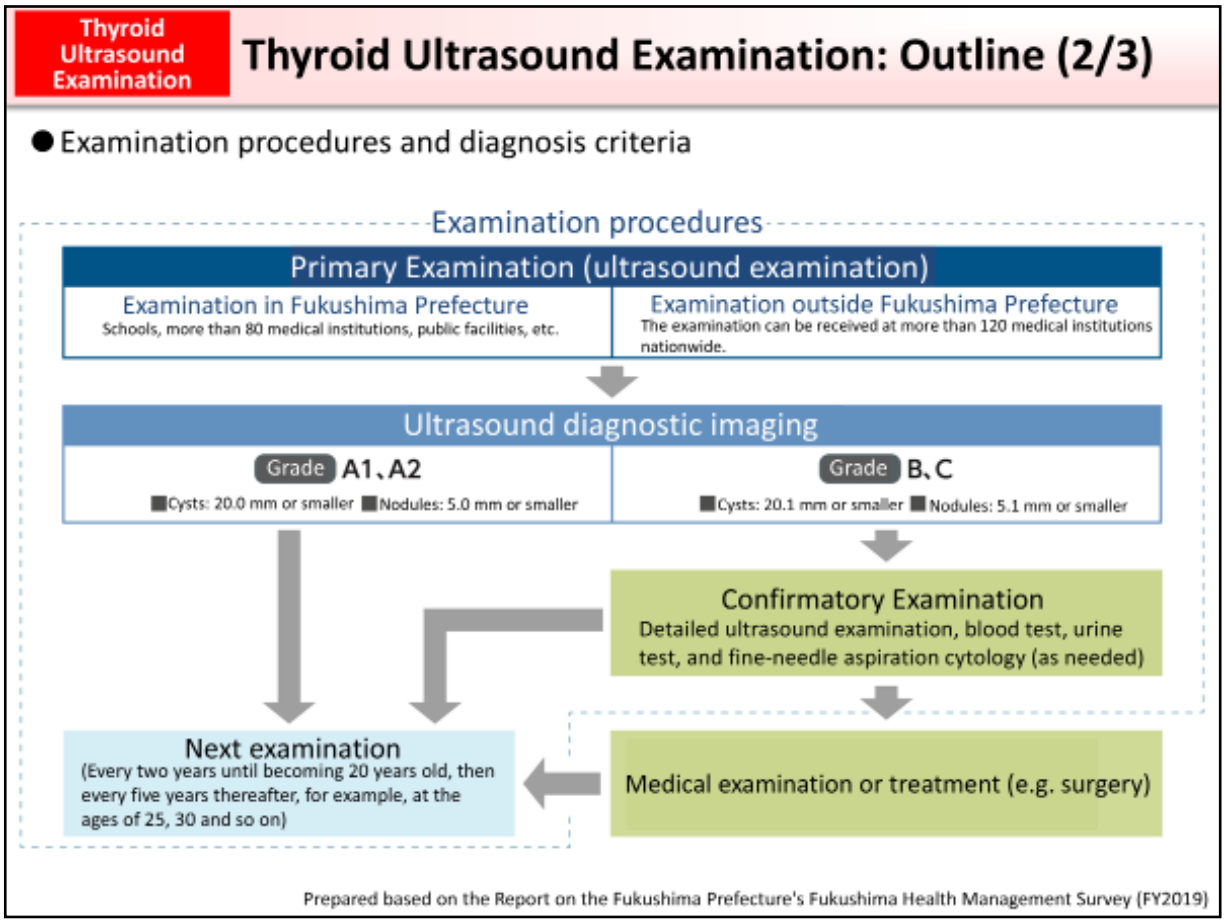
Prepared based on the report of the "Fukushima Health Management Survey" by Fukushima Prefecture (FY2023)

Even though radiation effects are unlikely to be detected, ascertaining the current thyroid status of the relevant group of people is very important in order to monitor and support health for the long term. Therefore, the Thyroid Ultrasound Examination was conducted for all children in Fukushima Prefecture after the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS over a period of approximately two and a half years from October 2011 (Preliminary Baseline Survey).

Then, in FY2014, the coverage was expanded to include those born from April 2, 2011, to April 1, 2012, and the Full-scale Survey was conducted as the second-round survey.

From the third-round survey onward, the participants receive examinations once every two years until they become 20 years old and once every five years thereafter.

Included in this reference material on March 31, 2013
Updated on March 31, 2025



The primary examination checks whether there are any nodules or cysts and measures the sizes thereof, if any. The confirmatory examination is recommended to those who are considered to require a more detailed examination.

In the confirmatory examination, a more accurate ultrasound examination, plus blood and urine tests are conducted, and fine-needle aspiration cytology is also conducted when a doctor considers it necessary.

The Thyroid Ultrasound Examination is completed at this point.

Then, individuals who are found to require treatment receive it from their regular healthcare provider, under the relevant medical insurance system.

Included in this reference material on March 31, 2016
Updated on March 31, 2021

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Outline (3/3)

● Content of the examination

[Primary Examination]

An ultrasound examination assesses whether there are any nodules or cysts. The examination ordinarily finishes in three to five minutes with no pain involved.

The diagnosis panel, consisting of medical specialists, reviews the ultrasound images and makes diagnoses. The examination results are sent by post, but explanations are given at the examination venues or by phone upon participants' requests.

[Confirmatory Examination]

When a more detailed examination is found to be necessary as a result of the Primary Examination, the Confirmatory Examination is conducted for the relevant person.
In the Confirmatory Examination, another ultrasound examination, plus blood and urine tests are conducted.

If a doctor considers it necessary as a result of these tests, fine-needle aspiration cytology of the thyroid may also be performed and interpreted.

Prepared based on the website of the Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University (Information on the Thyroid Ultrasound Examination, FAQs)

An ultrasound examination is conducted with a participant lying on his/her back. A doctor places an ultrasonic probe with jelly on its tip over the participant's thyroid (located around the base of the neck) and examines whether there are any cysts or nodules while moving the probe over the participant's skin.

The examination ordinarily finishes in three to five minutes with no pain involved.

Definitive diagnoses from the primary examination are not made at the venues. In order to make comprehensive and objective judgments, ultrasound images are later reviewed by a panel of medical specialists. This is to ensure a consistently high level of diagnostic accuracy throughout the Fukushima Health Management Survey.

The sizes of nodules and cysts mentioned above are reference values for making diagnoses. If any nodules or cysts found in ultrasound images are suspected to be malignant, the case is designated as Grade B irrespective of the sizes of the nodules or cysts and the confirmatory examination is recommended.

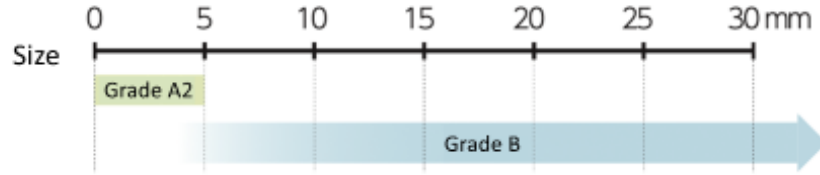
In the confirmatory examination, a more accurate ultrasound examination, plus blood and urine tests, are conducted. If, as a result of these tests, a doctor considers it necessary, fine-needle aspiration cytology, an examination of a sample tissue taken from the person's thyroid, may also be conducted.

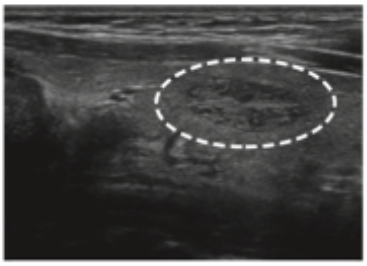
Included in this reference material on March 31, 2016
Updated on March 31, 2019

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Nodules

A nodule, which might also be called a lump, is an irregular density of thyroid cells.





Nodules

* The part circled with a dotted line is a nodule.

- Nodules may be benign or malignant (cancerous), and most are benign. Even if a detected nodule is 5.0 mm or smaller, if the Confirmatory Examination is considered to be necessary, the diagnosis is Grade B.
- It has been widely known that many cases of thyroid cancer are occult (latent), showing no symptoms or health effects over a lifetime. Occult thyroid cancer is 5.0 mm or smaller in most cases and it is considered to be disadvantageous for patients to detect and treat them. Accordingly, it is generally recommended not to conduct a detailed examination, such as cytological testing, for nodules of 5.0 mm or smaller.
- Therefore, in the Thyroid Ultrasound Examination conducted through the Fukushima Health Management Survey, the Confirmatory Examination is not performed for nodules of 5.0 mm or smaller; instead, an ultrasound examination (Primary Examination) is to be conducted in 2 to 5 years.

Prepared based on the Report on the Fukushima Prefecture's Fukushima Health Management Survey (FY2019)

A nodule, which might also be called a lump, is a thyroid cell with irregular density. Some nodules are malignant, but most are benign.

It has been known that thyroid cancer is often latent, presenting no symptoms or health effects over a lifetime. Thus, detecting all cancers and forcing patients to receive treatment may be sometimes rather disadvantageous, so a detailed examination, such as cytological testing, is not generally conducted for small nodules. In the Thyroid Ultrasound Examination conducted through the Fukushima Health Management Survey, the confirmatory examination is not performed for nodules of 5 mm or smaller; instead, the next regularly scheduled ultrasound examination (primary examination) is to be conducted.

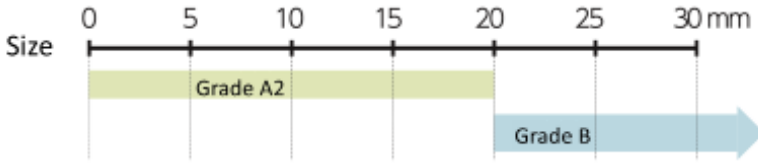
In some cases, a person once diagnosed as Grade A1 is diagnosed as Grade A2 or Grade B in the next examination, or conversely, a person once diagnosed as Grade A2 is subsequently diagnosed as Grade A1.

Included in this reference material on March 31, 2013
Updated on March 31, 2021

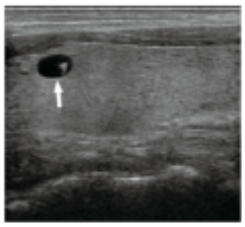
Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Cysts

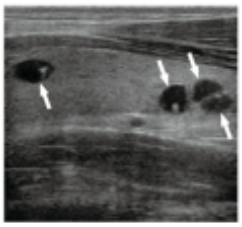
A cyst, which resembles a bag filled with fluid, is generally benign, and is often found even in healthy people



Cysts are generally benign, but those of 20 mm or larger may cause a feeling of pressure in the throat and fluid in a cyst is sometimes withdrawn.



Single cyst



Multiple cysts

* The parts pointed with arrows are cysts.

- A cyst, which resembles a bag filled with fluid, is benign, and is often found even in healthy people.
- Cysts often change in size or number, and many people have multiple cysts.
- Examinations so far revealed that cysts are seldom found in infants and young children but are found more often in elementary, junior high, and high school students.

Prepared based on the Report on the Fukushima Prefecture's Fukushima Health Management Survey (FY2021)

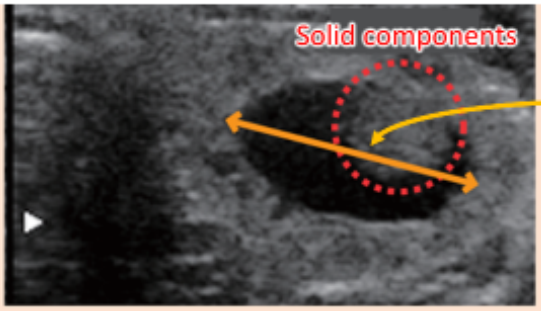
Cysts identified in the Thyroid Ultrasound Examination being conducted in Fukushima Prefecture are considered benign, consisting only of fluid and containing no cells. They are often found even in healthy people, especially among primary and secondary school students. Therefore, repeated examinations often find cysts as children grow up.

Included in this reference material on March 31, 2013
Updated on March 31, 2023

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Handling of Cysts with Solid Components

Cysts with solid components are all judged as nodules.



Measure the entirety of a nodule

When the maximum size of a nodule with solid and cystic components (the length of the orange arrow) is 5.1 mm or larger, the participant is diagnosed as Grade B.

- "Cysts with solid components," which are cysts containing nodules inside, are all evaluated as nodules in this examination.
- In such case, not the size of a nodule inside but the maximum size of a cyst with the nodule is recorded. For example, when a 3 mm-nodule is found in a 30 mm-cyst, the relevant participant is judged to have a 30 mm-nodule and is diagnosed as Grade B (as the size exceeds 5.1 mm).

Prepared based on the website of the Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University (information on the Thyroid Ultrasound Examination, FAQs)

Some cysts contain nodules. In the Thyroid Ultrasound Examination conducted in the Fukushima Health Management Survey, those cysts with solid components (nodules) are all judged as nodules and diagnosis criteria for nodules are applied.

For example, a 30 mm-cystic lesion with a 3 mm-solid component is judged as a nodule and diagnosis criteria for nodules are applied. As the size is larger than 5.1 mm, the participant is diagnosed as Grade B and is advised to receive the confirmatory examination.

Lesions judged as fluid-only cysts are considered to be benign.

(Related to p.134 of Vol. 2, “Thyroid Ultrasound Examination: Cysts”)

Included in this reference material on March 31, 2016
Updated on March 31, 2022

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: System for Examinations in and outside Fukushima

Expansion of available institutions and system for implementing examinations in Fukushima Prefecture

Efforts have been continued to increase the number of institutions in Fukushima Prefecture and to enhance system for implementing examinations in order to reduce the number of people who cannot receive the examination due to various reasons.

Expansion of institutions for implementing examinations outside Fukushima Prefecture

Efforts have been continued to increase institutions so that people can receive the examination even outside the prefecture.

The examination can be received at more than 151 medical institutions nationwide.

In order to receive the Thyroid Ultrasound Examination, you need to make a reservation in advance with the Radiation Medical Science Center for the Fukushima Health Management Survey.

Provision of explanation booths

Since July 2015, booths have been set up at examination venues in public facilities, etc. for providing participants with explanations on examination results. Physicians explain provisional examination results available on the day using ultrasound images.

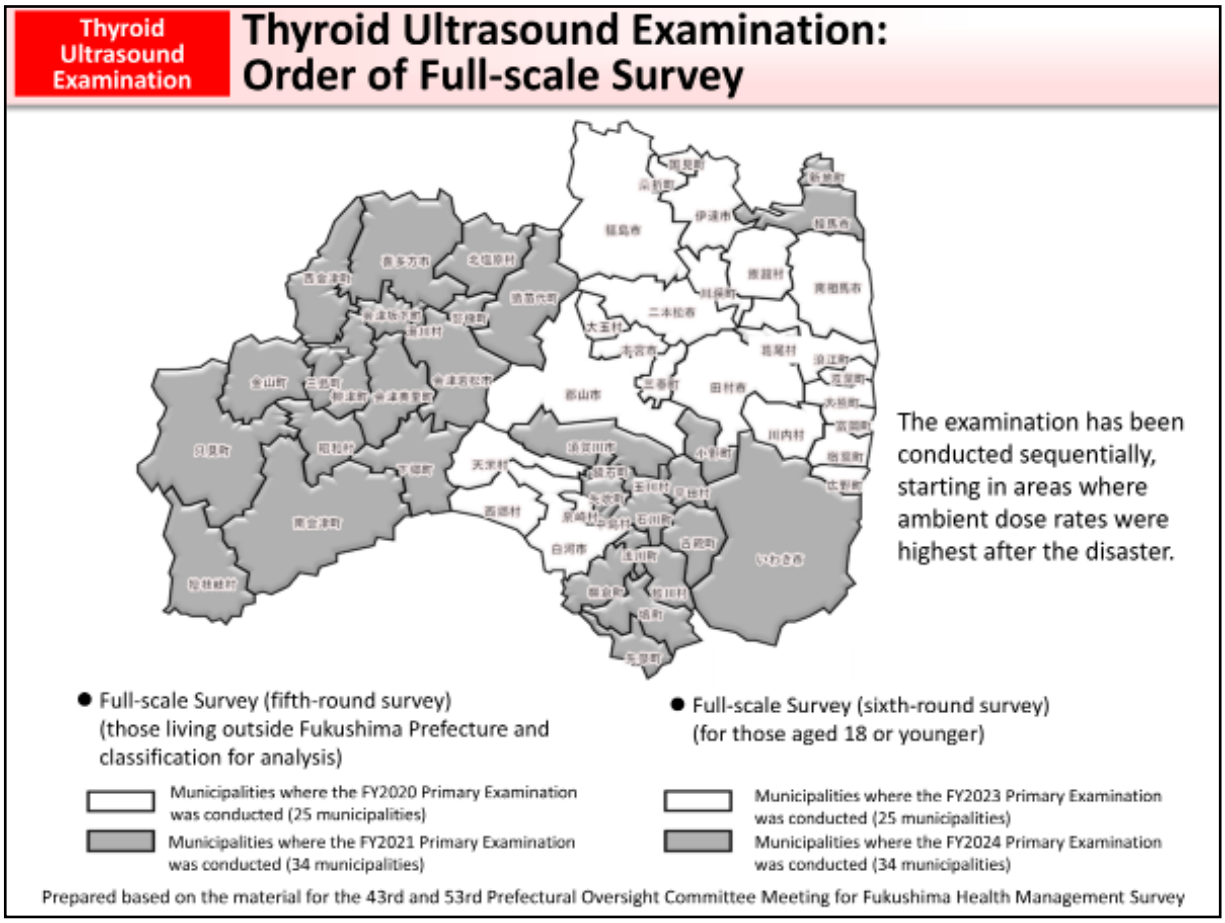
When explanation booths cannot be set up at the examination venue or for examination performed in some venues such as schools, telephone consultation services are provided instead.

Prepared based on the Fukushima Health Management Survey Reports (2018 and 2019)

* As of November 2024, https://fukushima-mimamori.jp/thyroid-examination/uploads/inspection-list-outside-the-prefecture.pdf

The Thyroid Ultrasound Examination is conducted in collaboration between Fukushima Medical University and medical institutions in and outside Fukushima Prefecture. For more convenience to residents of the prefecture, efforts have been made to increase venues and opportunities with the aim of promoting the health of the residents in Fukushima Prefecture for the long term.

Included in this reference material on March 31, 2015
Updated on March 31, 2025



The Preliminary Baseline Survey of the Thyroid Ultrasound Examination was conducted sequentially, starting in areas where ambient dose rates were higher at the time of the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS.

For Full-scale Surveys following the Preliminary Baseline Survey, notices of the examination have been sent mostly in the same order. In the Full-scale Survey (sixth-round survey), the primary examination was conducted for those aged 18 or younger by region over two years.

Since the Full-scale Survey (fourth-round survey), for those aged 19 or older, the examination has been conducted not by region but by age (school year).

Since FY2017, the examination has been conducted for those who become 25 years old in the relevant year, and then once every five years thereafter.

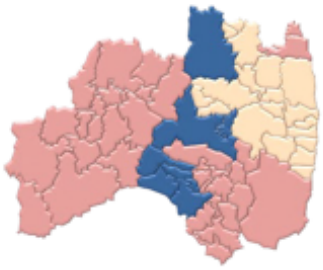
Due to the impact of the COVID-19 pandemic, the Full-scale Survey (fifth-round survey) was decided to be carried out in three years, but notices of the examination were sent to examination targets living outside Fukushima Prefecture in FY2020 and FY2021, as originally planned, while allowing them to receive the examination until the end of FY2022.

Included in this reference material on March 31, 2015
Updated on March 31, 2025

Thyroid Ultrasound Examination

Order of Implementing the Full-scale Survey (Fifth-round Survey) of the Thyroid Ultrasound Examination (within Fukushima Prefecture)

- Full-scale Survey (fifth-round survey):
  At elementary schools and junior high schools in Fukushima Prefecture



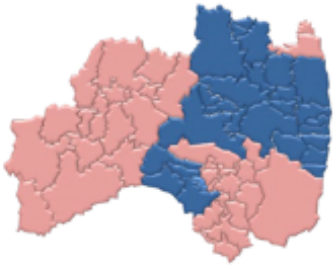
Municipalities where the Primary Examination was conducted in FY2020 (18 municipalities)

Municipalities where the Primary Examination was conducted in FY2021 (7 municipalities)

Municipalities where the Primary Examination was conducted in FY2022 (34 municipalities)

* Due to the impact of the COVID-19 pandemic, the survey at elementary schools and junior high schools for FY2020 was commenced in September 2020.

- Full-scale Survey (fifth-round survey): At high schools in Fukushima Prefecture



Municipalities where the Primary Examination was conducted in FY2021 (25 municipalities)

Municipalities where the Primary Examination was conducted in FY2022 (34 municipalities)

Prepared based on materials for the 43rd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

Due to the impact of the COVID-19 pandemic, the Full-scale Survey (fifth-round survey) was decided to be carried out in three years. The survey at elementary schools and junior high schools for FY2020 was commenced in September 2020 and was conducted from FY2020 through to FY2022. The survey at high schools in Fukushima Prefecture was conducted in FY2021 and FY2022. For students who graduated high schools in the fiscal year preceding the survey year, notices for examinations in public facilities or other institutions implementing examinations were sent.

Included in this reference material on March 31, 2022
Updated on March 31, 2025

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Preliminary Baseline Survey

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
					Breakdown by grade (%)			
		Examination rate (%)	Participants at venues outside of the prefecture		A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	367,637	300,472 (81.7)	9,511	300,472 (100.0)	154,605(51.5)	143,573 (47.8)	2,293(0.8)	1 (0.0)

Grade A : 99.2%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people) Examination rate (%)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
				For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	2,293	2,130 (92.9)	2,091 (98.2)	132 (6.3)	579 (27.7)	1,380 (66.0)	547 (39.6)

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 116 people; 39 males and 77 females
Average age: 17.3 ± 2.7 years old (8 to 22 years old); At the time of the disaster: 14.9 ± 2.6 years old (6 to 18 years old)
Average tumor size: 13.9 ± 7.8 mm (5.1 to 45.0 mm)

● Out of 116 people whose tumors were diagnosed as malignant or suspicious for malignancy, 102 received surgery (benign nodule: 1; papillary cancer: 100; poorly differentiated cancer: 1).

Prepared based on the material for the 31st Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These are the results of the Preliminary Baseline Survey, which was the very first Thyroid Ultrasound Examination (FY2011 to FY2013).

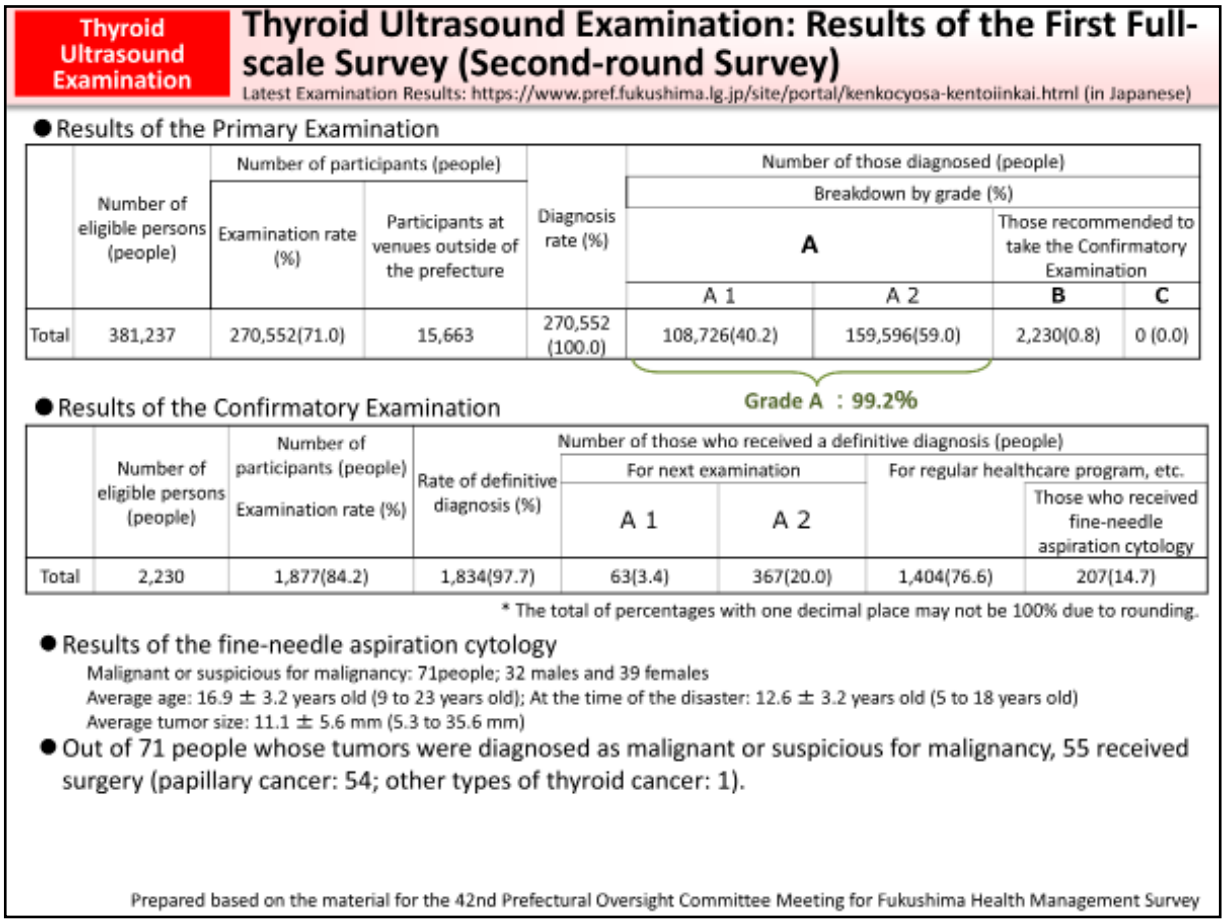
Participants diagnosed as Grade A in the primary examination accounted for 99.2% of the total, while those diagnosed as Grade B accounted for 0.8%. It became clear that most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and that those diagnosed as Grade B had nodules of 5.1 mm or larger.

In the confirmatory examination, as a result of a more accurate ultrasound examination and other tests, 34%, or approximately one out of three who received the confirmatory examination, were diagnosed as being equivalent to Grade A and were recommended to receive the next periodic examination (Full-scale Survey) in the same manner as those diagnosed as Grade A in the primary examination. This is because those who were suspected to have any abnormalities were diagnosed as Grade B just to be safe in the primary examination, and such people include those eventually diagnosed as Grade A in the confirmatory examination as a result of comprehensive and objective judgments through a more detailed examination, etc.

Among the participants whose results of the confirmatory examination were finalized, 66% were shifted to ordinary medical care covered by health insurance, and appropriate measures are determined by the responsible doctor, based on individual findings and circumstances.

Furthermore, 39.6% went through fine-needle aspiration cytology, and 116 participants were diagnosed as malignant or suspicious for malignancy. Out of these participants, it is known that 102 had surgery. However, not all the patients who are diagnosed as malignant or suspicious for malignancy are indicated for immediate surgery, and the decisions are made depending on the individuals' situations after the consultation among physicians, participants, and their families.

Included in this reference material on March 31, 2016
Updated on March 31, 2023



Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the First Full-scale Survey (Second-round Survey)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
		Examination rate (%)	Participants at venues outside of the prefecture		Breakdown by grade (%)			
					A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	381,237	270,552(71.0)	15,663	270,552 (100.0)	108,726(40.2)	159,596(59.0)	2,230(0.8)	0 (0.0)

Grade A : 99.2%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people) Examination rate (%)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
				For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	2,230	1,877(84.2)	1,834(97.7)	63(3.4)	367(20.0)	1,404(76.6)	207(14.7)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 71people; 32 males and 39 females
Average age: 16.9 ± 3.2 years old (9 to 23 years old); At the time of the disaster: 12.6 ± 3.2 years old (5 to 18 years old)
Average tumor size: 11.1 ± 5.6 mm (5.3 to 35.6 mm)

● Out of 71 people whose tumors were diagnosed as malignant or suspicious for malignancy, 55 received surgery (papillary cancer: 54; other types of thyroid cancer: 1).

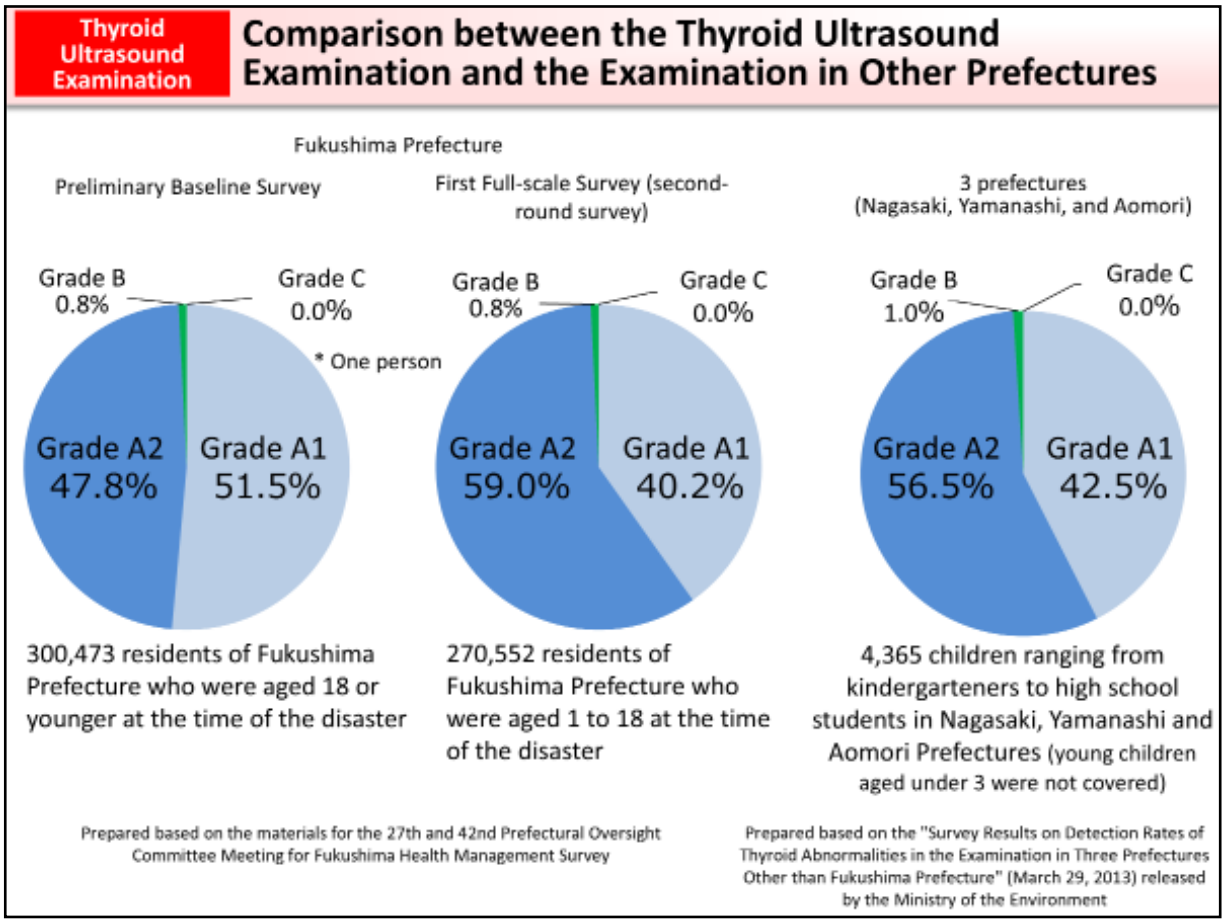
Prepared based on the material for the 42nd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These are the results of the first Full-scale Survey, which was the second round of the Thyroid Ultrasound Examination.

Participants diagnosed as Grade A in the primary examination accounted for 99.2% of the total, while those diagnosed as Grade B accounted for 0.8%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed in the Preliminary Baseline Survey.

In the confirmatory examination, as a result of fine-needle aspiration cytology, 71 participants were diagnosed that their tumors were malignant or suspicious for malignancy.

Included in this reference material on March 31, 2016
Updated on March 31, 2022

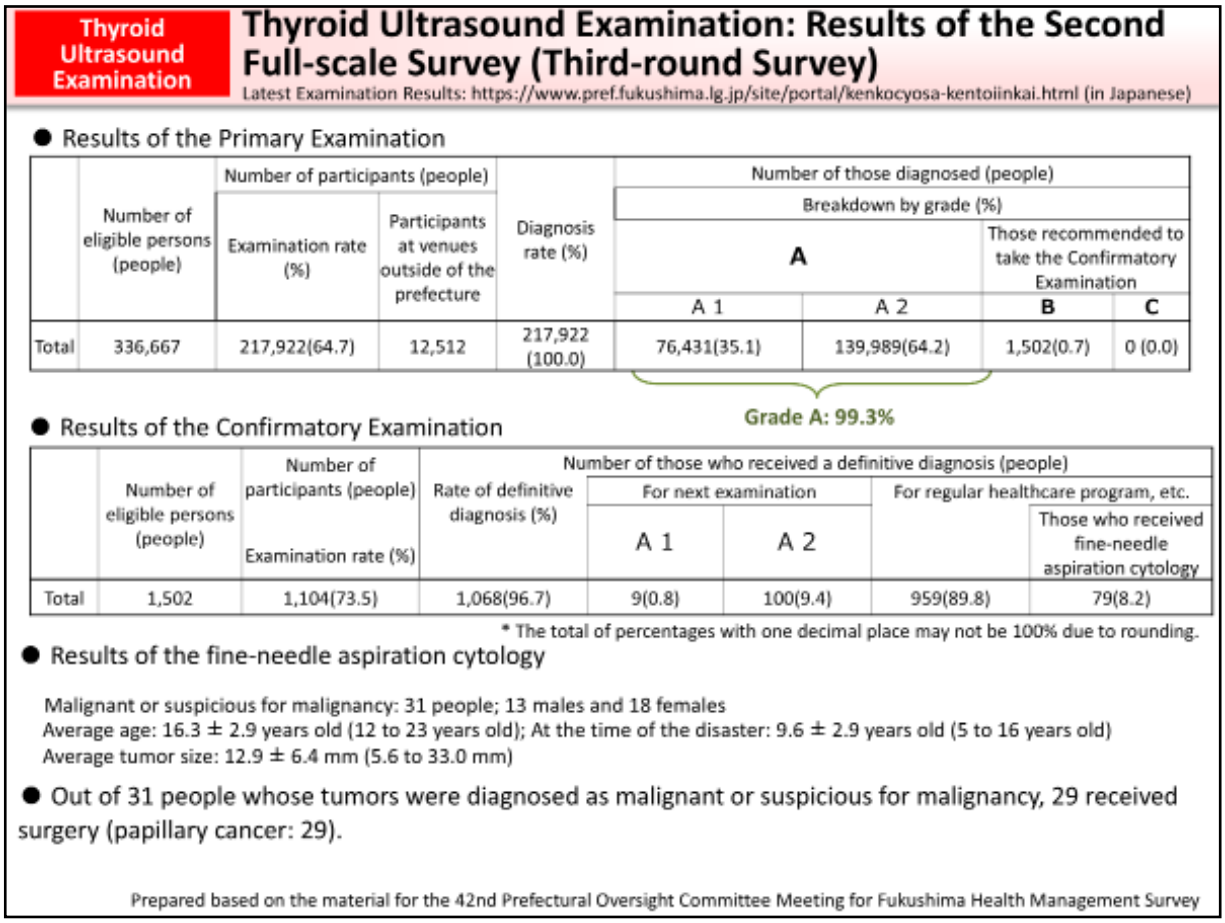


When the Thyroid Ultrasound Examination commenced, many concerns were raised about a relatively high percentage of participants diagnosed as Grade A2. Therefore, in FY2012, the Ministry of the Environment (MOE) conducted the thyroid examination targeting approx. 4,300 children in Nagasaki, Yamanashi and Aomori Prefectures (3-prefecture examination) in the same manner as the examination conducted in Fukushima Prefecture.

The Preliminary Baseline Survey in Fukushima Prefecture covered those aged zero to 18 at the time of the disaster, and the first Full-scale Survey covered those aged two to 23 at the time of the examination, respectively, while the 3-prefecture examination excluded children aged under 3 and covered only those aged 3 to 18. As the sample size of the cohort was much smaller in the 3-prefecture examination, a simple comparison cannot be made, but the results show that those diagnosed as Grade A2 were not exceedingly greater in number among the children of Fukushima Prefecture. The results of the 3-prefecture examination after age adjustment based on the demographics of Japan as of 2010 show that the detection rate of cysts was reported as 52.35% and that of nodules as 1.54%,[1] which were similar to the results of the Preliminary Baseline Survey and the first Full-scale Survey in Fukushima Prefecture. The report of the 3-prefecture examination also made the following observations: “It is generally known that the detection rate of nodular lesions is lower in the group of participants aged 3 to 5 than in the group of participants aged 6 or older, and that females show higher detection rate than males. Therefore, there is the possibility that a detection rate tabulated based on simple descriptive statistical methods as in this case may be higher than the actual rate.”[2] In fact, the percentage of those diagnosed as Grade A2 in the first Full-scale Survey (second-round survey) excluding participants aged 2 or younger was extremely close to the results of the 3-prefecture examination.

1. Taniguchi N, et al.Ultrasonographic thyroid nodular findings in Japanese children. J Med Ultrasonics (2013) 40:219-224
2. “Report on the Outcome of the FY2012 Survey on Detection Rates of Thyroid Abnormalities” (commissioned by MOE), The Japan Association of Breast and Thyroid Sonology (March 2013)

Included in this reference material on March 31, 2014
Updated on March 31, 2026



Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Second Full-scale Survey (Third-round Survey)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
		Examination rate (%)	Participants at venues outside of the prefecture		Breakdown by grade (%)			
					A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	336,667	217,922(64.7)	12,512	217,922 (100.0)	76,431(35.1)	139,989(64.2)	1,502(0.7)	0 (0.0)

Grade A: 99.3%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people) / Examination rate (%)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
				For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	1,502	1,104(73.5)	1,068(96.7)	9(0.8)	100(9.4)	959(89.8)	79(8.2)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 31 people; 13 males and 18 females
Average age: 16.3 ± 2.9 years old (12 to 23 years old); At the time of the disaster: 9.6 ± 2.9 years old (5 to 16 years old)
Average tumor size: 12.9 ± 6.4 mm (5.6 to 33.0 mm)

● Out of 31 people whose tumors were diagnosed as malignant or suspicious for malignancy, 29 received surgery (papillary cancer: 29).

Prepared based on the material for the 42nd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These are the results of the second Full-scale Survey, which was the third round of the Thyroid Ultrasound Examination. Participants diagnosed as Grade A in the primary examination accounted for 99.3% of the total, while those diagnosed as Grade B accounted for 0.7%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed in the Preliminary Baseline Survey and the first Full-scale Survey (second-round survey). In the confirmatory examination, as a result of fine-needle aspiration cytology, 31 participants were diagnosed that their tumors were malignant or suspicious for malignancy.

Included in this reference material on March 31, 2019
Updated on March 31, 2022

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Third Full-scale Survey (Fourth-round Survey)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
					Breakdown by grade (%)			
		Examination rate (%)	Participants at venues outside of the prefecture		A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	294,228	183,410 (62.3)	10,234	183,410 (100.0)	61,712 (33.6)	120,304 (65.6)	1,394 (0.8)	0 (0.0)

Grade A: 99.2%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
				For next examination		For regular healthcare program, etc.	
		Examination rate (%)		A 1	A 2		Those who received fine-needle aspiration cytology
Total	1,394	1,036 (74.3)	1,016 (98.1)	6 (0.6)	88 (8.7)	922 (90.7)	91 (9.9)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 39 people; 17 males and 22 females
Average age: 17.0 ± 3.1 years old (9 to 24 years old); At the time of the disaster: 8.3 ± 2.9 years old (0 to 14 years old)
Average tumor size: 13.1 ± 6.3 mm (6.1 to 29.4 mm)

● Out of 39 people whose tumors were diagnosed as malignant or suspicious for malignancy, 34 received surgery (papillary cancer: 34).

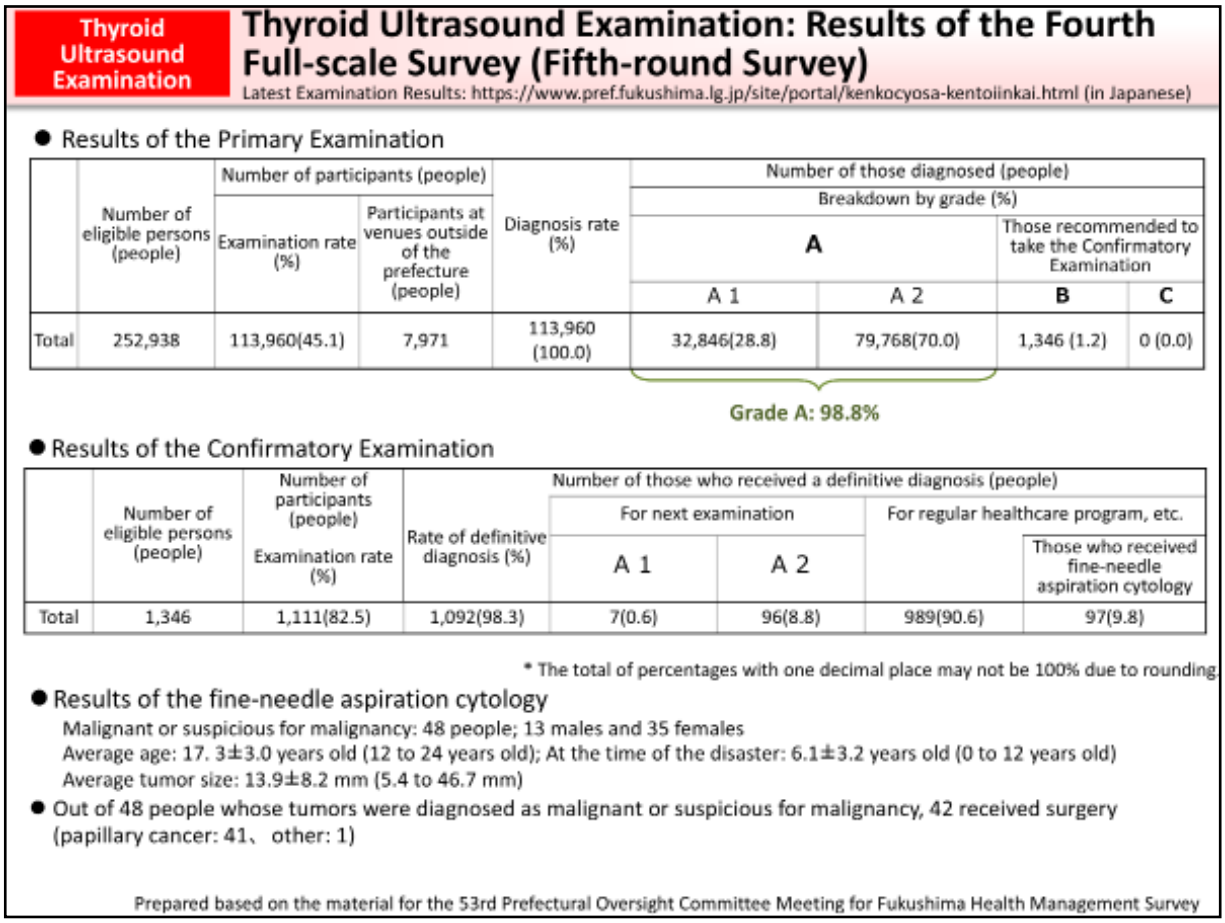
Prepared based on the material for the 46th Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These are the results of the third Full-scale Survey which was the fourth round of the Thyroid Ultrasound Examination.

Participants diagnosed as Grade A in the primary examination accounted for 99.2% of the total, while those diagnosed as Grade B accounted for 0.8%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed in the Preliminary Baseline Survey and the first and second Full-scale Surveys (second- and third-round surveys).

In the confirmatory examination, as a result of fine-needle aspiration cytology, 39 participants were diagnosed that their tumors were malignant or suspicious for malignancy.

Included in this reference material on March 31, 2021
Updated on March 31, 2023



Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Fourth Full-scale Survey (Fifth-round Survey)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
		Examination rate (%)	Participants at venues outside of the prefecture (people)		Breakdown by grade (%)			
					A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	252,938	113,960(45.1)	7,971	113,960 (100.0)	32,846(28.8)	79,768(70.0)	1,346 (1.2)	0 (0.0)

Grade A: 98.8%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people) Examination rate (%)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
				For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	1,346	1,111(82.5)	1,092(98.3)	7(0.6)	96(8.8)	989(90.6)	97(9.8)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 48 people; 13 males and 35 females
Average age: 17. 3±3.0 years old (12 to 24 years old); At the time of the disaster: 6.1±3.2 years old (0 to 12 years old)
Average tumor size: 13.9±8.2 mm (5.4 to 46.7 mm)

● Out of 48 people whose tumors were diagnosed as malignant or suspicious for malignancy, 42 received surgery (papillary cancer: 41、other: 1)

Prepared based on the material for the 53rd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These are the results of the fourth Full-scale Survey, which was the fifth round of the Thyroid Ultrasound Examination.

The survey was conducted over three years due to the influence of COVID-19 pandemic.

Participants diagnosed as Grade A in the primary examination accounted for 98.8% of the total. Those diagnosed as Grade B accounted for 1.2%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller, and most of those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed in the Preliminary Baseline Survey and the Full-scale Surveys (the second, third, and fourth-round surveys).

In the confirmatory examination, as a result of fine-needle aspiration cytology, 48 participants were diagnosed that their tumors were malignant or suspicious for malignancy.

Included in this reference material on March 31, 2024
Updated on March 31, 2025

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of Full-scale Survey (the survey at age 25 years)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
		Examination rate (%)	Participants at venues outside of the prefecture		Breakdown by grade (%)			
					A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	149.843	12,603(8.4)	4,453	12,286 (97.5)	5,202(42.3)	6,407(52.1)	677(5.5)	0 (0.0)

Grade A: 94.4%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
		Examination rate (%)		For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	651	554(85.1)	546(98.6)	5(0.9)	38(7.0)	503(92.1)	49(9.7)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 23 people; 4 males and 19 females
Average age: 25.3 ± 0.7 years old (24 to 27 years old); At the time of the disaster: 15.5 ± 1.6 years old (12 to 18 years old)
Average tumor size: 14.2 ± 10.5 mm (5.3 to 49.9 mm)

● Out of 23 people whose tumors were diagnosed as malignant or suspicious for malignancy, 18 received surgery (papillary cancer: 17; follicular cancer: 1).

Prepared based on the material for the 52nd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

From FY2017, during the implementation period of the Full-scale Survey (third-round survey), a survey for those who became 25 years old during the relevant fiscal year was commenced as part of the Full-scale Survey. These are the results of the primary examination for residents born in FY1992 through FY1996 and the confirmatory examination for those born in FY1992 to FY1995.

Participants diagnosed as Grade A in the primary examination accounted for 94.4% of the total, while those diagnosed as Grade B accounted for 5.5%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed so far, but targeted participants were older than in prior examinations, and therefore, the percentages of those diagnosed as Grade B and those diagnosed to have nodules were higher compared with the Preliminary Baseline Survey and the Full-scale Surveys (second- to fifth-round surveys).

In the confirmatory examination, as a result of fine-needle aspiration cytology, 23 participants were diagnosed that their tumors were malignant or suspicious for malignancy.

Included in this reference material on March 31, 2021
Updated on March 31, 2025

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of Full-scale Survey (the survey at age 30 years)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Results of the Primary Examination

	Number of eligible persons (people)	Number of participants (people)		Diagnosis rate (%)	Number of those diagnosed (people)			
		Examination rate (%)	Participants at venues outside of the prefecture		Breakdown by grade (%)			
					A		Those recommended to take the Confirmatory Examination	
					A 1	A 2	B	C
Total	44.489	2.221(5.0)	609	1,624 (73.1)	720(44.3)	761(46.9)	143(8.8)	0 (0.0)

Grade A: 91.2%

● Results of the Confirmatory Examination

	Number of eligible persons (people)	Number of participants (people)	Rate of definitive diagnosis (%)	Number of those who received a definitive diagnosis (people)			
		Examination rate (%)		For next examination		For regular healthcare program, etc.	
				A 1	A 2		Those who received fine-needle aspiration cytology
Total	139	118(84.9)	111(94.1)	1(0.9)	7(6.3)	103(92.8)	16(15.5)

* The total of percentages with one decimal place may not be 100% due to rounding.

● Results of the fine-needle aspiration cytology

Malignant or suspicious for malignancy: 6 people; 0 male and 6 females
Average age: 29.8±0.4 years old (29 to 30 years old) , At the time of the disaster 18.0±0.0 years old (18 to 18 years old)
Average tumor size: 12.1±3.4mm (9.8 to 18.6mm)

● Out of 6 people whose tumors were diagnosed as malignant or suspicious for malignancy, 4 received surgery (papillary cancer: 4).

Prepared based on the material for the 52nd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

From FY2020, during the implementation period of the Full-scale Survey (fifth-round survey), a survey for those who became 30 years old during the relevant fiscal year was commenced as part of the Full-scale Survey. These are the results of the primary examination and the confirmatory examination for those born in FY1992.

Participants diagnosed as Grade A in the primary examination accounted for 91.2% of the total, while those diagnosed as Grade B accounted for 8.8%. Most of those diagnosed as Grade A2 had cysts of 20 mm or smaller and most of those diagnosed as Grade B had nodules of 5.1 mm or larger. This tendency was the same as that observed so far, but targeted participants were further older than in prior examinations, and therefore, the percentages of those diagnosed as Grade B and those diagnosed to have nodules were higher compared with the previous Full-scale Survey (the survey at age 25 years).

In the confirmatory examination, as a result of fine-needle aspiration cytology, six participants were diagnosed that their tumors were malignant or suspicious for malignancy.

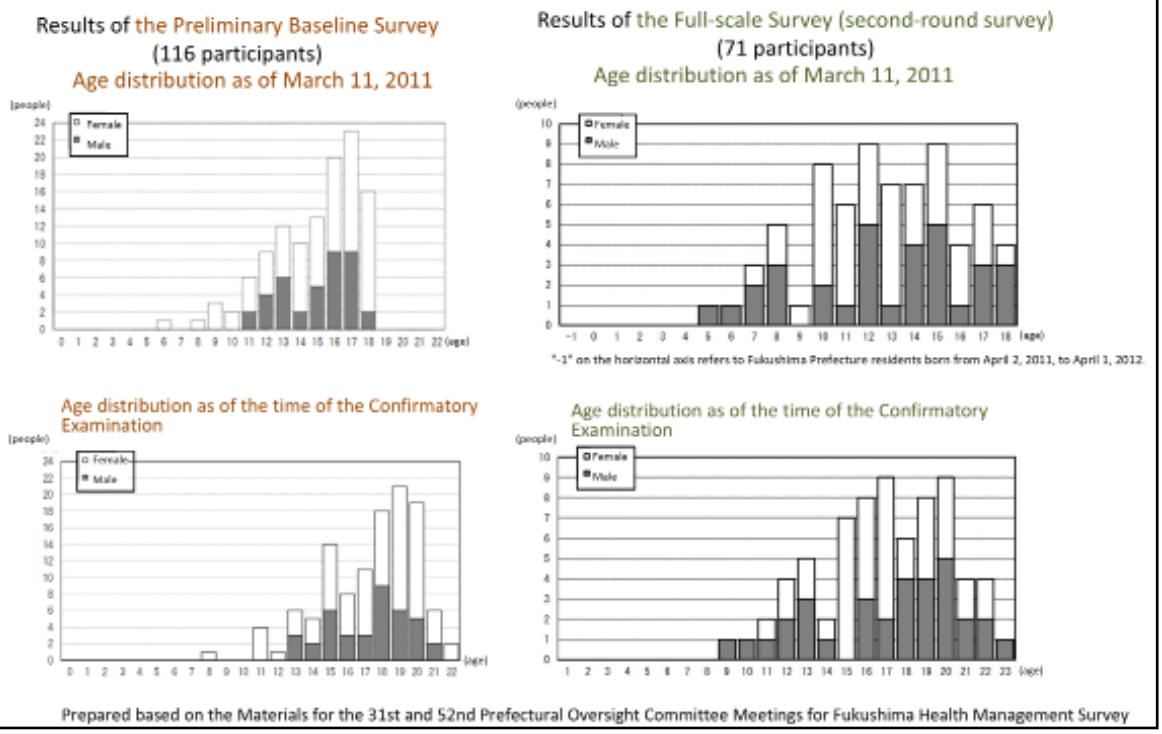
Included in this reference material on March 31, 2024
Updated on March 31, 2025

Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Preliminary Baseline Survey and the Full-scale Survey (Details of Fine-needle Aspiration Cytology 1)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

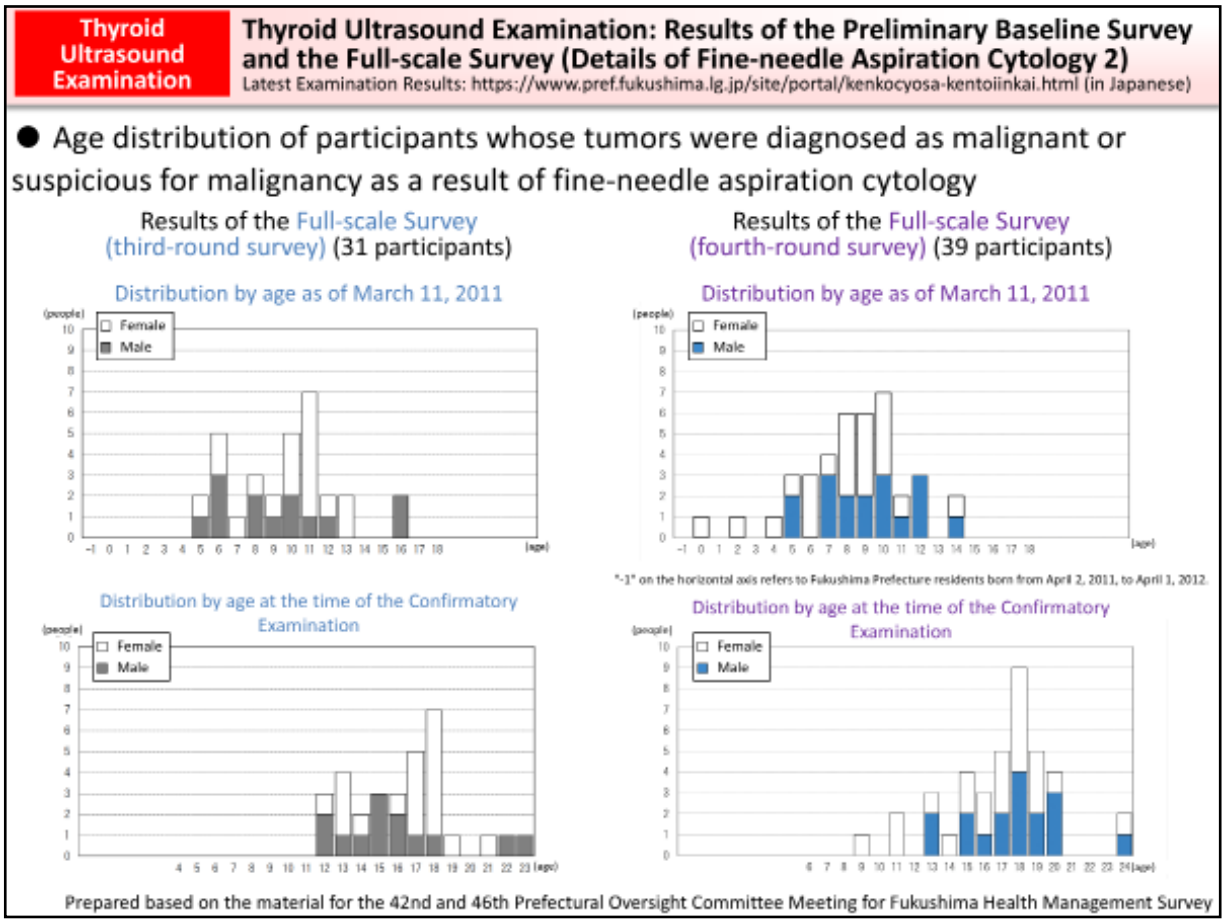
- Age distribution of participants whose tumors were diagnosed as malignant or suspicious for malignancy as a result of fine-needle aspiration cytology



Prepared based on the Materials for the 31st and 52nd Prefectural Oversight Committee Meetings for Fukushima Health Management Survey

These graphs show the age distributions of participants whose thyroid lesions were diagnosed as malignant or suspicious for malignancy by fine-needle aspiration cytology in the Preliminary Baseline Survey and the Full-scale Survey (second-round survey): they are shown by the age as of March 11, 2011 (top) and at the time of the confirmatory examination (bottom). The results of the Preliminary Baseline Survey and the Full-scale Survey (second-round survey) do not show the situation where thyroid cancer is found more frequently among young children (aged zero to 5), who are considered to have higher sensitivity to radiation, than among people in the other age groups.

Included in this reference material on March 31, 2014
Updated on March 31, 2025



These graphs show the age distribution, as of March 11, 2011, of participants who subsequently had thyroid lesions diagnosed as malignant or suspicious for malignancy by fine-needle aspiration cytology in the second and third Full-scale Surveys (third- and fourth-round surveys), and their ages at the time of the confirmatory examination. The distribution by age at the time of the disaster tends to be shifted towards younger ages compared with the results of the Preliminary Baseline Survey and the first Full-scale Survey (second-round survey), but the distribution by age at the time of the confirmatory examination was the same as in the case of the Preliminary Baseline Survey and the first Full-scale Survey (second-round survey).

Included in this reference material on March 31, 2021
Updated on March 31, 2023

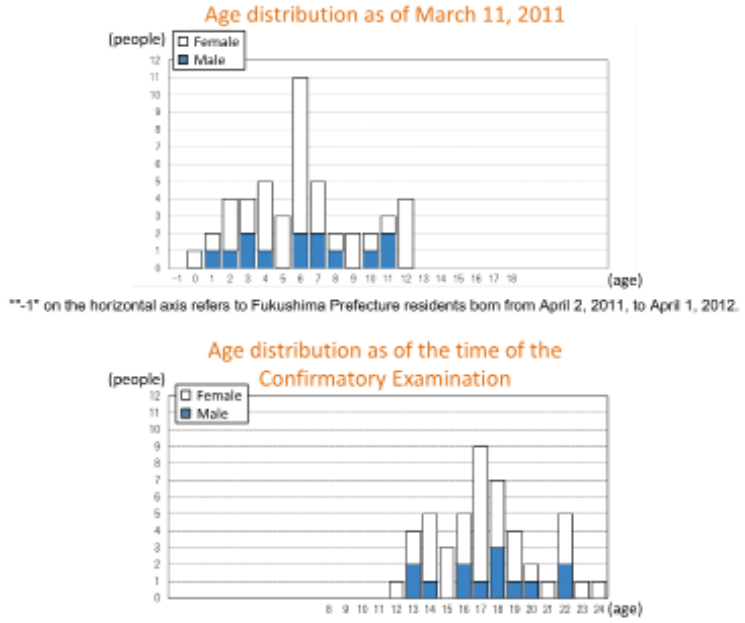
Thyroid Ultrasound Examination

Thyroid Ultrasound Examination: Results of the Preliminary Baseline Survey and the Full-scale Survey (Details of Fine-needle Aspiration Cytology 3)

Latest Examination Results: https://www.pref.fukushima.lg.jp/site/portal/kenkocyosa-kentoiinkai.html (in Japanese)

● Age distribution of participants whose tumors were diagnosed as malignant or suspicious for malignancy as a result of fine-needle aspiration cytology

Results of the Full-scale Survey (fifth-round survey) (48 participants)

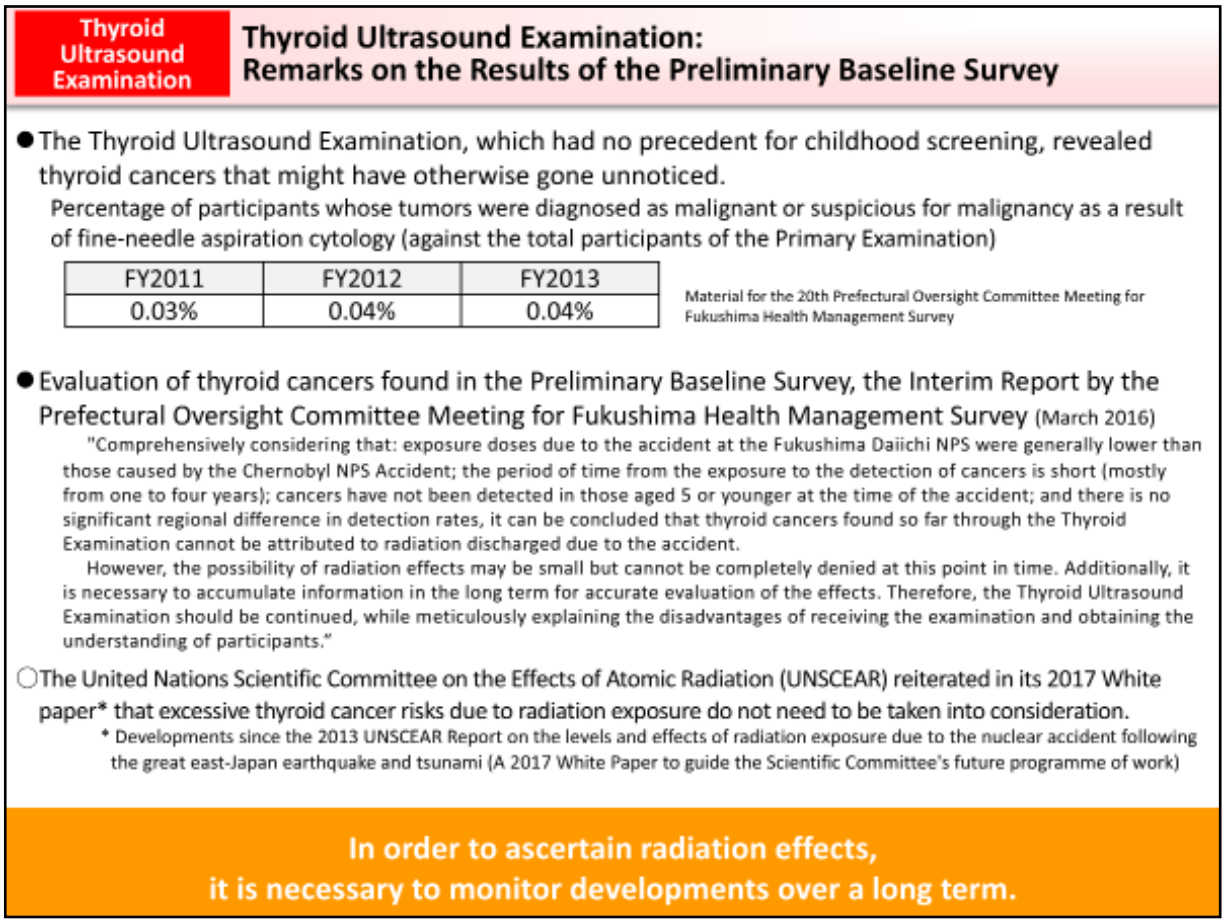


"-1" on the horizontal axis refers to Fukushima Prefecture residents born from April 2, 2011, to April 1, 2012.

Prepared based on the material for the 53rd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

These graphs show the age distributions of participants whose thyroid lesions were diagnosed as malignant or suspicious for malignancy by fine-needle aspiration cytology in the Full-scale Survey (fifth-round survey): they are shown by the age as of March 11, 2011 (top) and at the time of the confirmatory examination (bottom). The distribution by age at the time of the disaster tends to be shifted towards younger ages compared with the results of the Preliminary Baseline Survey and the first Full-scale Survey (second-round survey), but the distribution by age at the time of the confirmatory examination was the same as in the case of the Preliminary Baseline Survey and the Full-scale Surveys (up to the fourth-round survey).

Included in this reference material on March 31, 2024
Updated on March 31, 2025



Thyroid cancers found so far through the Thyroid Ultrasound Examination being conducted in Fukushima Prefecture are considered to be unrelated to the radiation discharged due to the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS.

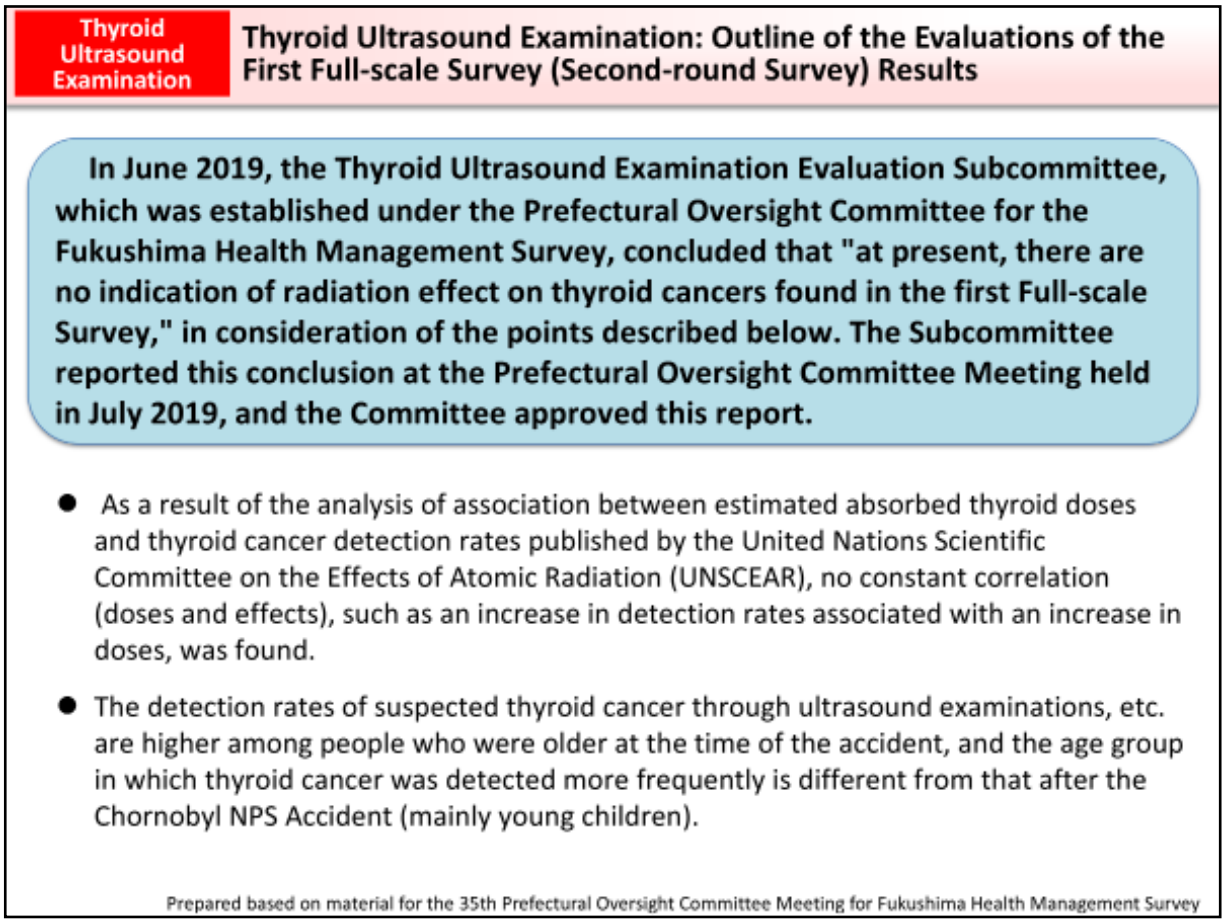
This evaluation is based on a comprehensive judgment of the following facts:

1. Exposure doses due to the accident at the Fukushima Daiichi NPS were generally lower compared with those caused by the Chornobyl NPS Accident.
2. The period of time from the exposure to the detection of cancers is short, mostly from one to four years.
3. Cancers have not been detected in those who were 5 years old or younger at the time of the accident.
4. Age distribution of patients significantly differs in Fukushima Prefecture and Chornobyl (p.140 of Vol. 1, "Comparison between the Chornobyl NPS Accident and the TEPCO's Fukushima Daiichi NPS Accident (Ages at the Time of Radiation Exposure)").
5. There are no significant differences in detection rates among different regions.

However, it is necessary to monitor developments over a long term to ascertain radiation effects.

(Related to p.141 of Vol. 1, "Evaluation of the Interim Report on Thyroid Cancer Compiled by the Expert Meeting on Health Management After the TEPCO's Fukushima Daiichi NPS Accident")

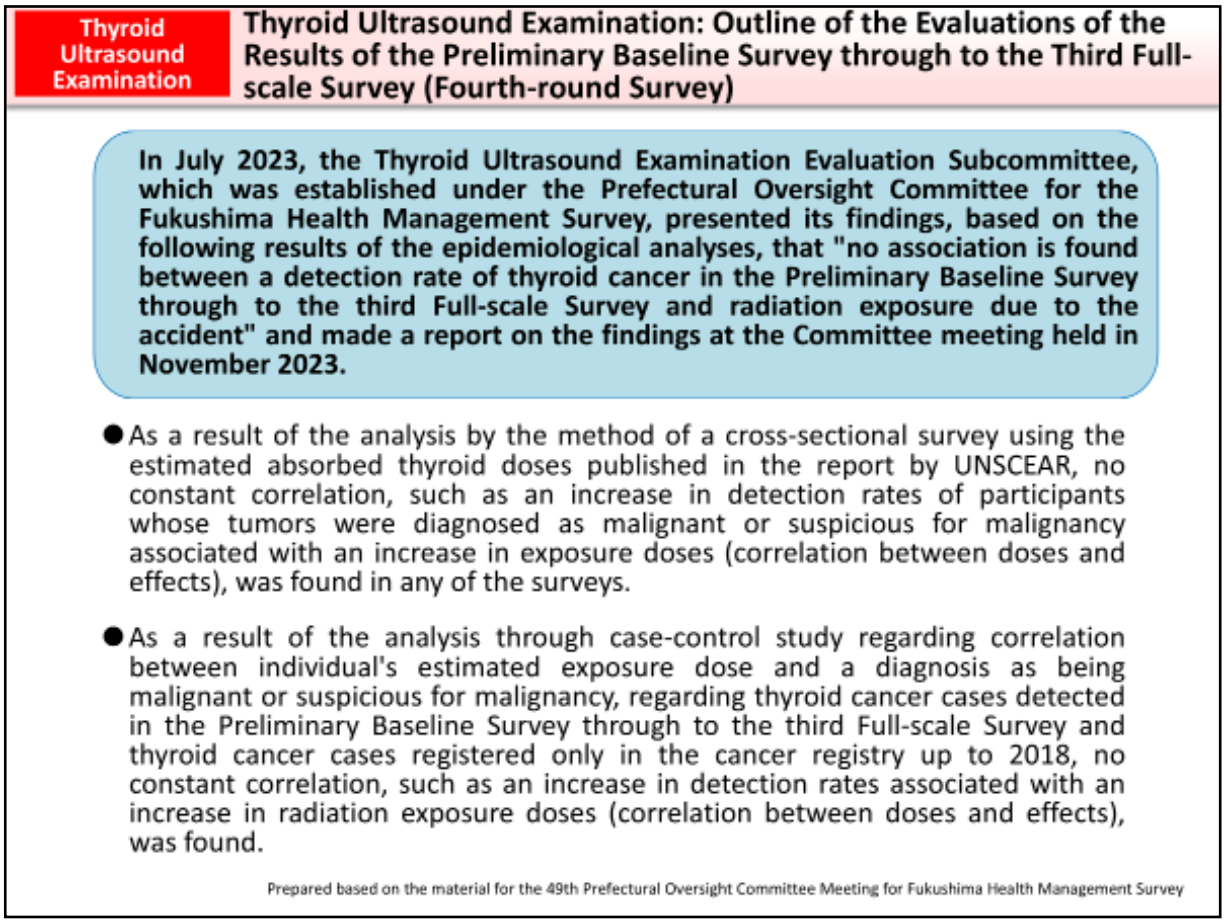
Included in this reference material on March 31, 2015
Updated on March 31, 2024



In June 2019, the Thyroid Ultrasound Examination Evaluation Subcommittee, which was established under the Prefectural Oversight Committee for the Fukushima Health Management Survey, published the “Report on the Results of the first Full-scale Survey of the Fukushima Thyroid Ultrasound Examination.” In the Report, the Subcommittee states that no correlation is found between thyroid cancer cases detected through the first Full-scale Survey (second-round survey) and radiation exposure due to Tokyo Electric Power Company (TEPCO)’s Fukushima Daiichi NPS Accident. Additionally, the Subcommittee points out the necessity to review evaluations of the Thyroid Ultrasound Examination and examination results from the following perspectives:

- It is necessary to analyze accumulated results of the second and third Full-scale Surveys.
- It is necessary to conduct analyses by properly ascertaining the status of developing cancer among the subjects of Thyroid Ultrasound Examination using regional and national cancer registries.
- It is necessary to study correlation between doses and incidence rates of thyroid cancer in the future by using more detailed data on estimated thyroid exposure doses as a case-control study with adjusted confounding factors or as a prospective study.

Included in this reference material on March 31, 2020
Updated on March 31, 2024



In July 2023, the Thyroid Ultrasound Examination Evaluation Subcommittee, which was established under the Prefectural Oversight Committee for the Fukushima Health Management Survey, published the “Report on the Results of the Preliminary Baseline Survey through to the Third Full-scale Survey (Fourth-round Survey) of the Thyroid Ultrasound Examination.” In the Report, the Subcommittee presented its findings, based on the following results of the epidemiological analyses, that “no association is found between a detection rate of thyroid cancer in the Preliminary Baseline Survey through to the third Full-scale Survey and radiation exposure due to the accident.” The Subcommittee made a report on the findings at the Committee meeting held in November 2023.

- As a result of the analysis by the method of a cross-sectional survey using the estimated absorbed doses to the thyroid published in the report of the UNSCEAR, no constant correlation, such as an increase in detection rates of participants whose tumors were diagnosed as malignant or suspicious for malignancy associated with an increase in exposure doses (correlation between doses and effects), was found in any of the surveys.
- As a result of the analysis through case-control study regarding correlation between individual’s estimated exposure dose and a diagnosis as being malignant or suspicious for malignancy, regarding thyroid cancer cases detected in the Preliminary Baseline Survey through to the third Full-scale Survey and thyroid cancer cases registered only in the cancer registry up to 2018, no constant correlation, such as an increase in detection rates associated with an increase in radiation exposure doses (correlation between doses and effects), was found.

Included in this reference material on March 31, 2024