## Basic Survey (Radiation Dose Estimates)

Reported on 14 September 2016

## 1. Response Rates and Radiation Dose Estimates

### 1.1 Response Rates of Residents

The overall effective response rate to the Basic Survey (radiation dose estimates), for the entire population of Fukushima Prefecture, was $27.5 \%$ ( 565,484 of $2,055,350$ ) as of 30 June 2016. Among the respondents, 72,181 answered through the simplified questionnaire. (See Table 1.)
Table 2 shows the response rates by age group.

| Table 1 Response rates to the Basic Survey |  |  |  |
| :---: | ---: | ---: | ---: |
| As of 30 June 2016 |  |  |  |
| Survey population | $2,055,350$ |  |  |
| Responses Original <br> questionnaire 493,303 <br>  Simplified <br> questionnaire* 72,181 | $24.0 \%$ |  |  |
|  | Total | 565,484 | $27.5 \%$ |


| Table 2 |  | Response rates by age group |  |  |  |  |  | As of 30 June 2016 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :--- | :--- | :---: |
| Age group (years) | $0-9$ | $10-19$ | $20-29$ | $30-39$ | $40-49$ | $50-59$ | $60-$ | Total |  |
| Response rate | $46.4 \%$ | $35.7 \%$ | $18.0 \%$ | $24.6 \%$ | $22.3 \%$ | $22.9 \%$ | $27.9 \%$ | $27.5 \%$ |  |

### 1.2 Radiation Dose Estimates

Doses have been estimated for 551,233 of 565,484 respondents ( $97.5 \%$ ) as of 30 June 2016, and results have been returned to 549,863 respondents. (See Table 3.)

In case uncertainties in the action record of a questionnaire prevented a radiation dose estimate, further inquiry was made to facilitate an estimate. This supplemental effort has been proceeding as much as possible, but failure to make contact with residents has prevented around 13,500 dose estimates from being completed.


Including areas covered by the initial survey of people in Yamakiya, Namie and litate.

* Table 3 provides a more detailed view of the responses summarized in Table 1.

We have been estimating doses for non-residents who were visiting or staying in Fukushima Prefecture at the time of the accident. (See Table 4.)

| Table 4 | Response rates to the Basic Survey |  |  |  | As of 30 June 2016 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (Visitors) |  |  |  |  |  |
| $\begin{array}{c\|} \hline \text { Number } \\ \text { of } \\ \text { requests } \end{array}$ | Responses | Response rate c=b/a | Completed dose estimates | Proportion <br> $\mathrm{e}=\mathrm{d} / \mathrm{b}$ | Returned results | Proportion $\mathrm{g}=\mathrm{f} / \mathrm{b}$ |
| 3,977 | 2,219 | 55.8\% | 2,000 | 90.1\% | 1,989 | 89.6\% |

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## 2. Results of Radiation Dose Estimates

Table 5 shows a breakdown of completed dose estimates (from Table 3), excluding cases of data covering less than four months.

Radiation doses for a total of 472,572 residents have been estimated to date. The results for 463,394 respondents (excluding radiation workers) suggest that the doses for about $87 \%$ of the respondents in Kempoku area and about $92 \%$ in Kenchu area were $<2 \mathrm{mSv}$. The doses for approximately $88 \%$ of the respondents in Kennan area and more than $99 \%$ of those in Aizu and Minami-aizu areas were $<1 \mathrm{mSv}$. Doses for about $77 \%$ of respondents in the Soso area and more than $99 \%$ of respondents in Iwaki were also $<1 \mathrm{mSv}$.


## 3. Evaluation of the results

The latest effective radiation dose estimates showed similar trends to those observed so far.
Since previous epidemiological studies ${ }^{1}$ indicate no significant health effects at doses $\leq 100 \mathrm{mSv}$, we concluded that radiation doses estimated so far are unlikely to cause adverse effects on health, although this conclusion is based on external radiation doses estimated only for the first four months following the accident.

## References

1) Sources and effects of ionizing radiation, United Nations Scientific Committee on the Effects of Atomic Radiation, UNSCEAR 2008 Report to the General Assembly, with scientific annexes.


Response rates to the Basic Survey by district

| Area | District | Survey population | Responses | Response rate $\mathrm{c}=\mathrm{b} / \mathrm{a}$ | Completed dose estimates d |  | Returned results | Proportion $\mathrm{g}=\mathrm{f} / \mathrm{b}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | Fukushima | 295,645 | 93,654 | 31.7\% | 92,116 | 98.4\% | 92,065 | 98.3\% |
|  | Nihonmatsu | 60,857 | 16,872 | 27.7\% | 16,504 | 97.8\% | 16,489 | 97.7\% |
|  | Date | 67,577 | 18,237 | 27.0\% | 17,771 | 97.4\% | 17,758 | 97.4\% |
|  | Motomiya | 31,762 | 9,081 | 28.6\% | 8,912 | 98.1\% | 8,903 | 98.0\% |
|  | Kori | 13,207 | 3,879 | 29.4\% | 3,770 | 97.2\% | 3,770 | 97.2\% |
|  | Kunimi | 10,316 | 3,023 | 29.3\% | 2,935 | 97.1\% | 2,935 | 97.1\% |
|  | Kawamata | 15,885 | 5,153 | 32.4\% | 4,988 | 96.8\% | 4,980 | 96.6\% |
|  | Otama | 8,793 | 1,912 | 21.7\% | 1,868 | 97.7\% | 1,867 | 97.6\% |
|  | Subtotal | 504,042 | 151,811 | 30.1\% | 148,864 | 98.1\% | 148,767 | 98.0\% |
| Kenchu | Koriyama | 339,723 | 86,768 | 25.5\% | 84,974 | 97.9\% | 84,787 | 97.7\% |
|  | Sukagawa | 80,164 | 17,143 | 21.4\% | 16,694 | 97.4\% | 16,647 | 97.1\% |
|  | Tamura | 41,723 | 10,510 | 25.2\% | 10,156 | 96.6\% | 10,149 | 96.6\% |
|  | Kagamiishi | 13,109 | 2,887 | 22.0\% | 2,824 | 97.8\% | 2,818 | 97.6\% |
|  | Tenei | 6,470 | 1,229 | 19.0\% | 1,198 | 97.5\% | 1,198 | 97.5\% |
|  | Ishikawa | 17,488 | 4,202 | 24.0\% | 4,099 | 97.5\% | 4,082 | 97.1\% |
|  | Tamakawa | 7,337 | 1,500 | 20.4\% | 1,452 | 96.8\% | 1,440 | 96.0\% |
|  | Hirata | 7,053 | 1,655 | 23.5\% | 1,599 | 96.6\% | 1,598 | 96.6\% |
|  | Asakawa | 7,163 | 1,508 | 21.1\% | 1,472 | 97.6\% | 1,470 | 97.5\% |
|  | Furudono | 6,319 | 1,309 | 20.7\% | 1,274 | 97.3\% | 1,270 | 97.0\% |
|  | Miharu | 18,993 | 4,860 | 25.6\% | 4,761 | 98.0\% | 4,758 | 97.9\% |
|  | Ono | 11,701 | 2,605 | 22.3\% | 2,541 | 97.5\% | 2,531 | 97.2\% |
|  | Subtotal | 557,243 | 136,176 | 24.4\% | 133,044 | 97.7\% | 132,748 | 97.5\% |
| Kennan | Shirakawa | 65,428 | 15,974 | 24.4\% | 15,633 | 97.9\% | 15,614 | 97.7\% |
|  | Nishigo | 20,089 | 4,975 | 24.8\% | 4,858 | 97.6\% | 4,857 | 97.6\% |
|  | Izumizaki | 6,931 | 1,380 | 19.9\% | 1,341 | 97.2\% | 1,339 | 97.0\% |
|  | Nakajima | 5,306 | 1,001 | 18.9\% | 976 | 97.5\% | 970 | 96.9\% |
|  | Yabuki | 18,341 | 4,088 | 22.3\% | 3,978 | 97.3\% | 3,959 | 96.8\% |
|  | Tanagura | 15,384 | 3,026 | 19.7\% | 2,958 | 97.8\% | 2,942 | 97.2\% |
|  | Yamatsuri | 6,491 | 1,464 | 22.6\% | 1,414 | 96.6\% | 1,412 | 96.4\% |
|  | Hanawa | 10,062 | 2,313 | 23.0\% | 2,262 | 97.8\% | 2,242 | 96.9\% |
|  | Samegawa | 4,196 | 819 | 19.5\% | 791 | 96.6\% | 791 | 96.6\% |
|  | Subtotal | 152,228 | 35,040 | 23.0\% | 34,211 | 97.6\% | 34,126 | 97.4\% |
| Aizu | Aizuwakamatsu | 127,817 | 29,589 | 23.1\% | 28,591 | 96.6\% | 28,202 | 95.3\% |
|  | Kitakata | 53,202 | 11,055 | 20.8\% | 10,620 | 96.1\% | 10,522 | 95.2\% |
|  | Kitashiobara | 3,276 | 607 | 18.5\% | 583 | 96.0\% | 580 | 95.6\% |
|  | Nishiaizu | 7,725 | 1,453 | 18.8\% | 1,350 | 92.9\% | 1,335 | 91.9\% |
|  | Bandai | 3,888 | 793 | 20.4\% | 775 | 97.7\% | 772 | 97.4\% |
|  | Inawashiro | 16,271 | 3,647 | 22.4\% | 3,513 | 96.3\% | 3,505 | 96.1\% |
|  | Aizubange | 17,881 | 3,259 | 18.2\% | 3,114 | 95.6\% | 3,093 | 94.9\% |
|  | Yugawa | 3,513 | 713 | 20.3\% | 680 | 95.4\% | 676 | 94.8\% |
|  | Yanaizu | 4,077 | 719 | 17.6\% | 687 | 95.5\% | 685 | 95.3\% |
|  | Mishima | 2,031 | 373 | 18.4\% | 339 | 90.9\% | 339 | 90.9\% |
|  | Kaneyama | 2,544 | 629 | 24.7\% | 573 | 91.1\% | 573 | 91.1\% |
|  | Showa | 1,569 | 354 | 22.6\% | 327 | 92.4\% | 327 | 92.4\% |
|  | Aizumisato | 23,411 | 4,588 | 19.6\% | 4,388 | 95.6\% | 4,354 | 94.9\% |
|  | Subtotal | 267,205 | 57,779 | 21.6\% | 55,540 | 96.1\% | 54,963 | 95.1\% |
| Minami-aizu | Shimogo | 6,650 | 1,251 | 18.8\% | 1,186 | 94.8\% | 1,182 | 94.5\% |
|  | Hinoemata | 614 | 142 | 23.1\% | 133 | 93.7\% | 133 | 93.7\% |
|  | Tadami | 5,030 | 1,143 | 22.7\% | 1,080 | 94.5\% | 1,077 | 94.2\% |
|  | Minami-aizu | 18,495 | 3,852 | 20.8\% | 3,670 | 95.3\% | 3,656 | 94.9\% |
|  | Subtotal | 30,789 | 6,388 | 20.7\% | 6,069 | 95.0\% | 6,048 | 94.7\% |
| Soso | Soma | 37,373 | 13,293 | 35.6\% | 12,764 | 96.0\% | 12,737 | 95.8\% |
|  | Minami-soma | 70,013 | 30,202 | 43.1\% | 29,446 | 97.5\% | 29,414 | 97.4\% |
|  | Hirono | 5,165 | 2,219 | 43.0\% | 2,140 | 96.4\% | 2,136 | 96.3\% |
|  | Naraha | 7,963 | 4,185 | 52.6\% | 4,022 | 96.1\% | 4,018 | 96.0\% |
|  | Tomioka | 15,751 | 8,617 | 54.7\% | 8,411 | 97.6\% | 8,405 | 97.5\% |
|  | Kawauchi | 2,996 | 1,539 | 51.4\% | 1,487 | 96.6\% | 1,487 | 96.6\% |
|  | Okuma | 11,473 | 6,080 | 53.0\% | 5,858 | 96.3\% | 5,855 | 96.3\% |
|  | Futaba | 7,051 | 3,949 | 56.0\% | 3,845 | 97.4\% | 3,843 | 97.3\% |
|  | Namie | 21,335 | 12,963 | 60.8\% | 12,670 | 97.7\% | 12,659 | 97.7\% |
|  | Katsurao | 1,541 | 824 | 53.5\% | 768 | 93.2\% | 768 | 93.2\% |
|  | Shinchi | 8,357 | 2,706 | 32.4\% | 2,606 | 96.3\% | 2,604 | 96.2\% |
|  | litate | 6,588 | 3,443 | 52.3\% | 3,332 | 96.8\% | 3,325 | 96.6\% |
|  | Subtotal | 195,606 | 90,020 | 46.0\% | 87,349 | 97.0\% | 87,251 | 96.9\% |
| Iwaki | Iwaki | 348,237 | 88,270 | 25.3\% | 86,156 | 97.6\% | 85,960 | 97.4\% |
| Total |  | 2,055,350 | 565,484 | 27.5\% | 551,233 | 97.5\% | 549,863 | 97.2\% |

Estimated external radiation doses in the first four months (from 11 March through 11 July)

Estimated external radiation doses by region


Percentages have been rounded and may not total to $100 \%$.


Estimated external radiation doses by age group (excluding radiation workers)

| $\begin{gathered} \text { Effective } \\ \text { Dose } \\ (\mathrm{mSv}) \end{gathered}$ | Age at the time of the disaster (years) |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 0-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70-79 | $80-$ |  |
| <1 | 47,942 | 44,412 | 21,247 | 34,114 | 28,556 | 32,828 | 36,302 | 25,714 | 17,125 | 288,240 |
| 1-2 | 22,913 | 21,607 | 10,070 | 18,221 | 16,592 | 18,519 | 19,480 | 12,283 | 6,933 | 146,618 |
| 2-3 | 6,414 | 4,239 | 1,129 | 2,331 | 2,235 | 2,965 | 3,423 | 1,995 | 839 | 25,570 |
| 3-4 | 250 | 157 | 81 | 158 | 153 | 230 | 233 | 164 | 69 | 1,495 |
| 4-5 | 19 | 47 | 35 | 39 | 75 | 95 | 81 | 76 | 38 | 505 |
| 5-6 | 14 | 13 | 29 | 34 | 46 | 86 | 73 | 66 | 28 | 389 |
| 6-7 | 3 | 6 | 10 | 22 | 24 | 45 | 52 | 47 | 21 | 230 |
| 7-8 | 4 | 4 | 8 | 9 | 13 | 35 | 22 | 14 | 7 | 116 |
| 8-9 | 2 | 6 | 2 | 7 | 8 | 16 | 16 | 12 | 9 | 78 |
| 9-10 | 0 | 1 | 2 | 3 | 3 | 12 | 11 | 5 | 4 | 41 |
| 10-11 | 1 | 1 | 1 | 2 | 6 | 11 | 5 | 6 | 3 | 36 |
| 11-12 | 0 | 0 | 1 | 3 | 0 | 5 | 8 | 11 | 2 | 30 |
| 12-13 | 0 | 0 | 0 | 0 | 1 | 6 | 4 | 1 | 1 | 13 |
| 13-14 | 0 | 0 | 1 | 1 | 1 | 4 | 3 | 2 | 0 | 12 |
| 14-15 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 6 |
| $\geq 15$ | 0 | 0 | 0 | 0 | 3 | 3 | 6 | 1 | 2 | 15 |
| Total | 77,562 | 70,493 | 32,616 | 54,944 | 47,716 | 54,863 | 59,722 | 40,397 | 25,081 | 463,394 |

Estimated external radiation doses by sex (excluding radiation workers)

| Effective Dose ( mSv ) | By sex |  |  |  | Total | Proportion (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male | Proportion (\%) | Female | Proportion (\%) |  |  |
| <1 | 128,649 | 60.6 | 159,591 | 63.5 | 288,240 | 62.2 |
| 1-2 | 67,952 | 32.0 | 78,666 | 31.3 | 146,618 | 31.6 |
| 2-3 | 13,887 | 6.5 | 11,683 | 4.7 | 25,570 | 5.5 |
| 3-4 | 951 | 0.4 | 544 | 0.2 | 1,495 | 0.3 |
| 4-5 | 282 | 0.1 | 223 | 0.1 | 505 | 0.1 |
| 5-6 | 199 | 0.1 | 190 | 0.1 | 389 | 0.1 |
| 6-7 | 130 | 0.1 | 100 | 0.0 | 230 | 0.0 |
| 7-8 | 64 | 0.0 | 52 | 0.0 | 116 | 0.0 |
| 8-9 | 49 | 0.0 | 29 | 0.0 | 78 | 0.0 |
| 9-10 | 24 | 0.0 | 17 | 0.0 | 41 | 0.0 |
| 10-11 | 22 | 0.0 | 14 | 0.0 | 36 | 0.0 |
| 11-12 | 16 | 0.0 | 14 | 0.0 | 30 | 0.0 |
| 12-13 | 6 | 0.0 | 7 | 0.0 | 13 | 0.0 |
| 13-14 | 8 | 0.0 | 4 | 0.0 | 12 | 0.0 |
| 14-15 | 3 | 0.0 | 3 | 0.0 | 6 | 0.0 |
| $\geq 15$ | 12 | 0.0 | 3 | 0.0 | 15 | 0.0 |
| Total | 212,254 | 100.0 | 251,140 | 100.0 | 463,394 | 100.0 |

Percentages have been rounded and may not total to 100\%.

Estimated external radiation doses by region in the first four months (from 11 March through 11 July) excluding radiation workers

| Area/region |  | Effective Doses ( mSv ) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | <1 | 1-2 | 2-3 | 3-4 | 4-5 | 5-6 | 6-7 | 7-8 | 8-9 | 9-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | $\geq 15$ |  |
| Kempoku | Fukushima | 16,152 | 52,413 | 9,328 | 151 | 13 | 10 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78,071 |
|  | Nihonmatsu | 1,314 | 8,634 | 3,523 | 90 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,562 |
|  | Date | 4,376 | 9,041 | 1,133 | 147 | 8 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,712 |
|  | Motomiya | 741 | 5,444 | 1,256 | 24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,466 |
|  | Kori | 315 | 2,747 | 66 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,131 |
|  | Kunimi | 963 | 1,435 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,410 |
|  | Kawamata | 630 | 2,738 | 185 | 56 | 17 | 6 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3,636 |
|  | Otama | 390 | 1,054 | 133 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,579 |
| Kempoku Subtotal |  | 24,881 | 83,506 | 15,636 | 472 | 40 | 19 | 10 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 124,567 |
| Kenchu | Koriyama | 23,928 | 40,521 | 7,728 | 413 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72,599 |
|  | Sukagawa | 10,730 | 3,184 | 334 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,252 |
|  | Tamura | 7,644 | 677 | 23 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,347 |
|  | Kagamishi | 2,337 | 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,411 |
|  | Tenei | 395 | 573 | 57 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,026 |
|  | Ishikawa | 3,164 | 38 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,203 |
|  | Tamakawa | 1,175 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,196 |
|  | Hirata | 1,292 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,326 |
|  | Asakawa | 1,211 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,226 |
|  | Furudono | 1,059 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,075 |
|  | Miharu | 3,115 | 809 | 24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,950 |
|  | Ono | 2,021 | 83 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,106 |
| Kenchu Subtotal |  | 58,071 | 46,040 | 8,174 | 423 | 5 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112,717 |
| Kennan | Shirakawa | 12,282 | 1,269 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,560 |
|  | Nishigo | 2,224 | 1,970 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,196 |
|  | Izumizaki | 1,102 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,124 |
|  | Nakajima | 823 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 836 |
|  | Yabuki | 3,343 | 79 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,423 |
|  | Tanagura | 2,521 | 28 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,552 |
|  | Yamatsuri | 1,138 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,147 |
|  | Hanawa | 1,852 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,875 |
|  | Samegawa | 650 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 660 |
| Kennan Subtotal |  | 25,935 | 3,421 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,373 |
| Aizu | Aizuwakamatsu | 23,603 | 157 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,774 |
|  | Kitakata | 8,881 | 55 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,940 |
|  | Kitashiobara | 474 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 478 |
|  | Nishiaizu | 1,011 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,013 |
|  | Bandai | 654 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 664 |
|  | Inawashiro | 2,838 | 30 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,871 |
|  | Aizubange | 2,610 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,625 |
|  | Yugawa | 579 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 583 |
|  | Yanaizu | 544 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 548 |
|  | Mishima | 246 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 |
|  | Kaneyama | 405 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 408 |
|  | Showa | 245 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 246 |
|  | Aizumisato | 3,566 | 21 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,590 |
| Aizu Subtotal |  | 45,656 | 303 | 25 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,986 |
| Minami-aizu | Shimogo | 956 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 961 |
|  | Hinoemata | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 |
|  | Tadami | 874 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 878 |
|  | Minami-aizu | 3,006 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,032 |
| Minami-aizu Subtotal |  | 4,939 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,974 |
| Soso | Soma | 9,998 | 458 | 87 | 20 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 10,570 |
|  | Minami-soma | 19,094 | 6,217 | 513 | 99 | 35 | 3 | 7 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 25,974 |
|  | Hirono | 1,836 | 58 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,898 |
|  | Naraha | 3,393 | 131 | 13 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,541 |
|  | Tomioka | 5,826 | 1,102 | 98 | 18 | 3 | 2 | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7,055 |
|  | Kawauchi | 962 | 350 | 16 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,332 |
|  | Okuma | 3,370 | 1,282 | 112 | 17 | 6 | 4 | 4 | 3 | 0 | 2 | 2 | 1 | 0 | 4 | 0 | 1 | 4,808 |
|  | Futaba | 2,671 | 468 | 77 | 18 | 6 | 4 | 3 | 6 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 2 | 3,260 |
|  | Namie | 5,739 | 2,117 | 383 | 68 | 40 | 17 | 12 | 13 | 9 | 6 | 11 | 7 | 5 | 4 | 3 | 8 | 8,442 |
|  | Katsurao | 502 | 162 | 24 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 693 |
|  | Shinchi | 2,174 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,194 |
|  | litate | 186 | 316 | 363 | 348 | 364 | 333 | 189 | 85 | 62 | 30 | 23 | 17 | 8 | 4 | 3 | 4 | 2,335 |
| Soso Subtotal |  | 55,751 | 12,681 | 1,688 | 595 | 459 | 366 | 218 | 115 | 77 | 41 | 36 | 29 | 13 | 12 | 6 | 15 | 72,102 |
| Iwaki lwaki |  | 73,007 | 632 | 30 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73,675 |
| Total |  | 288,240 | 146,618 | 25,570 | 1,495 | 505 | 389 | 230 | 116 | 78 | 41 | 36 | 30 | 13 | 12 | 6 | 15 | 463,394 |
|  |  | 62.2 | 31.6 | 5.5 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 99.8 |
| Proportion (\%) |  | 93.8 |  | 5.8 |  | 0.2 |  | 0.1 |  | 0.0 |  | 0.0 |  | 0.0 |  | 0.0 |  | 99.9 |
|  |  | 99.8 |  |  |  |  | 0.2 |  |  |  |  | 0.0 |  |  |  |  | 0.0 | 100.0 |
|  | Visitors | 1,442 | 271 | 18 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,733 |
| Total | I+Visitors | 289,682 | 146,889 | 25,588 | 1,497 | 505 | 389 | 230 | 116 | 78 | 41 | 36 | 30 | 13 | 12 | 6 | 15 | 465,127 |

[^1]
# Report of Second-Round Thyroid Ultrasound Examinations (First Full-Scale Thyroid Screening Program) <br> Reported on 14 September 2016 

## 1. Summary

### 1.1 Purpose

In order to monitor the long-term health of children, we are now engaged in a Full-Scale Thyroid Screening Program (second round), to assess the condition of their thyroid glands following first round Preliminary Baseline Screening.

### 1.2 Group

Residents of Fukushima Prefecture including visitors who were born between 2 April 1992 and 1 April 2011 (Preliminary Baseline Screening), and those who were born between 2 April 2011 and 1 April 2012.

### 1.3 Implementation Period

Full-scale Screening started 2 April 2014 and proceeded for two years.
Thereafter we will repeat the examination every two years until the age of 20 , and every five years afterwards. We will endeavor to make sure they do not let more than five years pass between the exams through age 25 .

### 1.4 Responsible Organizations

Fukushima Prefecture commissioned Fukushima Medical University (FMU) to conduct the survey in cooperation with institutions inside and outside Fukushima.

As of 30 June 2016, we provide the primary examination at 51 medical institutions under contract, and try to have more institutions inside Fukushima Prefecture.

One hundred four institutions outside Fukushima Prefecture have agreed to cooperate as of 30 June 2016.
The confirmatory examination has been conducted in Koriyama and Iwaki in Fukushima Prefecture from July 2013, Aizuwakamatsu from August 2014, and several institutions outside Fukushima Prefecture from November 2013. There are 29 institutions that provide the examination as of 30 June 2016.

### 1.5 Method

## 1.5-1 Primary Examination

We use ultrasonography for examination of the thyroid gland.
Assessments are made by specialists on the basis of the following criteria.
-Diagnostic Criteria (A)
Those with A1 and A2 test results are recommended for watchful waiting until they undergo the next screening starting from April 2016.

A1: No nodules / cysts
A2: Nodules $\leq 5.0 \mathrm{~mm}$ or cysts $\leq 20.0 \mathrm{~mm}$

## -Diagnostic Criteria (B)

Those with B test results are advised to take the confirmatory examination.
B: Nodules $\geq 5.1 \mathrm{~mm}$ or cysts $\geq 20.1 \mathrm{~mm}$
Some A2 test results may be re-classified as B results when clinically indicated.

## -Diagnostic Criteria (C)

Those with C test results are advised to take the confirmatory examination.
C : Immediate need for confirmatory examination.

## 1.5-2 Confirmatory Examination

We conduct ultrasonography, blood test, urine test, 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.

## 1.5-3 Flow chart



Fig. 1 Flow chart

### 1.6 Target Municipalities

## $\square$ <br> 25 target municipalities for FY 2014



Fig. 2 Target Municipalities

## 2. Results as of 30 June 2016

### 2.1 Results of Primary Examination

## 2.1-1 Progress Report

The Primary Examination started 2 April 2014, and the participation rate is $70.9 \%(270,378$ of 381,281$)$ from 59 municipalities ( 25 municipalities in FY 2014, and 34 in FY 2015). (See Appendix 1 and 2.)

The results have been returned to $100.0 \%(270,327)$ of the participants. (See Appendix 3.)
Those with A1 or A2 test results were $268,110(99.2 \%)$, B were $2,217(0.8 \%)$, and C was 0 .

Table 1. Screening test coverage as of 30 June 2016

|  | Survey Population <br> a | Participants |  | Proportion (\%) <br> c (c/b) | Test results |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Proportion (\%) <br> b (b/a) | Screened outside Fukushima |  | Class (\%) |  |  |  |
|  |  |  |  |  | A |  | Requiring confirmatory test |  |
|  |  |  |  |  | A1 d (d/c) | A2e (e/c) | B f (f/c) | C g (g/c) |
| FY 2014 | 216,875 | 159,104 (73.4) | 11,381 | 159,090 ( 100.0) | 66,408 (41.7) | 91,379 (57.4) | 1,303 (0.8) | 0 (0.0) |
| FY 2015 | 164,406 | 111,274 (67.7) | 4,171 | 111,237 ( 100.0) | 42,211 (37.9) | 68,112 (61.2) | 914 (0.8) | 0 (0.0) |
| Total | 381,281 | 270,378 (70.9) | 15,552 | 270,327 ( 100.0) | 108,619 (40.2) | 159,491 (59.0) | 2,217 (0.8) | 0 (0.0) |

Table 2. Number and proportion of children with nodules/cysts as of 30 June 2016

|  | Number of confirmed screening results <br> a | Number and proportion of children with nodules/cysts |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Nodules |  | Cysts |  |
|  |  | $\begin{gathered} \geq 5.1 \mathrm{~mm} \\ \mathrm{~b}(\mathrm{~b} / \mathrm{a}) \end{gathered}$ | $\begin{gathered} \hline 5.0 \mathrm{~mm} \\ \mathrm{c}(\mathrm{c} / \mathrm{a}) \end{gathered}$ | $\begin{gathered} \quad \geq 20.1 \mathrm{~mm} \\ \mathrm{~d}(\mathrm{~d} / \mathrm{a}) \end{gathered}$ | $\begin{gathered} \leq 20.0 \mathrm{~mm} \\ \mathrm{e}(\mathrm{e} / \mathrm{a}) \end{gathered}$ |
| FY 2014 | 159,090 | 1,299 (0.8) | 1,006 (0.6) | 2 (0.0) | 91,794 (57.7) |
| FY 2015 | 111,237 | 910 (0.8) | 560 (0.5) | 4 (0.0) | 68,473 (61.6) |
| Total | 270,327 | 2,209 (0.8) | 1,566 (0.6) | 6 (0.0) | 160,267 (59.3) |

[^2]Because some duplicate records were found, numbers may vary slightly from previous reports.

## 2.1-2 Participation rates by age group

Participation rate of age group 18-21 (as of 1 April 2014) in target municipalities for FY 2014 was $27.7 \%$, which was lower than other age groups.
Participation rate of age group 18-22 (as of 1 April 2015) in target municipalities for FY 2015 was $23.3 \%$, which was lower than other age groups.
Participation rate of the age group of 18 and older in target municipalities for FY 2014 and FY 2015 in total was $25.5 \%$, which was lower than other age groups.

Table 3. Participation rates in target municipalities by age group
As of 30 June 2016

|  |  | Total | Age group (years) |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| FY 2014 target municipalities | Age group (years) |  | 2-7 | 8-12 | 13-17 | 18-21 |
|  | Survey population (a) | 216,875 | 56,485 | 53,374 | 57,781 | 49,235 |
|  | Participants (b) | 159,104 | 45,329 | 49,783 | 50,338 | 13,654 |
|  | Proportion (\%) (b/a) | 73.4 | 80.2 | 93.3 | 87.1 | 27.7 |
| FY 2015 target municipalities | Age group (years) |  | 3-7 | 8-12 | 13-17 | 18-22 |
|  | Survey population (a) | 164,406 | 33,763 | 38,762 | 44,020 | 47,861 |
|  | Participants (b) | 111,274 | 25,837 | 36,189 | 38,106 | 11,142 |
|  | Proportion (\%) (b/a) | 67.7 | 76.5 | 93.4 | 86.6 | 23.3 |
| Total | Survey population (a) | 381,281 | 90,248 | 92,136 | 101,801 | 97,096 |
|  | Participants (b) | 270,378 | 71,166 | 85,972 | 88,444 | 24,796 |
|  | Proportion (\%) (b/a) | 70.9 | 78.9 | 93.3 | 86.9 | 25.5 |

## 2.1-3 Comparison with the Preliminary Baseline Screening (Initial Screening)

Among 245,218 participants who were diagnosed as A1 or A2 in the Preliminary Baseline Screening, 243,890 ( $99.5 \%$ ) had A1 or A2 results, and 1,328 ( $0.5 \%$ ) were diagnosed as B from the Full-scale Survey.
Among 1,366 participants who were diagnosed as B in the Preliminary Baseline Screening, 638 ( $46.7 \%$ ) had A1 or A2 results, and 728 (53.3\%) were diagnosed as B from the Full-scale Thyroid Screening Program.


[^3]
### 2.2 Results of Confirmatory Examination

## 2.2-1 Progress Report

The number of those who required further testing (started in June 2014) was 2,217, of whom 1,476 (66.6\%) underwent confirmatory testing. Among them, 1,379 ( $93.4 \%$ ) have completed the tests. (See Appendix 5.)
Of 1,379 participants, 350 (A1 and A2 results from Table 5) were found to be back within the range of A1 and A2, and were advised to take their next regularly scheduled examination (25.4\%).

Those who require 6- or 12-month follow-up provided by health insurance were 1,029 ( $74.6 \%$ ).
Table 5. Confirmatory testing coverage and results as of 30 June 2016

|  | Number of those requiring confirmatory test | Participants <br> Proportion (\%) <br> b (b/a) | Confirmatory test coverage (\%)$\mathrm{c}(\mathrm{c} / \mathrm{b})$ | Confirmed test results |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Next screening advised |  | Follow-up advised |  |
|  |  |  |  | $\begin{array}{r} \mathrm{A} 1 \\ \mathrm{~d}(\mathrm{~d} / \mathrm{c}) \end{array}$ | $\begin{array}{r} \mathrm{A} 2 \\ \mathrm{e}(\mathrm{e} / \mathrm{c}) \end{array}$ | f (f/c) | $\begin{gathered} \text { Cytology } \\ \mathrm{g}(\mathrm{~g} / \mathrm{f}) \\ \hline \end{gathered}$ |
| FY 2014 | 1,303 | 1,044 (80.1) | 1,010 (96.7) | 36 (3.6) | 233 (23.1) | 741 (73.4) | 145 (19.6) |
| FY 2015 | 914 | 432 (47.3) | 369 ( 85.4) | 11 (3.0) | 70 (19.0) | 288 (78.0) | 31 ( 10.8) |
| Total | 2,217 | 1,476 (66.6) | 1,379 (93.4) | 47 (3.4) | 303 (22.0) | 1,029 (74.6) | 176 ( 17.1) |

Those confirmed within the range of A1 and A2 (including those with other thyroid conditions) were advised to take their next regularly scheduled examination.

Those who require 6- or 12-month follow-up provided by health insurance and those beyond the specified level of A2 were categorized as "Follow-up advised."

## 2.2-2 Results of Fine Needle Aspiration Biopsy and Cytology (FNAC)

Among those who underwent FNAC, 59 had nodules classified as suspicious or malignant.
Twenty-five of them were male, and 34 were female. Age at the time of the confirmatory testing ranged from 9 to 23 years (mean age: $16.8 \pm 3.3$ years). The minimum and maximum tumor size was 5.3-35.6 mm in diameter. Mean tumor diameter was $10.4 \pm 5.5 \mathrm{~mm}$.

Results from the Preliminary Baseline Screening show that 54 of the 59 participants were categorized as A (A1: 28; A2: 26) and 5 as B.

Table 6. Results of FNAC
Target municipalities in FY 2014

| Suspicious or malignant | $48 *$ |
| :--- | :--- |
| Male to female ratio | $19: 29$ |
| Mean age (SD, min-max) | $17.2(3.1,10-23)$ |
|  | $13.2(3.1,6-18)$ at the time of the disaster |
| Mean tumor size | $9.2 \mathrm{~mm}(3.1 \mathrm{~mm}, 5.3-17.4 \mathrm{~mm})$ |

Target municipalities in FY 2015

| Suspicious or malignant | $11 *$ |
| :--- | :--- |
| Male to female ratio | $6: 5$ |
| Mean age (SD, min-max) | $15.2(4.1,9-21)$ |
|  | $10.5(3.8,5-16)$ at the time of the disaster |
| Mean tumor size | $15.6 \mathrm{~mm}(9.6 \mathrm{~mm}, 5.7-35.6 \mathrm{~mm})$ |

Target municipalities in FY 2014-2015

| Suspicious or malignant | $59 *$ |
| :--- | :--- |
| Male to female ratio | $25: 34$ |
| Mean age (SD, min-max) | $16.8(3.3,9-23)$ |
|  | $12.7(3.3,5-18)$ at the time of the disaster |
| Mean tumor size | $10.4 \mathrm{~mm}(5.5 \mathrm{~mm}, 5.3-35.6 \mathrm{~mm})$ |

[^4]2.2-3 Suspicious or malignant cases per FNAC by age and sex


The horizontal axis begins at -1 to include residents of Fukushima Prefecture born between 2 April 2011 and 1 April 2012.

Fig. 3 Age as of 11 March 2011


Fig. 4 Age as the date of confirmatory examination

## 2.2-4 Suspicious or malignant cases per FNAC by estimated radiation dose

Thirty-two ( $54.2 \%$ ) of the 59 people participated in the Basic Survey (radiation dose estimates), and 32 received the results. The highest effective dose documented was 2.1 mSv .

Table 7. A breakdown of dose estimates for participants of the Basic Survey
As of 30 June 2016

| 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 | 4 | 0 | 1 | 5 | 2 | 0 | 7 | 5 |
| 1-1.9 | 0 | 0 | 0 | 1 | 4 | 4 | 3 | 3 | 7 | 8 |
| 2-4.9 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 2 | 3 |
| 5-9.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-19.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\geq 20$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 5 | 1 | 5 | 11 | 6 | 4 | 16 | 16 |

Estimates are based on effective external radiation doses.


Fig. 5 Effective dose of the respondents
2.2-5 Blood and urinary iodine test results as of 30 June 2016

Table 8. Blood test results Mean $\pm$ SD (Abnormal value)

|  | FT4 1) <br> $(\mathrm{ng} / \mathrm{dL})$ | FT32) <br> $(\mathrm{pg} / \mathrm{mL})$ | TSH3) <br> $(\mu \mathrm{IU} / \mathrm{mL})$ | Tg 4) <br> $(\mathrm{ng} / \mathrm{mL})$ | TgAb 5) <br> $(\mathrm{IU/mL})$ | TPOAb 6) <br> $(\mathrm{IU} / \mathrm{mL})$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Reference Range | $0.95-1.747)$ | $2.13-4.077)$ | $0.340-3.8807)$ | $<32.7$ | -16.0 |  |
| 59 suspicious or malignant | $1.2 \pm 0.1(3.4 \%)$ | $3.5 \pm 0.4(1.7 \%)$ | $1.7 \pm 1.0(11.9 \%)$ | $46.1 \pm 118.6(20.3 \%)$ | $-(20.3 \%)$ | $-(9.2 \%)$ |
| Other 1,318 | $1.2 \pm 0.2(6.4 \%)$ | $3.6 \pm 0.7(6.4 \%)$ | $1.3 \pm 1.0(8.7 \%)$ | $27.6 \pm 142.0(13.1 \%)$ | $-(8.4 \%)$ |  |

Table 9. Urinary iodine ( $\mu \mathrm{g} /$ day $)$

|  | Minimum | 25th percentile | Median | 75th percentile | Maximum |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 59 suspicious or malignant | 43 | 123 | 196 | 431 | 2280 |
| Other 1,314 | 33 | 116 | 184.5 | 357 | 36600 |

1) FT4: Free Thyroxine; higher among patients with thyrotoxicosis (representative disease: Graves' disease) and lower with hypothyroidism (representative disease: Hashimoto's thyroiditis).
2) FT3: Free Triiodothyronine; higher among patients with thyrotoxicosis (representative disease: Graves' disease) and lower with hypothyroidism (representative disease: 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 thyroid cancer produces thyroglobulin.

Laboratory reference range revised to $\leq 33.7 \mathrm{ng} / \mathrm{mL}$ as of 30 March 2015.
5) TgAb: Anti-Thyroglobulin Antibody; higher among patients with Hashimoto's disease and Graves' disease.
6) TPOAb: Anti-Thyroid Peroxidase Antibody; higher among patients with Hashimoto's disease or Graves' disease.
7) Reference range differs according to age.

## 2.2-6 Confirmatory test results by municipality as of 30 June 2016

The proportion of suspicious or malignant diagnoses was $0.03 \%$ in FY 2014 target municipalities (13 municipalities in the nationally designated evacuation zones and 12 towns of the Kempoku area), $0.01 \%$ in FY 2015 target municipalities ( 34 towns of Iwaki, the Kennan and Aizu areas)

Table 10.
Confirmatory test results by municipality in FY 2014

|  | Number of those <br> screened | Participants who <br> required <br> confirmatory <br> test | Proportion who <br> required <br> confirmatory <br> test $(\%)$ | Number who <br> underwent <br> confirmatory <br> test | Suspicious or <br> malignant cases | Proportion of <br> suspicious or <br> malignant cases <br> $(\%)$ |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Kawamata | 1,763 | 23 | 1.3 | 19 | 0 | 0.00 |
| Namie | 2,508 | 28 | 1.1 | 22 | 2 | 0.08 |
| Iitate | 763 | 14 | 1.8 | 11 | 0 | 0.00 |
| Minami-soma | 8,907 | 81 | 0.9 | 68 | 4 | 0.04 |
| Date | 9,110 | 86 | 0.9 | 78 | 7 | 0.08 |
| Tamura | 5,006 | 51 | 1.0 | 42 | 2 | 0.04 |
| Hirono | 679 | 9 | 1.3 | 7 | 0 | 0.00 |
| Naraha | 1,001 | 5 | 0.5 | 5 | 0 | 0.00 |
| Tomioka | 2,001 | 24 | 1.2 | 20 | 0 | 0.00 |
| Kawauchi | 213 | 2 | 0.9 | 2 | 0 | 0.00 |
| Okuma | 1,757 | 15 | 0.9 | 13 | 2 | 0.11 |
| Futaba | 685 | 2 | 0.3 | 1 | 0 | 0.00 |
| Katsurao | 150 | 2 | 1.3 | 2 | 0 | 0.00 |
| Fukushima | 42,687 | 348 | 0.8 | 291 | 0 | 0.02 |
| Nihonmatsu | 7,885 | 59 | 0.7 | 50 | 1 | 0.01 |
| Motomiya | 4,809 | 31 | 0.6 | 26 | 3 | 0.06 |
| Otama | 1,263 | 6 | 0.5 | 6 | 0 | 0.00 |
| Koriyama | 48,023 | 364 | 0.8 | 274 | 17 | 0.04 |
| Kori | 1,635 | 14 | 0.9 | 10 | 1 | 0.06 |
| Kunimi | 1,240 | 9 | 0.7 | 8 | 0 | 0.00 |
| Tenei | 793 | 11 | 1.4 | 6 | 0 | 0.00 |
| Shirakawa | 9,665 | 63 | 0.7 | 48 | 0 | 0.01 |
| Nishigo | 3,178 | 28 | 0.9 | 20 | 0 | 0.00 |
| Izumizaki | 997 | 4 | 0.4 | 2 | 0 | 0.00 |
| Miharu | 2,386 | 24 | 1.0 | 13 | 0 | 0.00 |
| Subtotal | 159,104 | 1,303 | 0.8 | 1,044 | 48 | 0.03 |
|  |  |  |  |  |  | 0 |

Confirmatory test results by municipality in FY 2015


### 2.3 Mental Health Care

## 2.3-1 For participants of confirmatory examination

We set up a support team for participants of the confirmatory examination to address their anxiety and concerns by offering online support.
Since the full-scale thyroid screening started, 738 participants ( 268 males and 470 females) have received support as of 30 June 2016. The number of consultations given to them was 1,345 in total. Of these, $786(58.4 \%)$ received the support services during the first time of the examination, $516(38.4 \%)$ at the second time and after including $109(8.1 \%)$ when undergoing FNAC, and 43 (3.2\%) when giving informed consent.
In cooperation with teams of medical staff at hospitals, we offer similar services to those who are recommended for a follow-up provided by health insurance.
2.3-2 Briefing on the result of primary examination

Since July 2015, we offer person-to-person explanations to participants at public venues where primary examinations take place. After an examination, this service is provided on request, with physicians using an online video link to private consultation booths at the venue. As of 30 June 2016, 11,653 (72.4\%) of 16,095 participants visited the consultation booth. When the booth cannot be set up at a venue, phone support or briefing sessions at schools are offered as an alternative.

## Appendix 1

Thyroid Ultrasound Examination (TUE) coverage by municipality



Screening coverage by municipality in FY 2014


| 73 | 4.1 |
| :---: | :---: |
| 796 | 31.7 |
| 50 | 6.6 |
| 1,952 | 21.9 |
| 361 | 4.0 |
| 144 | 2.9 |
| 101 | 14.9 |
| 143 | 14.3 |
| 492 | 24.6 |
| 23 | 10.8 |
| 433 | 24.6 |
| 271 | 39.6 |
| 11 | 7.3 |
| 2,934 | 6.9 |
| 311 | 3.9 |
| 177 | 3.7 |
| 34 | 2.7 |
| 3,747 | 7.8 |
| 52 | 3.2 |
| 43 | 3.5 |
| 28 | 3.5 |
| 370 | 3.8 |
| 136 | 4.3 |
| 14 | 1.4 |
| 67 | 2.8 |
| 12,763 | 8.0 |

1) Number of participants. 2) Number of participants in the age group/Number of participants.
2) Number of participants who underwent the test outside Fukushima.

Fractions have been rounded and may not total to $100 \%$. Ages are at the time when the participants underwent the testing.
Because some duplicate records were found, numbers may vary slightly from previous reports.


Screening coverage by municipality in FY 201

| Iwaki | 64,309 | 45,228 | 2,226 | 70.3 | 8,299 | 14,274 | 15,528 | 7,127 |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |


| Sukagawa |  |
| :---: | :--- |
| Soma |  |


| Kagamiishi |
| :---: |
| Shinchi |


| Nakajima |
| :---: |
| Yabuki |


|  |
| --- |
|  |
|  |


| Hirata | 1,389 | 1,029 | 42 |
| :---: | ---: | ---: | ---: |
| Tanagura | 1,272 | 855 | 17 |


| Tanagura | 3,089 | 2,160 | 63 |
| :---: | ---: | ---: | ---: |
| Hanawa | 1,715 | 1,166 | 30 |
| Samegawa | 723 | 493 | 17 |
| Ono | 1,990 | 1,262 | 29 |


| Ono | 1,990 | 1,262 | 29 |
| :---: | ---: | ---: | ---: |
| Tamakawa | 1,372 | 964 | 15 |
| Furudono | 1,084 | 793 | 31 |


| Hinoemata | 110 |
| :---: | ---: |
| Minami-aizu | 2,913 |
| Kaneyama | 203 |


| Kaneyama | 203 |
| :---: | ---: |
| Showa | 134 |


| Showa | 134 |
| :---: | ---: |
| Mishima | 197 |


| Mishima | 197 | 121 |
| ---: | ---: | ---: |
| Shimogo | 1,011 | 614 |
| Kitakata | 9,236 | 5,725 |


|  | 9,236 | 5,725 |  |
| ---: | ---: | ---: | ---: |
| Nishiaizu | 1,055 | 654 |  |


| Tadami | 1,055 | 654 |
| :---: | ---: | ---: |
| Inawashiro | 735 | 458 |


| Inawashiro | 2,757 | 1,728 |  |
| :---: | ---: | ---: | ---: |
| Bandai | 628 | 401 |  |
| Kitashiobara | 581 | 377 |  |


| Kitashiobara | 581 | 377 |
| ---: | ---: | ---: |
| Aizumisato | 3,790 | 2,537 |


| Aizumisato | 3,790 | 2,537 |
| :---: | ---: | ---: |
| Aizubange | 3,183 | 2,063 |
| Yanaizu | 612 | 386 |


| Yanaizu | 612 | 386 | 4 |
| :---: | ---: | ---: | ---: |
| Aizuwakamatsu | 23,926 | 14,566 | 483 |
| Yugawa | 696 | 516 | 16 |
| Subtotal | 164,406 | 111,274 | 4,171 |


| Total | 381,281 | 270,378 | 15,552 | 70.9 | 61,836 | 85,384 | 89,543 | 33,615 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 22.9 | 31.6 | 33.1 | 12.4 |



| 2,322 | 5.1 |
| ---: | ---: |
| 332 | 2.9 |
| 369 | 7.8 |
| 50 | 2.5 |
| 47 | 4.5 |
| 9 | 1.2 |
| 59 | 2.4 |
| 49 | 2.4 |
| 14 | 1.9 |
| 38 | 3.7 |
| 17 | 2.0 |
| 62 | 2.9 |
| 26 | 2.2 |
| 13 | 26 |
| 4 |  |


| 13 | 2.6 |
| ---: | ---: |
| 32 | 2.5 |
| 12 | 1.2 |
| 23 |  |


| 23 | 2.9 |
| ---: | ---: |
| 3 | 4.5 |
| 42 | 2.4 |
| 4 | 3.3 |


| 4 | 3.3 |
| ---: | ---: |
| 3 | 3.2 |


| 1 | 0.8 |
| :---: | :---: |
| 12 | 2.0 |
| 120 | 2.1 |
| 10 | 1.5 |
| 6 | 1.3 |
| 55 | 3.2 |
| 8 | 2.0 |
| 11 | 2.9 |
| 53 | 2.1 |
| 36 | 1.7 |
| 3 | 0.8 |
| 513 | 3.5 |
| 15 | 2.9 |
| 4,369 | 3.9 |


| 17,132 | 6.3 |
| :--- | :--- |

## Appendix 2

Thyroid Ultrasound Examination (TUE) coverage by prefecture

| Prefecture | Number of test venues | Participants* | Prefecture | Number of test venues | Participants* | Prefecture | Number of test venues | Participants* |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hokkaido | 6 | 414 | Fukui | 1 | 20 | Hiroshima | 1 | 42 |
| Aomori | 1 | 178 | Yamanashi | 2 | 147 | Yamaguchi | 1 | 20 |
| Iwate | 3 | 360 | Nagano | 2 | 153 | Tokushima | 1 | 11 |
| Miyagi | 2 | 2,931 | Gifu | 1 | 37 | Kagawa | 1 | 22 |
| Akita | 1 | 281 | Shizuoka | 2 | 134 | Ehime | 1 | 17 |
| Yamagata | 3 | 807 | Aichi | 3 | 242 | Kochi | 1 | 14 |
| Ibaraki | 4 | 892 | Mie | 1 | 37 | Fukuoka | 3 | 87 |
| Tochigi | 7 | 906 | Shiga | 1 | 27 | Saga | 1 | 15 |
| Gunma | 2 | 263 | Kyoto | 3 | 122 | Nagasaki | 2 | 36 |
| Saitama | 2 | 780 | Osaka | 6 | 270 | Kumamoto | 1 | 29 |
| Chiba | 4 | 829 | Hyogo | 1 | 142 | Oita | 1 | 35 |
| Tokyo | 12 | 2,637 | Nara | 2 | 31 | Miyazaki | 1 | 36 |
| Kanagawa | 5 | 1,361 | Wakayama | 1 | 8 | Kagoshima | 1 | 26 |
| Niigata | 2 | 906 | Tottori | 1 | 10 | Okinawa | 1 | 81 |
| Toyama | 1 | 25 | Shimane | 1 | 6 |  |  |  |
| Ishikawa | 1 | 60 | Okayama | 3 | 65 | Total | 104 | 15,552 |

* Participants who underwent testing at venues outside Fukushima carried out either by Fukushima Medical University staff (once in Niigata and Yamagata, Saitama, Chiba, and twice in Kanagawa) or by local specialists.


## Appendix 3

| Results of primary examination by municipality |  |  |  |  |  |  |  | As of 30 June 2016 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Confirmed results b | Number by test results |  |  |  | Nodules |  | Cysts |  |
| Participants |  | Proportion (\%) |  |  |  |  |  |  |  |
|  | $\begin{gathered} \text { Proportion (\%) } \\ \text { b/a (\%) } \\ \hline \end{gathered}$ | A |  | B | C | Proportion(\%) |  | Proportion (\%) |  |
| a |  | A1 | A2 |  |  | $\geq 5.1 \mathrm{~mm}$ | $\leq 5.0 \mathrm{~mm}$ | $\geq 20.1 \mathrm{~mm}$ | $\leq 20.0$ mm |

Screening coverage by municipality in FY 2014

| Kawamata | 1,763 | 1,763 | 779 | 961 | 23 | 0 | 22 | 13 | 1 | 972 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 100.0 | 44.2 | 54.5 | 1.3 | 0.0 | 1.2 | 0.7 | 0.1 | 55.1 |
| Namie | 2,508 | 2,508 | 1,023 | 1,457 | 28 | 0 | 28 | 18 | 0 | 1,467 |
|  |  | 100.0 | 40.8 | 58.1 | 1.1 | 0.0 | 1.1 | 0.7 | 0.0 | 58.5 |
| Iitate | 763 | 763 | 358 | 391 | 14 | 0 | 14 | 3 | 0 | 396 |
|  |  | 100.0 | 46.9 | 51.2 | 1.8 | 0.0 | 1.8 | 0.4 | 0.0 | 51.9 |
| Minami-soma | 8,907 | 8,907 | 3,814 | 5,012 | 81 | 0 | 81 | 62 | 0 | 5,037 |
|  |  | 100.0 | 42.8 | 56.3 | 0.9 | 0.0 | 0.9 | 0.7 | 0.0 | 56.6 |
| Date | 9,110 | 9,108 | 3,958 | 5,064 | 86 | 0 | 86 | 69 | 0 | 5,089 |
|  |  | 100.0 | 43.5 | 55.6 | 0.9 | 0.0 | 0.9 | 0.8 | 0.0 | 55.9 |
| Tamura | 5,006 | 5,006 | 2,050 | 2,905 | 51 | 0 | 51 | 30 | 0 | 2,924 |
|  |  | 100.0 | 41.0 | 58.0 | 1.0 | 0.0 | 1.0 | 0.6 | 0.0 | 58.4 |
| Hirono | 679 | 679 | 285 | 385 | 9 | 0 | 9 | 6 | 0 | 385 |
|  |  | 100.0 | 42.0 | 56.7 | 1.3 | 0.0 | 1.3 | 0.9 | 0.0 | 56.7 |
| Naraha | 1,001 | 1,001 | 418 | 578 | 5 | 0 | 5 | 8 | 0 | 578 |
|  |  | 100.0 | 41.8 | 57.7 | 0.5 | 0.0 | 0.5 | 0.8 | 0.0 | 57.7 |
| Tomioka | 2,001 | 2,001 | 820 | 1,157 | 24 | 0 | 24 | 19 | 0 | 1,165 |
|  |  | 100.0 | 41.0 | 57.8 | 1.2 | 0.0 | 1.2 | 0.9 | 0.0 | 58.2 |
| Kawauchi | 213 | 213 | 69 | 142 | 2 | 0 | 2 | 1 | 0 | 143 |
|  |  | 100.0 | 32.4 | 66.7 | 0.9 | 0.0 | 0.9 | 0.5 | 0.0 | 67.1 |
| Okuma | 1,757 | 1,757 | 760 | 982 | 15 | 0 | 15 | 12 | 0 | 985 |
|  |  | 100.0 | 43.3 | 55.9 | 0.9 | 0.0 | 0.9 | 0.7 | 0.0 | 56.1 |
| Futaba | 685 | 685 | 283 | 400 | 2 | 0 | 2 | 7 | 0 | 399 |
|  |  | 100.0 | 41.3 | 58.4 | 0.3 | 0.0 | 0.3 | 1.0 | 0.0 | 58.2 |
| Katsurao | 150 | 150 | 74 | 74 | 2 | 0 | 2 | 1 | 0 | 74 |
|  |  | 100.0 | 49.3 | 49.3 | 1.3 | 0.0 | 1.3 | 0.7 | 0.0 | 49.3 |
| Fukushima | 42,687 | 42,687 | 18,061 | 24,278 | 348 | 0 | 346 | 265 | 0 | 24,404 |
|  |  | 100.0 | 42.3 | 56.9 | 0.8 | 0.0 | 0.8 | 0.6 | 0.0 | 57.2 |
| Nihonmatsu | 7,885 | 7,885 | 3,436 | 4,390 | 59 | 0 | 59 | 55 | 0 | 4,400 |
|  |  | 100.0 | 43.6 | 55.7 | 0.7 | 0.0 | 0.7 | 0.7 | 0.0 | 55.8 |
| Motomiya | 4,809 | 4,808 | 2,089 | 2,688 | 31 | 0 | 31 | 20 | 0 | 2,698 |
|  |  | 100.0 | 43.4 | 55.9 | 0.6 | 0.0 | 0.6 | 0.4 | 0.0 | 56.1 |
| Otama | 1,263 | 1,263 | 567 | 690 | 6 | 0 | 6 | 8 | 0 | 690 |
|  |  | 100.0 | 44.9 | 54.6 | 0.5 | 0.0 | 0.5 | 0.6 | 0.0 | 54.6 |
| Koriyama | 48,023 | 48,015 | 19,237 | 28,414 | 364 | 0 | 364 | 279 | 0 | 28,530 |
|  |  | 100.0 | 40.1 | 59.2 | 0.8 | 0.0 | 0.8 | 0.6 | 0.0 | 59.4 |
| Kori | 1,635 | 1,635 | 703 | 918 | 14 | 0 | 14 | 11 | 0 | 921 |
|  |  | 100.0 | 43.0 | 56.1 | 0.9 | 0.0 | 0.9 | 0.7 | 0.0 | 56.3 |
| Kunimi | 1,240 | 1,239 | 491 | 739 | 9 | 0 | 8 | 10 | 1 | 740 |
|  |  | 99.9 | 39.6 | 59.6 | 0.7 | 0.0 | 0.6 | 0.8 | 0.1 | 59.7 |
| Tenei | 793 | 793 | 328 | 454 | 11 | 0 | 11 | 11 | 0 | 462 |
|  |  | 100.0 | 41.4 | 57.3 | 1.4 | 0.0 | 1.4 | 1.4 | 0.0 | 58.3 |
| Shirakawa | 9,665 | 9,664 | 4,159 | 5,442 | 63 | 0 | 63 | 50 | 0 | 5,461 |
|  |  | 100.0 | 43.0 | 56.3 | 0.7 | 0.0 | 0.7 | 0.5 | 0.0 | 56.5 |
| Nishigo | 3,178 | 3,178 | 1,356 | 1,794 | 28 | 0 | 28 | 25 | 0 | 1,802 |
|  |  | 100.0 | 42.7 | 56.5 | 0.9 | 0.0 | 0.9 | 0.8 | 0.0 | 56.7 |
| Izumizaki | 997 | 997 | 369 | 624 | 4 | 0 | 4 | 10 | 0 | 624 |
|  |  | 100.0 | 37.0 | 62.6 | 0.4 | 0.0 | 0.4 | 1.0 | 0.0 | 62.6 |
| Miharu | 2,386 | 2,385 | 921 | 1,440 | 24 | 0 | 24 | 13 | 0 | 1,448 |
|  |  | 100.0 | 38.6 | 60.4 | 1.0 | 0.0 | 1.0 | 0.5 | 0.0 | 60.7 |
| Subtotal | 159,104 | 159,090 | 66,408 | 91,379 | 1,303 | 0 | 1,299 | 1,006 | 2 | 91,794 |
|  |  | 100.0 | 41.7 | 57.4 | 0.8 | 0.0 | 0.8 | 0.6 | 0.0 | 57.7 |

Fractions have been rounded and may not total to $100 \%$.

| Results of primary examination by municipality |  |  |  |  |  |  |  |  | As of 30 June 2016 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Participants | Confirmed results b | Number by test results |  |  |  | Nodules |  | Cysts |  |
|  |  |  | Proportion (\%) |  |  |  |  |  |  |  |
|  |  | $\begin{gathered} \text { Proportion (\%) } \\ \mathrm{b} / \mathrm{a}(\%) \\ \hline \end{gathered}$ | A |  | B | C | Proportion (\%) |  | Proportion (\%) |  |
|  |  |  | A1 | A2 |  |  | $\geq 5.1 \mathrm{~mm}$ | $\leq 5.0 \mathrm{~mm}$ | $\geq 20.1 \mathrm{~mm}$ | $\leq 20.0 \mathrm{~mm}$ |


| Screening coverage by municipality in FY 2015 |
| :--- |


| Iwaki | 45,228 | 45,205 | 16,880 | 27,949 | 376 | 0 | 372 | 232 | 4 | 28,075 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 99.9 | 37.3 | 61.8 | 0.8 | 0.0 | 0.8 | 0.5 | 0.0 | 62.1 |
| Sukagawa | 11,444 | 11,442 | 4,435 | 6,902 | 105 | 0 | 105 | 56 | 0 | 6,955 |
|  |  | 100.0 | 38.8 | 60.3 | 0.9 | 0.0 | 0.9 | 0.5 | 0.0 | 60.8 |
| Soma | 4,747 | 4,747 | 2,008 | 2,707 | 32 | 0 | 32 | 26 | 0 | 2,715 |
|  |  | 100.0 | 42.3 | 57.0 | 0.7 | 0.0 | 0.7 | 0.5 | 0.0 | 57.2 |
| Kagamiishi | 1,978 | 1,978 | 787 | 1,175 | 16 | 0 | 16 | 10 | 0 | 1,179 |
|  |  | 100.0 | 39.8 | 59.4 | 0.8 | 0.0 | 0.8 | 0.5 | 0.0 | 59.6 |
| Shinchi | 1,036 | 1,036 | 412 | 611 | 13 | 0 | 13 | 2 | 0 | 618 |
|  |  | 100.0 | 39.8 | 59.0 | 1.3 | 0.0 | 1.3 | 0.2 | 0.0 | 59.7 |
| Nakajima | 754 | 754 | 305 | 444 | 5 | 0 | 5 | 4 | 0 | 444 |
|  |  | 100.0 | 40.5 | 58.9 | 0.7 | 0.0 | 0.7 | 0.5 | 0.0 | 58.9 |
| Yabuki | 2,410 | 2,409 | 954 | 1,439 | 16 | 0 | 16 | 8 | 0 | 1,447 |
|  |  | 100.0 | 39.6 | 59.7 | 0.7 | 0.0 | 0.7 | 0.3 | 0.0 | 60.1 |
| Ishikawa | 2,027 | 2,027 | 827 | 1,186 | 14 | 0 | 14 | 13 | 0 | 1,190 |
|  |  | 100.0 | 40.8 | 58.5 | 0.7 | 0.0 | 0.7 | 0.6 | 0.0 | 58.7 |
| Yamatsuri | 740 | 740 | 269 | 465 | 6 | 0 | 6 | 1 | 0 | 467 |
|  |  | 100.0 | 36.4 | 62.8 | 0.8 | 0.0 | 0.8 | 0.1 | 0.0 | 63.1 |
| Asakawa | 1,029 | 1,029 | 444 | 576 | 9 | 0 | 9 | 4 | 0 | 579 |
|  |  | 100.0 | 43.1 | 56.0 | 0.9 | 0.0 | 0.9 | 0.4 | 0.0 | 56.3 |
| Hirata | 855 | 855 | 362 | 486 | 7 | 0 | 7 | 3 | 0 | 491 |
|  |  | 100.0 | 42.3 | 56.8 | 0.8 | 0.0 | 0.8 | 0.4 | 0.0 | 57.4 |
| Tanagura | 2,160 | 2,159 | 862 | 1,280 | 17 | 0 | 17 | 10 | 0 | 1,288 |
|  |  | 100.0 | 39.9 | 59.3 | 0.8 | 0.0 | 0.8 | 0.5 | 0.0 | 59.7 |
| Hanawa | 1,166 | 1,166 | 459 | 696 | 11 | 0 | 11 | 8 | 0 | 699 |
|  |  | 100.0 | 39.4 | 59.7 | 0.9 | 0.0 | 0.9 | 0.7 | 0.0 | 59.9 |
| Samegawa | 493 | 492 | 184 | 302 | 6 | 0 | 6 | 4 | 0 | 305 |
|  |  | 99.8 | 37.4 | 61.4 | 1.2 | 0.0 | 1.2 | 0.8 | 0.0 | 62.0 |
| Ono | 1,262 | 1,262 | 409 | 841 | 12 | 0 | 12 | 5 | 0 | 844 |
|  |  | 100.0 | 32.4 | 66.6 | 1.0 | 0.0 | 1.0 | 0.4 | 0.0 | 66.9 |
| Tamakawa | 964 | 964 | 369 | 586 | 9 | 0 | 9 | 8 | 0 | 591 |
|  |  | 100.0 | 38.3 | 60.8 | 0.9 | 0.0 | 0.9 | 0.8 | 0.0 | 61.3 |
| Furudono | 793 | 793 | 311 | 477 | 5 | 0 | 5 | 4 | 0 | 479 |
|  |  | 100.0 | 39.2 | 60.2 | 0.6 | 0.0 | 0.6 | 0.5 | 0.0 | 60.4 |
| Hinoemata | 66 | 66 | 28 | 38 | 0 | 0 | 0 | 1 | 0 | 37 |
|  |  | 100.0 | 42.4 | 57.6 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 | 56.1 |
| Minami-aizu | 1,762 | 1,762 | 688 | 1,058 | 16 | 0 | 16 | 5 | 0 | 1,069 |
|  |  | 100.0 | 39.0 | 60.0 | 0.9 | 0.0 | 0.9 | 0.3 | 0.0 | 60.7 |
| Kaneyama | 121 | 121 | 39 | 82 | 0 | 0 | 0 | 0 | 0 | 82 |
|  |  | 100.0 | 32.2 | 67.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 67.8 |
| Showa | 93 | 93 | 36 | 57 | 0 | 0 | 0 | 1 | 0 | 57 |
|  |  | 100.0 | 38.7 | 61.3 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 61.3 |
| Mishima | 121 | 121 | 27 | 93 | 1 | 0 | 1 | 0 | 0 | 94 |
|  |  | 100.0 | 22.3 | 76.9 | 0.8 | 0.0 | 0.8 | 0.0 | 0.0 | 77.7 |
| Shimogo | 614 | 613 | 250 | 359 | 4 | 0 | 4 | 3 | 0 | 361 |
|  |  | 99.8 | 40.8 | 58.6 | 0.7 | 0.0 | 0.7 | 0.5 | 0.0 | 58.9 |
| Kitakata | 5,725 | 5,724 | 2,125 | 3,555 | 44 | 0 | 44 | 22 | 0 | 3,580 |
|  |  | 100.0 | 37.1 | 62.1 | 0.8 | 0.0 | 0.8 | 0.4 | 0.0 | 62.5 |
| Nishiaizu | 654 | 653 | 288 | 361 | 4 | 0 | 4 | 5 | 0 | 360 |
|  |  | 99.8 | 44.1 | 55.3 | 0.6 | 0.0 | 0.6 | 0.8 | 0.0 | 55.1 |
| Tadami | 458 | 458 | 176 | 275 | 7 | 0 | 7 | 2 | 0 | 278 |
|  |  | 100.0 | 38.4 | 60.0 | 1.5 | 0.0 | 1.5 | 0.4 | 0.0 | 60.7 |
| Inawashiro | 1,728 | 1,728 | 689 | 1,027 | 12 | 0 | 12 | 9 | 0 | 1,034 |
|  |  | 100.0 | 39.9 | 59.4 | 0.7 | 0.0 | 0.7 | 0.5 | 0.0 | 59.8 |
| Bandai | 401 | 401 | 157 | 240 | 4 | 0 | 4 | 1 | 0 | 243 |
|  |  | 100.0 | 39.2 | 59.9 | 1.0 | 0.0 | 1.0 | 0.2 | 0.0 | 60.6 |
| Kitashiobara | 377 | 377 | 143 | 232 | 2 | 0 | 2 | 2 | 0 | 232 |
|  |  | 100.0 | 37.9 | 61.5 | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 61.5 |
| Aizumisato | 2,537 | 2,535 | 1,007 | 1,507 | 21 | 0 | 21 | 9 | 0 | 1,516 |
|  |  | 99.9 | 39.7 | 59.4 | 0.8 | 0.0 | 0.8 | 0.4 | 0.0 | 59.8 |
| Aizubange | 2,063 | 2,063 | 705 | 1,340 | 18 | 0 | 18 | 18 | 0 | 1,347 |
|  |  | 100.0 | 34.2 | 65.0 | 0.9 | 0.0 | 0.9 | 0.9 | 0.0 | 65.3 |
| Yanaizu | 386 | 386 | 154 | 232 | 0 | 0 | 0 | 1 | 0 | 232 |
|  |  | 100.0 | 39.9 | 60.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 60.1 |
| Aizuwakamatsu | 14,566 | 14,562 | 5,241 | 9,203 | 118 | 0 | 118 | 80 | 0 | 9,251 |
|  |  | 100.0 | 36.0 | 63.2 | 0.8 | 0.0 | 0.8 | 0.5 | 0.0 | 63.5 |
| Yugawa | 516 | 516 | 181 | 331 | 4 | 0 | 4 | 3 | 0 | 334 |
|  |  | 100.0 | 35.1 | 64.1 | 0.8 | 0.0 | 0.8 | 0.6 | 0.0 | 64.7 |
| Subtotal | 111,274 | 111,237 | 42,211 | 68,112 | 914 | 0 | 910 | 560 | 4 | 68,473 |
|  |  | 100.0 | 37.9 | 61.2 | 0.8 | 0.0 | 0.8 | 0.5 | 0.0 | 61.6 |
| Total | 270,378 |  |  |  |  |  |  |  |  |  |
|  |  | 270,327 | 108,619 | 159,491 | 2,217 | 0 | 2,209 | 1,566 | 6 | 160,267 |
|  |  | 100.0 | 40.2 | 59.0 | 0.8 | 0.0 | 0.8 | 0.6 | 0.0 | 59.3 |

## Appendix 4

1. Thyroid Ultrasound Examination results by age and sex

|  |  |  |  |  |  |  |  |  |  |  |  |  |  | As of 30 | June 2016 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\rangle$ |  |  | A |  |  |  |  | B |  |  | C |  |  | Total |  |
|  |  | A1 |  |  | A2 |  |  |  |  |  |  |  |  |  |  |
| Ages | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| 2-7 | 18,412 | 16,562 | 34,974 | 13,331 | 13,496 | 26,827 | 19 | 14 | 33 | 0 | 0 | 0 | 31,762 | 30,072 | 61,834 |
| 8-12 | 15,389 | 13,307 | 28,696 | 28,186 | 28,216 | 56,402 | 107 | 174 | 281 | 0 | 0 | 0 | 43,682 | 41,697 | 85,379 |
| 13-17 | 16,985 | 14,128 | 31,113 | 28,182 | 29,150 | 57,332 | 358 | 735 | 1,093 | 0 | 0 | 0 | 45,525 | 44,013 | 89,538 |
| $\geq 18$ | 6,612 | 7,224 | 13,836 | 8,473 | 10,457 | 18,930 | 253 | 557 | 810 | 0 | 0 | 0 | 15,338 | 18,238 | 33,576 |
| Total | 57,398 | 51,221 | 108,619 | 78,172 | 81,319 | 159,491 | 737 | 1,480 | 2,217 | 0 | 0 | 0 | 136,307 | 134,020 | 270,327 |

Test results by age group (Male)


Test results by age group (Female)


Percentages have been rounded and may not total to $100 \%$.
Ages are at the time when the participants underwent the testing.

## 2. Nodule size

| Nodule size | Total |  |  | Class | Proportion |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Male | Female |  |  |
| None | 266,552 | 134,992 | 131,560 | A 1 | 98.6\% |
| $\leq 3.0 \mathrm{~mm}$ | 272 | 116 | 156 | A 2 | 0.6\% |
| $3.1-5.0 \mathrm{~mm}$ | 1,294 | 466 | 828 |  | $0.6 \%$ |
| $5.1-10.0 \mathrm{~mm}$ | 1,565 | 512 | 1,053 |  |  |
| $10.1-15.0 \mathrm{~mm}$ | 406 | 144 | 262 |  |  |
| $15.1-20.0 \mathrm{~mm}$ | 137 | 55 | 82 | B | 0.8\% |
| $20.1-25.0 \mathrm{~mm}$ | 53 | 8 | 45 |  | - |
| $\geq 25.1 \mathrm{~mm}$ | 48 | 14 | 34 |  | 1 |
| Total | 270,327 | 136,307 | 134,020 | , |  |




## 3. Cyst size

| Cyst size | Total |  |  | Class | Proportion |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Male | Female |  |  |
| None | 110,054 | 57,916 | 52,138 | A 1 |  |
| $\leq 3.0 \mathrm{~mm}$ | 100,642 | 52,088 | 48,554 |  | , |
| $3.1-5.0 \mathrm{~mm}$ | 52,656 | 23,923 | 28,733 |  |  |
| $5.1-10.0 \mathrm{~mm}$ | 6,831 | 2,334 | 4,497 | A 2 |  |
| $10.1-15.0 \mathrm{~mm}$ | 122 | 39 | 83 |  | .1\% |
| $15.1-20.0 \mathrm{~mm}$ | 16 | 4 | 12 |  |  |
| $20.1-25.0 \mathrm{~mm}$ | 4 | 2 | 2 | B |  |
| $\geq 25.1 \mathrm{~mm}$ | 2 | 1 | 1 |  | , |
| Total | 270,327 | 136,307 | 134,020 |  |  |




## Appendix 5

| Confirmatorytest result by minicipality |  |  |  |  |  |  |  | As of 30 June 2016 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| District | Number of those screened | $\begin{gathered} \text { Participants who } \\ \text { required } \\ \text { confirmatory test } \end{gathered}$ | Number of those who und ervent confirmatorytst |  |  |  |  | Total | Number of confirmed results |  |  |  |
|  |  |  | Total | Agss 2.7 | Ages 8-12 | Agse 13-17 | $\geq 18$ |  | Next screening acivised |  | Fotlow-upadvised |  |
|  |  |  |  |  |  |  |  |  |  |  |  | Aspiation biopsy cytology |
|  | a | $b$ |  | d | e | f | g | n | $\stackrel{A 1}{\text { A }}$ | $\underset{i}{\text { i }}$ | \% | , |
|  |  | Arporion (\%) | Propotion (\%) | Pcoperion (\%) | Proportion (\%) | Aoportion (\%) | Acportion (\%) | Proporion (\%) | Acpostion (\%) | Properion (\%) | Propertion (\%) | Acportion (\%) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |


| Kawamata | 1,763 | 23 | 19 | 0 | 3 | 12 | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1.3 | 82.6 | 0.0 | 15.8 | 63.2 | 21.1 |
| Namie | 2,508 | 28 | 22 | 0 | 2 | 9 | 11 |
|  |  | 1.1 | 78.6 | 0.0 | 9.1 | 40.9 | 50.0 |
| Sitate | 763 | 14 | 11 | 0 | 2 | 6 | 3 |
|  |  | 1.8 | 78.6 | 0.0 | 18.2 | 54.5 | 27.3 |
| Minami-soma | 8,907 | 81 | 68 | 2 | 10 | 27 | 29 |
|  |  | 0.9 | 84.0 | 2.9 | 14.7 | 39.7 | 42.6 |
| Date | 9,110 | 86 | 78 | 1 | 17 | 38 | 22 |
|  |  | 0.9 | 90.7 | 1.3 | 21.8 | 48.7 | 28.2 |
| Tamura | 5,006 | 51 | 42 | 1 | 3 | 28 | 10 |
|  |  | 1.0 | 82.4 | 2.4 | 7.1 | 66.7 | 23.8 |
| Hirono | 679 | 9 | 7 | 0 | 1 | 3 | 3 |
|  |  | 1.3 | 77.8 | 0.0 | 14.3 | 42.9 | 42.9 |
| Naraha | 1,001 | 5 | 5 | 0 | 0 | 1 | 4 |
|  |  | 0.5 | 100.0 | 0.0 | 0.0 | 20.0 | 80.0 |
| Tomioka | 2,001 | 24 | 20 | 0 | 3 | 4 | 13 |
|  |  | 1.2 | 83.3 | 0.0 | 15.0 | 20.0 | 65.0 |
| Kawauchi | 213 | 2 | 2 | 0 | 0 | 1 | 1 |
|  |  | 0.9 | 100.0 | 0.0 | 0.0 | 50.0 | 50.0 |
| Okuma | 1,757 | 15 | 13 | 0 | 1 | 6 | 6 |
|  |  | 0.9 | 86.7 | 0.0 | 7.7 | 46.2 | 46.2 |
| Futaba | 685 | 2 | 1 | 0 | 0 | 0 | 1 |
|  |  | 0.3 | 50.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Katsurao | 150 | 2 | 2 | 0 | 2 | 0 | 0 |
|  |  | 1.3 | 100.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Fukushima | 42,687 | 348 | 291 | 5 | 38 | 140 | 108 |
|  |  | 0.8 | 83.6 | 1.7 | 13.1 | 48.1 | 37.1 |
| Nihormatsu | 7,885 | 59 | 50 | 1 | 6 | 23 | 20 |
|  |  | 0.7 | 84.7 | 2.0 | 12.0 | 46.0 | 40.0 |
| Motomiya | 4,809 | 31 | 26 | 0 | 1 | 15 | 10 |
|  |  | 0.6 | 83.9 | 0.0 | 3.8 | 57.7 | 38.5 |
| Otama | 1,263 | 6 | 6 | 0 | 0 | 4 | 2 |
|  |  | 0.5 | 100.0 | 0.0 | 0.0 | 66.7 | 33.3 |
| Koriyama | 48,023 | 364 | 274 | 7 | 31 | 128 | 108 |
|  |  | 0.8 | 75.3 | 2.6 | 11.3 | 46.7 | 39.4 |
| Kori | 1,635 | 14 | 10 | 0 | 1 | 5 | 4 |
|  |  | 0.9 | 71.4 | 0.0 | 10.0 | 50.0 | 40.0 |
| Kunimi | 1,240 | 9 | 8 | 1 | 1 | 0 | 6 |
|  |  | 0.7 | 88.9 | 12.5 | 12.5 | 0.0 | 75.0 |
| Tenei | 793 | 11 | 6 | 0 | 0 | 3 | 3 |
|  |  | 1.4 | 54.5 | 0.0 | 0.0 | 50.0 | 50.0 |
| Shirakawa | 9,665 | 63 | 48 | 1 | 4 | 24 | 19 |
|  |  | 0.7 | 76.2 | 2.1 | 8.3 | 50.0 | 39.6 |
| Nistrigo | 3,178 | 28 | 20 | 0 | 2 | 12 | 6 |
|  |  | 0.9 | 71.4 | 0.0 | 10.0 | 60.0 | 30.0 |
| Izumizaki | 997 | 4 | 2 | 0 | 0 | 1 | 1 |
|  |  | 0.4 | 50.0 | 0.0 | 0.0 | 50.0 | 50.0 |
| Mharu | 2,386 | 24 | 13 | 0 | 0 | 10 | 3 |
|  |  | 1.0 | 54.2 | 0.0 | 0.0 | 76.9 | 23.1 |
| Subtotal | 159,104 | 1,303 | 1044 | 19 | 128 | 500 | 397 |
|  |  | 0.8 | 80.1 | 1.8 | 12.3 | 47.9 | 38.0 |


| 19 | 3 | 7 | 9 | 1 |
| :---: | :---: | :---: | :---: | :---: |
| 100.0 | 15.8 | 36.8 | 47.4 | 11.1 |
| 22 | 0 | 2 | 20 | 3 |
| 100.0 | 0.0 | 9.1 | 90.9 | 15.0 |
| 11 | 2 | 3 | 6 | 1 |
| 100.0 | 18.2 | 27.3 | 54.5 | 16.7 |
| 67 | 4 | 16 | 47 | 14 |
| 98.5 | 6.0 | 23.9 | 70.1 | 29.8 |
| 73 | 0 | 26 | 47 | 9 |
| 93.6 | 0.0 | 35.6 | 64.4 | 19.1 |
| 41 | 1 | 10 | 30 | 6 |
| 97.6 | 2.4 | 24.4 | 73.2 | 20.0 |
| 7 | 0 | 3 | 4 | 0 |
| 100.0 | 0.0 | 42.9 | 57.1 | 0.0 |
| 5 | 0 | 0 | 5 | 0 |
| 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| 19 | 1 | 5 | 13 | 1 |
| 95.0 | 5.3 | 26.3 | 68.4 | 7.7 |
| 2 | 0 | 0 | 2 | 0 |
| 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| 13 | 0 | 2 | 11 | 3 |
| 100.0 | 0.0 | 15.4 | 84.6 | 27.3 |
| 1 | 1 | 0 | 0 | 0 |
| 100.0 | 100.0 | 0.0 | 0.0 | 0.0 |
| 2 | 0 | 2 | 0 | 0 |
| 100.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| 282 | 12 | 52 | 218 | 48 |
| 96.9 | 4.3 | 18.4 | 77.3 | 22.0 |
| 50 | 1 | 9 | 40 | 4 |
| 100.0 | 2.0 | 18.0 | 80.0 | 10.0 |
| 24 | 0 | 4 | 20 | 5 |
| 92.3 | 0.0 | 16.7 | 83.3 | 25.0 |
| 5 | 0 | 2 | 3 | 0 |
| 83.3 | 0.0 | 40.0 | 60.0 | 0.0 |
| 263 | 8 | 54 | 201 | 41 |
| 96.0 | 3.0 | 20.5 | 76.4 | 20.4 |
| 9 | 0 | 3 | 6 | 1 |
| 90.0 | 0.0 | 33.3 | 66.7 | 16.7 |
| 8 | 0 | 1 | 7 | 0 |
| 100.0 | 0.0 | 12.5 | 87.5 | 0.0 |
| 6 | 1 | 1 | 4 | 1 |
| 100.0 | 16.7 | 16.7 | 66.7 | 25.0 |
| 47 | 1 | 17 | 29 | 4 |
| 97.9 | 2.1 | 36.2 | 61.7 | 13.8 |
| 19 | 0 | 8 | 11 | 3 |
| 95.0 | 0.0 | 42.1 | 57.9 | 27.3 |
| 2 | 0 | 0 | 2 | 0 |
| 100.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| 13 | 1 | 6 | 6 | 0 |
| 100.0 | 7.7 | 46.2 | 46.2 | 0.0 |
| 1010 | 36 | 233 | 741 | 145 |
| 96.7 | 3.6 | 23.1 | 73.4 | 19.6 |

h) Excluding participants who have not receive the test results.

Fractions have been rounded and may not total to $100 \%$. Ages are at the time when the participants underwent the testing.


## Appendix 6

Surgical cases for malignancy or suspicion of malignancy

1. Target municipalities in FY 2014

Suspicious or malignant: 48 ( 31 surgical cases: 30 papillary thyroid carcinomas, 1 other thyroid carcinoma)
2. Target municipalities in FY 2015

Suspicious or malignant: 11 (3 surgical cases: 3 papillary thyroid carcinomas)
3. Total for cases FY 2014-2015

Suspicious or malignant: 59 ( 34 surgical cases: 33 papillary thyroid carcinomas, 1 other thyroid carcinoma)

# Report of Third-Round Thyroid Ultrasound Examinations <br> (Second Full-Scale Thyroid Screening Program) 

Reported on 14 September 2016

## 1. Summary

### 1.1 Purpose

In order to monitor the long-term health of children, we are now engaged in the second Full-scale Thyroid Screening Program (third-round examinations). The first round was Preliminary Baseline Screening for initial assessment of thyroid glands, and the second round was the first Full-scale Thyroid Screening Program to assess any changes.

### 1.2 Group

In addition to those residing in Fukushima Prefecture - including visitors - who were born between 2 April 1992 and 1 April 2011, included in Preliminary Baseline Screening, the Full-scale Thyroid Screening (second- and third-round examinations) also includes those who were born between 2 April 2011 and 1 April 2012.

### 1.3 Policy on the Second Full-scale Thyroid Screening (third-round examination)

1.3-1 The Second Full-scale Screening Program started 1 May 2016 and will cover examinees up to age 20 on a municipality-by-municipality schedule to FY 2017. Thereafter, we will revise the schedule to screen examinees every five years - at ages 25 and 30 for example - to make it easier for examinees to remember when they are due for examination. However, we will endeavor to make sure they do not let more than five years pass between the examinations through age 25 .

## 1.3-2 Revision of the Primary Examination Consent Form (Examination Notice)

In the examination notice, we will detail the purpose of the examination and inform each examinee that the condition of their thyroid gland will be ascertained to an extent that may provoke some anxiety on the part of the examinee. In addition, we will set up a column where the examinee can grant or withhold consent for the examination in order to clearly confirm each examinee's volition before proceeding.
As for examinees residing in Fukushima Prefecture, we have thus far sent examination notices in accordance with examination schedules based on their residence at the time of the earthquake disaster. From this examination forward, however, we will send notices in accordance with examination schedules based on each examinee's current residence, for better convenience.

## 1.3-3 Revision of the Primary Examination Result Notice

Given that the total number of examinations will increase from the second-round Full-scale Thyroid Screening Program, the primary examination notice will specify the results of the previous two examinations along with those of the latest examination and use easy-to-understand expressions for explaining the results.

For each examinee whose results warrant a confirmatory examination, we will enclose a postcard with the examination results notice to ascertain whether the examinee wishes to undergo a confirmatory examination and how health insurance coverage applies to follow-up treatment.

### 1.4 Method

## 1.4-1 Primary Examination

We use ultrasonography for examination of the thyroid gland.
Assessments are made by specialists on the basis of the following criteria.

## -Diagnostic Criteria (A)

Those with A1 and A2 test results are recommended for watchful waiting until they undergo the next screening starting from April 2018.
A1: No nodules / cysts
A2: Nodules $\leq 5.0 \mathrm{~mm}$ or cysts $\leq 20.0 \mathrm{~mm}$

## -Diagnostic Criteria (B)

Those with B test results are advised to take the confirmatory examination.
B: Nodules $\geq 5.1 \mathrm{~mm}$ or cysts $\geq 20.1 \mathrm{~mm}$
Some A2 test results may be re-classified as B results when clinically indicated.

## -Diagnostic Criteria (C)

Those with C test results are advised to take the confirmatory examination.
C: Immediate need for confirmatory examination.

## 1.4-2 Confirmatory Examination

We conduct ultrasonography, blood test, urine test, 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.
1.4-3 Flow chart


Fig. 1 Flow chart

### 1.5 Target Municipalities

$\square$ 25 target municipalities for FY 2016
$\square$ 34 target municipalities for FY 2017


Fig. 2 Target Municipalities

## 2. Results as of 30 June 2016

### 2.1 Results of Primary Examination

## 2.1-1 Progress Report

The Primary Examination started 1 May 2016, and the participation rate is $4.6 \%(17,481$ of 381,172$)$ from 59 municipalities ( 25 municipalities in FY 2016, and 34 in FY 2017). (See Appendix 1 and 2.)

As of 30 June 2016, examination results were not fully tabulated.

Table 1. Screening test coverage as of 30 June 2016

|  | Survey Populationa | Participants |  | Proportion (\%) <br> c (c/b) | Test results |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Proportion (\%) <br> b (b/a) | ScreenedoutsideFukushima |  | Class (\%) |  |  |  |
|  |  |  |  |  | A |  | Requiring confirmatory test |  |
|  |  |  |  |  | A1 d (d/c) | A2 e (e/c) | B f (f/c) | C g (g/c) |
| FY 2016 | 216,815 | 17,026 (7.9) | 42 | - | - | - | - | - |
| FY 2017 | 164,357 | $455 \quad$ (0.3) | 33 | - | - | - | - | - |
| Total | 381,172 | 17,481 (4.6) | 75 | - | - | - | - | - |

[^5]
## Appendix 1

Thyroid Ultrasound Examination (TUE) coverage by municipality


| As of 30 June 2016 |  |
| :---: | :---: |
| Participants <br> living outside <br> Fukushima |  |
| Proportion (\%) |  |
| c | c/b |

Screening coverage by municipality in FY 2016


| 0 | 0.0 |
| :---: | :---: |
| 2 | 1.0 |
| 1 | 0.4 |
| 18 | 0.4 |
| 6 | 0.1 |
| 3 | 0.1 |
| 0 | 0.0 |
| 1 | 0.7 |
| 1 | 0.9 |
| 0 | 0.0 |
| 3 | 2.1 |
| 0 | 0.0 |
| 1 | 2.6 |
| 5 | 0.8 |
| 2 | 0.3 |
| 2 | 0.5 |
| 0 | 0.0 |
| 11 | 7.9 |
| 0 | 0.0 |
| 2 | 0.5 |
| 0 | 0.0 |
| 0 | 0.0 |
| 0 | 0.0 |
| 0 | 0.0 |
| 0 | 0.0 |
| 58 | 0.3 |

1) Number of participants. 2) Number of participants in the age group/Number of participants.
2) Number of participants who underwent the test outside Fukushima.

Fractions have been rounded and may not total to $100 \%$. Ages are at the time when the participants underwent the testing.


Screening coverage by municipality in FY 2017

| Iwaki | 64,294 | 146 | 15 | 0.2 | 37 | 21 | 79 | 9 |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |


| Iwaki |
| :---: |
| Sukagawa |
| Soma |


| Kagamiishi |
| :---: |
| Shinchi |


| Nakajima |
| :---: |
| Yabuki |


| Ishikawa |  |
| :---: | :--- |
|  |  |


| Yamatsuri |  |
| :---: | :--- |
| Asakawa |  |


| Hirata |
| :---: |


| Tanagura | 3,085 | 5 | 1 |
| :---: | ---: | ---: | ---: |
| Hanawa | 1,715 | 3 | 0 |


| Hanawa |
| :---: |
| Samegawa |
| Ono |

T

| Furudono | 1,084 | 2 | 0 | 0.3 |
| :---: | ---: | ---: | ---: | :--- |
| Hinoemata | 110 | 0 | 0 | 0.2 |
|  |  | 0.0 |  |  |
|  |  |  |  |  |


| Hinoemata | 110 | 0 |
| :---: | ---: | ---: |
| Minami-aizu | 2,913 | 4 |
| Kaneyama | 203 | 0 |


|  |
| :--- |


| Showa | 134 | 0 |
| :---: | ---: | ---: |
| Mishima | 197 | 0 |
| Shimogo | 997 | 1 |


| Shimogo | 997 | 1 |
| :---: | ---: | ---: |
| Kitakata | 9,235 | 8 |


| Nishiaizu |  |
| :---: | :--- |
|  |  |


| Tadami |
| :---: |
| Inawashiro |


| Inawashiro |  |
| :---: | :---: |
| Bandai |  |

Banda
Kitashiob

| Kitashiobara |
| :---: |
| Aizumisato |


| Aizumisato |
| :---: |
| Aizubange |


| Aizubange | 3,181 | 7 |  |
| :---: | ---: | ---: | ---: |
| Yanaizu | 612 | 0 |  |
| Aizuwakamatsu | 23,925 | 30 |  |
| Yugawa | 696 | 1 |  |
| Subtotal | 164,357 | 455 |  |


| Total | 381,172 | 17,481 | 75 | 4.6 | 5,112 | 8,449 | 3,577 | 343 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 29.2 | 48.3 | 20.5 | 2.0 |



| 20 | 13.7 |
| ---: | ---: |
| 8 | 30.8 |
| 0 | 0.0 |
| 0 | 0.0 |


| 0 | 0.0 |
| :--- | :--- |
| 1 | 4.3 |
| 0 | 0.0 |
| 0 | 0.0 |


| 0 | 0.0 |
| :---: | :---: |
| 0 | 0.0 |
| 0 | 0.0 |
| 0 | 0.0 |
| 0 | 0.0 |
| 2 | 40.0 |


| 2 | 40.0 |
| :--- | :--- |
| 0 | 0.0 |
| 0 | 0.0 |


| 0 | 0.0 |
| :--- | :--- |
| 0 | 0.0 |


| 0 | 0.0 |
| :--- | :--- |
| 0 | 0.0 |
| 0 | 0.0 |


| 0 | 0.0 |
| :--- | :--- |
| 0 | 0.0 |
| 0 | 0.0 |



| 0 | 0.0 |
| ---: | ---: |
| 5 | 62.5 |
| 0 | 0.0 |
| 0 | 0.0 |
| 6 | 54.5 |
| 0 | 0.0 |
| 1 | 33.3 |
| 3 | 42.9 |
| 0 | 0.0 |
| 13 | 43.3 |
| 0 | 0.0 |
| 59 | 13.0 |


| 117 | 0.7 |
| :--- | :--- |

## Appendix 2

Thyroid Ultrasound Examination (TUE) coverage by prefecture

| Prefecture |  | Participants* | Prefecture | test venues | Participants* | Prefecture | test venues | Participants* |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Hokkaido | 6 | 0 | Fukui | 1 | 0 | Hiroshima | 1 | 0 |
| Aomori | 1 | 0 | Yamanashi | 2 | 0 | Yamaguchi | 1 | 0 |
| Iwate | 3 | 0 | Nagano | 2 | 2 | Tokushima | 1 | 0 |
| Miyagi | 2 | 0 | Gifu | 1 | 0 | Kagawa | 1 | 0 |
| Akita | 1 | 0 | Shizuoka | 2 | 0 | Ehime | 1 | 0 |
| Yamagata | 3 | 1 | Aichi | 3 | 3 | Kochi | 1 | 0 |
| Ibaraki | 4 | 0 | Mie | 1 | 0 | Fukuoka | 3 | 0 |
| Tochigi | 7 | 6 | Shiga | 1 | 0 | Saga | 1 | 0 |
| Gunma | 2 | 1 | Kyoto | 3 | 0 | Nagasaki | 2 | 0 |
| Saitama | 2 | 6 | Osaka | 6 | 1 | Kumamoto | 1 | 0 |
| Chiba | 4 | 0 | Hyogo | 1 | 0 | Oita | 1 | 0 |
| Tokyo | 12 | 41 | Nara | 2 | 0 | Miyazaki | 1 | 0 |
| Kanagawa | 5 | 8 | Wakayama | 1 | 3 | Kagoshima | 1 | 0 |
| Niigata | 2 | 3 | Tottori | 1 | 0 | Okinawa | 1 | 0 |
| Toyama | 1 | 0 | Shimane | 1 | 0 |  |  |  |
| Ishikawa | 1 | 0 | Okayama | 3 | 0 | Total | 104 | 75 |

* Participants who underwent testing at venues outside Fukushima carried out either by Fukushima Medical University staff or by local specialists.


## FY 2011 Pregnancy and Birth Survey Follow-up Survey Report

Reported on 14 September 2016

## 1. Outline

### 1.1 Purpose

Since FY 2011, Fukushima Medical University has conducted the Pregnancy and Birth Survey, which is a cross-sectional survey targeting a different group each year. Many of the respondents to the Pregnancy and Birth Survey in FY 2011 tended to have depressive symptoms and wrote about serious issues in the comment section of the survey. Children born at that time would be around four years old at present, when the number of mothers who have lost confidence in child rearing is increasing and some may be in need of support.

Then, we implemented a follow-up survey covering respondents to the FY 2011 Pregnancy and Birth Survey four years later, assessing their health conditions and providing support as necessary.

### 1.2 Target Group

The target group covered the FY 2011 Pregnancy and Birth Survey respondents who gave birth between 1 August 2010 and 8 April 2012 (excluding those who miscarried, aborted their pregnancy or lost unborn children). We referred to municipal offices about whether these respondents and their children are alive or not and conducted the follow-up survey on 7,252 respondents who were identified as being alive along with their children.

### 1.3 Methods

- Survey questionnaires were mailed to the participants.
- Survey questionnaires were sent on 11 September 2015.
- Survey questionnaires were not sent again to those who failed to respond.


### 1.4 Items

Survey items are as follows:
(1) Do you think of yourself as healthy?
(2) Have you often been feeling down or depressed for the past month?
(3) Have you lost interest in activities or found things unpleasurable for the past month?
(4) Do you sometimes lose confidence in child rearing?
(5) Check boxes for all matters of insecurity regarding the effects of radiation.
$\square$ Water $\square$ Food $\square$ Child's outdoor play $\quad$ Child's health $\square$ Prejudice $\square$ Genetic influences $\quad$ OOthers
(6) Has your child caught any disease requiring hospitalization?
(7) Check boxes for all matters of concern regarding your child.
$\square$ Mental and physical development $\quad \square$ Sickness $\quad$ Lifestyle $\quad \square$ Others

### 1.5 Data Tabulation Period

From 14 September 2015 through 31 May 2016
2. Survey Results

- Survey results are shown in the tables.
- The number of valid responses may not be equal to the survey total because of missing answers.


### 2.1 Response Rates

The total number of responses was $2,554(35.2 \%)$ and the number of valid responses was 2,554 (Invalid responses: 0).

### 2.2 Respondents

The number of responses for the follow-up survey of the FY 2011 survey respondents by area was as follows: Kempoku, 679 (38.7\%); Kenchu, 721 (32.7\%), Kennan, 168 (34.1\%); Soso, 256 (34.9\%); Iwaki, 434 (35.9\%); Aizu, 271 (34.5\%); and Minami-Aizu, 25 ( $34.7 \%$ ). The response rate was the highest in Kempoku and the lowest in Kenchu.

### 2.3 Mental Health of Mothers

The proportion of mothers with depressive symptoms was $25.6 \%$. The proportion in the FY 2011 survey four years ago was $27.1 \%$. Mothers who subjectively viewed their health as bad (who answered "not so healthy" or "not healthy") accounted for $9.6 \%$. (The FY 2011 Pregnancy and Birth Survey did not cover this item.) The highest proportion for mothers who subjectively viewed their health as bad was seen in Soso (13.3\%).

### 2.4 Family and Child Rearing

The proportion of those who were not confident in child rearing was $15.8 \%$. (The FY 2011 Pregnancy and Birth Survey did not cover this item.) According to the 2010 national survey to assess toddlers' health status, the proportion of mothers with four-year-old children, who were not confident in child rearing, was $23.0 \%$.

### 2.5 Insecurity Regarding Effects of Radiation

Mothers who checked at least one box among those for matters of insecurity regarding the effects of radiation accounted for $94.2 \%$. The proportion of those who checked the box for the child's health was the highest at $79.5 \%$. The highest proportions of those who checked boxes for "water," "prejudice" and "genetic influences" as matters of insecurity were seen in Soso.

### 2.6 Insecurity Regarding Child's Health

The proportion of mothers whose children have caught diseases subject to hospitalization was $24.7 \%$, meaning that one out of every four mothers had children who did so. Major diseases for hospitalization included pneumonia, respiratory syncytial virus infection and bronchitis.

The highest proportion of mothers whose children have been hospitalized was seen in Minami-Aizu at $32.0 \%$, followed by $29.2 \%$ in Aizu.

Mothers who checked at least one box among those for matters of concern regarding their children accounted
for $70.8 \%$. The proportion of mothers who checked the box for "sickness" was the highest at $57.6 \%$, followed by $56.1 \%$ for those citing "mental and physical development."

### 2.7 Free-answer Question

A total of 383 respondents ( $15.0 \%$ ) answered the free-answer question, which was lower than 3,722 ( $42.2 \%$ ) in FY 2011.

The most frequently discussed issue was "effects of radiation on fetus and child" (discussed by $13.8 \%$ ), followed by "acceptance of this survey" (discussed by 12.3\%).

### 2.8 Conclusion

Mothers feeling depressed accounted for $25.6 \%$. Mothers who subjectively viewed their health as bad (who answered "not so healthy" or "not healthy") accounted for $9.6 \%$.

Mothers who checked at least one box among those for matters of insecurity regarding the effects of radiation accounted for $94.2 \%$. The proportion of those who checked the box for the "child's health" was the highest at $79.5 \%$.

Mothers who answered the free-answer question accounted for $15.0 \%$. Particularly, the proportion of mothers concerned about the effects of radiation on fetus or child was as high as $13.8 \%$.

As noted above, a certain proportion of mothers were feeling depressed ( $25.6 \%$ ) and/or harbored insecurity about the effects of radiation ( $94.2 \%$ ). Therefore, we conclude that we should conduct a follow-up survey to the FY 2012 survey as well and continue to provide support via telephone to mothers as necessary.

## 3. Support after the Survey

### 3.1 Purpose

In order to address residents' anxiety, midwives and public health nurses provided counseling via telephone or email for those who were screened to be in need of support among the respondents to the follow-up survey for the FY 2011 Pregnancy and Birth Survey.

### 3.2 Group for Support

Respondents to the follow-up survey for the FY 2011 Pregnancy and Birth Survey

### 3.3 Criteria for Support

Respondents who fit either of the following two criteria.
(1)Respondents who had two depression symptoms
(2)Respondents who were screened based on their opinions written in a given free-answer space.

Those who appeared to have a severely depressed mood
Those in need of support for child rearing
Those who are concerned about radiation exposure
Those who want detailed information
Those who requested support

### 3.4 Methods

- Support via telephone and email


## 4. Results of the Support

Support results are shown in the tables.
Data Collection Period: 14 September 2015 through 31 May 2016

### 4.1 Number of Supported Mothers

The number of those who required telephone support was 375 out of 2,554 who responded from 14 September 2015 through 31 May 2016. The proportion was $14.7 \%$, which was almost the same as that of FY 2011: 1,401 (15.0\%).

Among those who required support, $79.7 \%$ were identified based on their depression symptoms, and $20.3 \%$ based on their comments written in a free-answer space. Compared with the FY 2011 survey results ( $87.4 \%$ for those supported based on depression-related items and $12.6 \%$ for those supported based on free answers), the portion of respondents supported based on free answers increased.

### 4.2 Content

The most frequently discussed issue by the respondents was the physical and mental health of mothers ( $34.4 \%$ ), followed by effects of and concerns about radiation ( $25.6 \%$ ) and child rearing ( $21.6 \%$ ). The proportion of those who received counselling about effects of and concerns about radiation through the follow-up survey was the highest after the FY 2011 survey among the past annual surveys, although the proportion followed a downtrend -- 29.2\% in FY 2011, 23.7\% in FY 2012, 17.1\% in FY 2013 and 9.5\% in FY 2014.

### 4.3 Reasons for Completing Support

The most frequently cited reason for completing support was that "we listened and dealt with issues of respondents," covering 197 support receivers ( $52.5 \%$ ), followed by 105 persons ( $28.0 \%$ ) for the reason that "respondents were given information about counseling services." The proportion for the absence as the reason for completing support was as high as 131 persons (34.9\%).

Note: Response is shown by running number.
The denominator is the total number of respondents who required support.

### 4.4 Conclusion

Mothers who required telephone support through the follow-up survey accounted for $14.7 \%$ of the total respondents. Those receiving counseling on depression captured about $80 \%$ of the supported mothers.

Among major matters for counselling was "concerns about radiation," cited by as many as $25.6 \%$ of the support receivers.

The most frequently cited reason for completing support was "listening," accounting for the highest proportion of $50 \%$, as seen on average in earlier surveys. However, the proportion for the absence increased.
5. Tabulation of FY 2011 Pregnancy and Birth Survey Follow-up Survey Results
5.1 Response rates

Responses received from 14 September 2015 through 31 May 2016

| Area | Survey population | Responses <br> (Response rate <br> by area) |  |  |
| :--- | ---: | ---: | ---: | ---: |
| Kempoku | 1,755 | $24.2 \%$ | 679 | $38.7 \%$ |
| Kenchu | 2,205 | $30.4 \%$ | 721 | $32.7 \%$ |
| Kennan | 492 | $6.8 \%$ | 168 | $34.1 \%$ |
| Soso | 734 | $10.1 \%$ | 256 | $34.9 \%$ |
| Iwaki | 1,208 | $16.7 \%$ | 434 | $35.9 \%$ |
| Aizu | 786 | $10.8 \%$ | 271 | $34.5 \%$ |
| Minami-Aizu | 72 | $1.0 \%$ | 25 | $34.7 \%$ |
| Total | 7,252 | $100.0 \%$ | 2,554 | $35.2 \%$ |

### 5.2 Results by Items

The total number is 2,554 (Invalid responses: 0). Each item includes nonrespondents and invalid responses. Percentages have been rounded and may not total to $100 \%$.
Q1. Do you think of yourself as healthy?

| Area | Very healthy |  | Somewhat healthy |  | Not so healthy |  | Not healthy |  | No response |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 98 | 14.4\% | 522 | 76.9\% | 51 | 7.5\% | 7 | 1.0\% | 1 | 0.1\% | 679 | 100.0\% |
| Kenchu | 111 | 15.4\% | 537 | 74.5\% | 62 | 8.6\% | 8 | 1.1\% | 3 | 0.4\% | 721 | 100.0\% |
| Kennan | 28 | 16.7\% | 120 | 71.4\% | 14 | 8.3\% | 5 | 3.0\% | 1 | 0.6\% | 168 | 100.0\% |
| Soso | 23 | 9.0\% | 198 | 77.3\% | 31 | 12.1\% | 3 | 1.2\% | 1 | 0.4\% | 256 | 100.0\% |
| Iwaki | 80 | 18.4\% | 314 | 72.4\% | 37 | 8.5\% | 3 | 0.7\% | 0 | 0.0\% | 434 | 100.0\% |
| Aizu | 48 | 17.7\% | 202 | 74.5\% | 18 | 6.6\% | 3 | 1.1\% | 0 | 0.0\% | 271 | 100.0\% |
| Minami-Aizu | 4 | 16.0\% | 19 | 76.0\% | 2 | 8.0\% | 0 | 0.0\% | 0 | 0.0\% | 25 | 100.0\% |
| Total | 392 | 15.3\% | 1,912 | 74.9\% | 215 | 8.4\% | 29 | 1.1\% | 6 | 0.2\% | 2,554 | 100.0\% |

Q2. Have you often been feeling down or depressed for the past month?

| Area | Yes |  | No |  | No response |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 164 | 24.2\% | 511 | 75.3\% | 4 | 0.6\% | 679 | 100.0\% |
| Kenchu | 172 | 23.9\% | 544 | 75.5\% | 5 | 0.7\% | 721 | 100.0\% |
| Kennan | 41 | 24.4\% | 125 | 74.4\% | 2 | 1.2\% | 168 | 100.0\% |
| Soso | 68 | 26.6\% | 184 | 71.9\% | 4 | 1.6\% | 256 | 100.0\% |
| Iwaki | 101 | 23.3\% | 329 | 75.8\% | 4 | 0.9\% | 434 | 100.0\% |
| Aizu | 56 | 20.7\% | 213 | 78.6\% | 2 | 0.7\% | 271 | 100.0\% |
| Minami-Aizu | 6 | 24.0\% | 19 | 76.0\% | 0 | 0.0\% | 25 | 100.0\% |
| Total | 608 | 23.8\% | 1,925 | 75.4\% | 21 | 0.8\% | 2,554 | 100.0\% |

Q3. Have you lost interest in activities or found things unpleasurable for the past month?

| Area | Yes |  | No |  | No response | Total |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Kempoku | 86 | $12.7 \%$ | 589 | $86.7 \%$ | 4 | $0.6 \%$ | 679 | $100.0 \%$ |
| Kenchu | 89 | $12.3 \%$ | 627 | $87.0 \%$ | 5 | $0.7 \%$ | 721 | $100.0 \%$ |
| Kennan | 26 | $15.5 \%$ | 140 | $83.3 \%$ | 2 | $1.2 \%$ | 168 | $100.0 \%$ |
| Soso | 44 | $17.2 \%$ | 208 | $81.3 \%$ | 4 | $1.6 \%$ | 256 | $100.0 \%$ |
| Iwaki | 56 | $12.9 \%$ | 374 | $86.2 \%$ | 4 | $0.9 \%$ | 434 | $100.0 \%$ |
| Aizu | 38 | $14.0 \%$ | 231 | $85.2 \%$ | 2 | $0.7 \%$ | 271 | $100.0 \%$ |
| Minami-Aizu | 7 | $28.0 \%$ | 18 | $72.0 \%$ | 0 | $0.0 \%$ | 25 | $100.0 \%$ |
| Total | 346 | $13.5 \%$ | 2,187 | $85.6 \%$ | 21 | $0.8 \%$ | 2,554 | $100.0 \%$ |

Depressive tendencies (Answers to Q2 and Q3)

| Area | Yes to both questions |  | Yes to either of the questions |  | No to both questions |  | No response |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 78 | 11.5\% | 94 | 13.8\% | 503 | 74.1\% | 4 | 0.6\% | 679 | 100.0\% |
| Kenchu | 81 | 11.2\% | 99 | 13.7\% | 536 | 74.3\% | 5 | 0.7\% | 721 | 100.0\% |
| Kennan | 22 | 13.1\% | 23 | 13.7\% | 121 | 72.0\% | 2 | 1.2\% | 168 | 100.0\% |
| Soso | 38 | 14.8\% | 36 | 14.1\% | 178 | 69.5\% | 4 | 1.6\% | 256 | 100.0\% |
| Iwaki | 46 | 10.6\% | 65 | 15.0\% | 319 | 73.5\% | 4 | 0.9\% | 434 | 100.0\% |
| Aizu | 31 | 11.4\% | 32 | 11.8\% | 206 | 76.0\% | 2 | 0.7\% | 271 | 100.0\% |
| Minami-Aizu | 5 | 20.0\% | 3 | 12.0\% | 17 | 68.0\% | 0 | 0.0\% | 25 | 100.0\% |
| Total | 301 | 11.8\% | 352 | 13.8\% | 1,880 | 73.6\% | 21 | 0.8\% | 2,554 | 100.0\% |

Proportion of those with depressive tendencies: $25.6 \%$ [653(checked both boxes of Yes + checked either of Yes / total of 2,554)]

Q4. Do you sometimes lose confidence in child rearing?

| Area | Yes |  | No |  | Not sure |  | No response |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 107 | 15.8\% | 253 | 37.3\% | 317 | 46.7\% | 2 | 0.3\% | 679 | 100.0\% |
| Kenchu | 103 | 14.3\% | 300 | 41.6\% | 318 | 44.1\% | 0 | 0.0\% | 721 | 100.0\% |
| Kennan | 31 | 18.5\% | 75 | 44.6\% | 62 | 36.9\% | 0 | 0.0\% | 168 | 100.0\% |
| Soso | 43 | 16.8\% | 86 | 33.6\% | 126 | 49.2\% | 1 | 0.4\% | 256 | 100.0\% |
| Iwaki | 80 | 18.4\% | 193 | 44.5\% | 160 | 36.9\% | 1 | 0.2\% | 434 | 100.0\% |
| Aizu | 37 | 13.7\% | 112 | 41.3\% | 121 | 44.6\% | 1 | 0.4\% | 271 | 100.0\% |
| Minami-Aizu | 3 | 12.0\% | 12 | 48.0\% | 10 | 40.0\% | 0 | 0.0\% | 25 | 100.0\% |
| Total | 404 | 15.8\% | 1,031 | 40.4\% | 1,114 | 43.6\% | 5 | 0.2\% | 2,554 | 100.0\% |

Q5. Check boxes for all matters of insecurity regarding the effects of radiation.

| Area | Child's health |  | Food |  | Prejudice |  | Water |  | Child's outdoor play |  | Genetic influences |  | Other |  | $$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 514 | 81.6\% | 277 | 44.0\% | 280 | 44.4\% | 223 | 35.4\% | 252 | 40.0\% | 212 | 33.7\% | 16 | 2.5\% |  |
| Kenchu | 558 | 80.6\% | 346 | 50.0\% | 326 | 47.1\% | 301 | 43.5\% | 294 | 42.5\% | 239 | 34.5\% | 21 | 3.0\% | 692 |
| Kennan | 122 | 78.7\% | 70 | 45.2\% | 67 | 43.2\% | 60 | 38.7\% | 55 | 35.5\% | 56 | 36.1\% | 3 | 1.9\% | 155 |
| Soso | 187 | 76.6\% | 136 | 55.7\% | 128 | 52.5\% | 131 | 53.7\% | 94 | 38.5\% | 93 | 38.1\% | 5 | 2.0\% | 244 |
| Iwaki | 331 | 80.3\% | 240 | 58.3\% | 156 | 37.9\% | 201 | 48.8\% | 151 | 36.7\% | 155 | 37.6\% | 6 | 1.5\% | 412 |
| Aizu | 182 | 72.8\% | 133 | 53.2\% | 93 | 37.2\% | 115 | 46.0\% | 98 | 39.2\% | 79 | 31.6\% | 7 | 2.8\% | 250 |
| Minami-Aizu | 19 | 82.6\% | 14 | 60.9\% | 9 | 39.1\% | 10 | 43.5\% | 6 | 26.1\% | 8 | 34.8\% | 0 | 0.0\% | 23 |
| Total | 1,913 | 79.5\% | 1,216 | 50.5\% | 1,059 | 44.0\% | 1,041 | 43.3\% | 950 | 39.5\% | 842 | 35.0\% | 58 | 2.4\% | 2,406 |

The denominator is the sum of valid responses (from respondents who checked boxes). Proportions do not add up to $100.0 \%$ because of multiple answers.

The following two questions are about children born between 1 August 2010 and 8 April 2012.
Q6. Has your child caught any disease requiring hospitalization?

| Area | Yes |  | No |  | No response | Total |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Kempoku | 184 | $27.1 \%$ | 485 | $71.4 \%$ | 10 | $1.5 \%$ | 679 |
| Kenchu | 190 | $26.4 \%$ | 524 | $72.7 \%$ | 7 | $100.0 \%$ | 721 |
| Kennan | 43 | $25.6 \%$ | 124 | $73.8 \%$ | 1 | $00.0 \%$ |  |
| Soso | 63 | $24.6 \%$ | 185 | $72.3 \%$ | 8 | $3.1 \%$ | 256 |
| Iwaki | 65 | $15.0 \%$ | 363 | $83.6 \%$ | 6 | $1.4 \%$ | 434 |
| Aizu | 79 | $29.2 \%$ | 192 | $70.8 \%$ | 0 | $0.0 \%$ | 271 |
| Minami-Aizu | 8 | $32.0 \%$ | 17 | $68.0 \%$ | 0 | $0.0 \%$ |  |
| Total | 632 | $24.7 \%$ | 1,890 | $74.0 \%$ | 32 | $100.0 \%$ |  |

Q6 Breakdown of diseases cited by respondents who answered yes to Q6 (multiple answers were allowed)

| Pneumonia | 162 | Ventricular septal defect | 3 | Transposition of the great arteries | 1 | Mesenteric lymphangioma | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Respiratory syncytial virus infection | 101 | Dehydration | 3 | Orbital cellulitis | 1 | Hypoglycemia | 1 |
| Bronchitis | 60 | Intussusception | 3 | Acute subdural hematoma | 1 | Infectious mononucleosis | 1 |
| Convulsion | 47 | Patent ductus arteriosus | 3 | Acute upper respiratory tract infection | 1 | Roseola infantum | 1 |
| Rotavirus infection | 44 | Pertussis | 3 | Acute pyelonephritis | 1 | Club foot | 1 |
| Gastroenteritis | 41 | EB virus infection | 2 | Acute respiratory distress syndrome | 1 | Hearing impairment | 1 |
| Bronchial asthma | 41 | Nephrotic syndrome | 2 | Hip dislocation | 1 | Rachischisis | 1 |
| Kawasaki disease | 32 | Human metapneumovirus infection | 2 | Cleft lip | 1 | Encephalitis | 1 |
| Inguinal hernia | 13 | Staphylococcal scalded skin syndrome | 2 | Neutropenia | 1 | Encephalopathy | 1 |
| Norovirus gastroenteritis | 12 | Herpetic gingivostomatitis | 2 | Hyperammonemia | 1 | Pulmonary artery stenosis | 1 |
| Adenovirus infection | 11 | Acute lymphoblastic leukemia | 2 | Imperforate anus | 1 | Atypical hemolytic uremic syndrome | 1 |
| Bronchopneumonia | 11 | Cleft palate | 2 | Aplastic anemia | 1 | Arrhythmia | 1 |
| Cold | 9 | Hand, foot and mouth disease | 2 | Aural fistula | 1 | Sinusitis | 1 |
| Otitis media | 9 | Atrial septal defect | 2 | Cyclic vomiting | 1 | Abdominal fissure | 1 |
| Influenza | 8 | Apneic attack | 2 | Pulmonary atresia with intact ventricular septum | 1 | Phakomatosis | 1 |
| Sore throat | 8 | Tonsillitis | 2 | Cerebellar ataxia | 1 | Cellulitis | 1 |
| Croupous bronchitis | 7 | Food allergies | 2 | Supraventricular premature contraction | 1 | Pyriform sinus fistula | 1 |
| Mycoplasma infection | 7 | Anaphylactic shock | 1 | Hydronephrosis | 1 | Arm fracture | 1 |
| Pyelonephritis | 6 | Ileus | 1 | Meningitis | 1 | Tonsillar hypertrophy | 1 |
| Epilepsy | 5 | Currarino syndrome | 1 | Pure red cell aplasia | 1 | Vesicoureteral reflux | 1 |
| Low birth weight infant | 5 | Cytomegalovirus infection | 1 | Congenital hypothyroidism | 1 | Umbilical hernia | 1 |
| Cleft lip and plate | 4 | Cyanosis | 1 | Small intestinal atresia | 1 | Exomphalos | 1 |
| Cryptorchidism | 4 | Tetralogy of Fallot | 1 | Esophageal atresia | 1 |  |  |
| Urinary tract infection | 4 | Herpesvirus infection | 1 | Congenital mitral regurgitation | 1 |  |  |
| Fever of unknown origin | 4 | Retractile testis | 1 | Congenital intestinal atresia | 1 |  |  |
| Adenoid vegetation | 3 | Perimandibular inflammation | 1 | Urea cycle disorder | 1 |  |  |
| Hives | 3 | Diarrhea | 1 | Premature infant | 1 |  |  |
| Mumps | 3 | IDCM (idiopathic dilated cardiomyopathy) | 1 | Polydactyly | 1 |  |  |

Q7. Check boxes for all matters of concern regarding your child.

| Area | Sickness |  | Mental and <br> physical <br> development |  | Lifestyle |  | Others |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Valid response |  |  |  |  |  |  |  |  |
| Kempoku | 269 | $55.0 \%$ | 293 | $59.9 \%$ | 181 | $37.0 \%$ | 21 | $4.3 \%$ |
| Kenchu | 308 | $58.2 \%$ | 278 | $52.6 \%$ | 189 | $35.7 \%$ | 40 | $7.6 \%$ |
| Kennan | 69 | $60.5 \%$ | 67 | $58.8 \%$ | 45 | $39.5 \%$ | 6 | $5.3 \%$ |
| Soso | 91 | $53.5 \%$ | 104 | $61.2 \%$ | 66 | $38.8 \%$ | 9 | $5.3 \%$ |
| Iwaki | 198 | $63.5 \%$ | 166 | $53.2 \%$ | 137 | $43.9 \%$ | 10 | $3.2 \%$ |
| Aizu | 95 | $54.6 \%$ | 97 | $55.7 \%$ | 69 | $39.7 \%$ | 9 | $5.2 \%$ |
| Minami-Aizu | 10 | $52.6 \%$ | 8 | $42.1 \%$ | 7 | $36.8 \%$ | 1 | $5.3 \%$ |
| Total | 1,040 | $57.6 \%$ | 1,013 | $56.1 \%$ | 694 | $38.4 \%$ | 96 | $5.3 \%$ |

The denominator is the sum of valid responses (from respondents who checked boxes). Proportions do not add up to $100.0 \%$ because of multiple answers.

### 5.3 Free-answer question

The participants are 383 of 2,554 respondents who answered the free-answer question.
Content

| Effects of radiation on fetus and child | 53 | 13.8\% |
| :---: | :---: | :---: |
| Acceptance of this survey | 47 | 12.3\% |
| Opinion or complaint about the survey | 44 | 11.5\% |
| Request for information on radiation and research results | 37 | 9.7\% |
| Request for Thyroid Ultrasound Examination | 23 | 6.0\% |
| Mental illness | 19 | 5.0\% |
| Anxiety about radiation exposure of children when outside | 18 | 4.7\% |
| Anxiety and dissatisfaction about reliability or lack of information | 17 | 4.4\% |
| Effects of radiation on food or baby food | 14 | 3.7\% |
| Request for the overall examination | 13 | 3.4\% |
| Consultation of child rearing ** | 13 | 3.4\% |
| Request for decontamination and provision of safe playgrounds | 12 | 3.1\% |
| Request for adequate child support services | 10 | 2.6\% |
| Anxiety and dissatisfaction about evacuation and family living apart | 9 | 2.3\% |
| Relationships ** | 8 | 2.1\% |
| Issues related to the current pregnancy outcome | 7 | 1.8\% |
| Physical problems ** | 6 | 1.6\% |
| Request for financial support | 6 | 1.6\% |
| Regarding financial anxiety and burden | 5 | 1.3\% |
| Request for Fukushima Health Management Survey | 5 | 1.3\% |
| Request for adequate mental health care services | 5 | 1.3\% |
| Anxiety over the effects of radiation on water | 4 | 1.0\% |
| Anxiety and dissatisfaction about inadequate medical services | 4 | 1.0\% |
| Request to measure internal radiation exposure (by whole body counter, etc.) | 3 | 0.8\% |
| Request for medical check-up and examinations | 2 | 0.5\% |
| Anxiety about the effects of radiation on the next pregnancy | 1 | 0.3\% |
| Regarding external radiation exposure (provision of glass badges and dosimeters) | 1 | 0.3\% |
| Request for adequate medical service and physical care | 1 | 0.3\% |
| Other | 83 | 21.7\% |

The denominator is the sum of 383 of respondents.
Multiple answers allowed.

[^6]
### 5.4 Support

Follow-up Survey for FY 2011 Survey: 375 persons or $14.7 \%$ of the 2,544 respondents required support (against 15.0\% in FY 2011, 15.4\% in FY2012, $15.2 \%$ in FY 2013, $11.6 \%$ in FY 2014).

Data Collection Period: From 14 September 2015 through 31 May 2016
Number of respondents who required support

| Area | Survey population | Response | Number of <br> respondents who <br> required support |  |
| :--- | ---: | ---: | ---: | ---: |
| Kempoku | 1,755 | 679 | $38.7 \%$ | 94 |
| Kenchu | 2,205 | 721 | $32.7 \%$ | 106 |
| Kennan | 492 | 168 | $34.8 \%$ | 27 |
| Soso | 734 | 256 | $34.9 \%$ | 41 |
| Iwaki | 1,208 | 434 | $35.9 \%$ | 63 |
| Aizu | 786 | 271 | $34.5 \%$ | 39 |
| Minami-Aizu | 72 | 25 | $34.7 \%$ | $14.5 \%$ |
| Total | 7,252 | 2,554 | $35.2 \%$ | 375 |

The denominator of response rate is the number of participants.
The denominator of number of respondents who required support is the number of responses.

Respondents requiring support by area

| Area | Support required <br> based on the <br> categories of <br> depression | Support required based on <br> the free-answer question | Total |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Kempoku | 77 | $81.9 \%$ | 17 | $18.1 \%$ | 94 |
| Kenchu | 80 | $75.5 \%$ | 26 | $24.5 \%$ | 106 |
| Kennan | 22 | $81.5 \%$ | 5 | $18.5 \%$ | 27 |
| Soso | 38 | $92.7 \%$ | 3 | $7.3 \%$ | 41 |
| Iwaki | 46 | $73.0 \%$ | 17 | $27.0 \%$ | 63 |
| Aizu | 31 | $79.5 \%$ | 8 | $20.5 \%$ | $100.00 \%$ |
| Minami-Aizu | 5 | $100.0 \%$ | 0 | $0.0 \%$ | $100.0 \%$ |
| Total | 299 | $79.7 \%$ | 76 | $20.3 \%$ | 375 |

Percentages have been rounded and may not total to $100 \%$.

Content of counseling by area

| Area | Health of mothers |  | Effects of radiation |  | Childrearing |  | Health of children |  | Family life |  | Evacuation |  | Other |  | Number of respondents who required support |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 29 | 30.9\% | 20 | 21.3\% | 15 | 16.0\% | 8 | 8.5\% | 10 | 10.6\% | 2 | 2.1\% | 53 | 56.4\% | 94 |
| Kenchu | 43 | 40.6\% | 35 | 33.0\% | 24 | 22.6\% | 26 | 24.5\% | 15 | 14.2\% | 5 | 4.7\% | 44 | 41.5\% | 106 |
| Kennan | 7 | 25.9\% | 3 | 11.1\% | 5 | 18.5\% | 6 | 22.2\% | 3 | 11.1\% | 0 | 0.0\% | 17 | 63.0\% | 27 |
| Soso | 16 | 39.0\% | 10 | 24.4\% | 12 | 29.3\% | 6 | 14.6\% | 5 | 12.2\% | 3 | 7.3\% | 20 | 48.8\% | 41 |
| Iwaki | 20 | 31.7\% | 19 | 30.2\% | 15 | 23.8\% | 15 | 23.8\% | 15 | 23.8\% | 0 | 0.0\% | 31 | 49.2\% | 63 |
| Aizu | 10 | 25.6\% | 8 | 20.5\% | 6 | 15.4\% | 6 | 15.4\% | 4 | 10.3\% | 0 | 0.0\% | 26 | 66.7\% | 39 |
| Minami-Aizu | 4 | 80.0\% | 1 | 20.0\% | 4 | 80.0\% | 1 | 20.0\% | 0 | 0.0\% | 0 | 0.0\% | 1 | 20.0\% | 5 |
| Total | 129 | 34.4\% | 96 | 25.6\% | 81 | 21.6\% | 68 | 18.1\% | 52 | 13.9\% | 10 | 2.7\% | 192 | 51.2\% | 375 |

The denominator is the sum of respondents who required support.
Proportions do not add up to $100 \%$ because of multiple answers.

Reason for completing support

|  | A |  | B |  | C |  | D |  | E |  | F |  | G |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 42 | 44.7\% | 21 | 22.3\% | 6 | 6.4\% | 4 | 4.3\% | 4 | 4.3\% | 0 | 0.0\% | 0 | 0.0\% |
| Kenchu | 66 | 62.3\% | 35 | $33.0 \%$ | 13 | 12.3\% | 9 | 8.5\% | 8 | 7.5\% | 1 | 0.9\% | 0 | 0.0\% |
| Kennan | 11 | 40.7\% | 9 | 33.3\% | 1 | 3.7\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% |
| Soso | 18 | 43.9\% | 13 | 31.7\% | 2 | 4.9\% | 1 | 2.4\% | 5 | 12.2\% | 0 | 0.0\% | 0 | 0.0\% |
| Iwaki | 39 | 61.9\% | 16 | 25.4\% | 5 | 7.9\% | 7 | 11.1\% | 2 | 3.2\% | 0 | 0.0\% | 0 | 0.0\% |
| Aizu | 17 | 43.6\% | 8 | 20.5\% | 2 | 5.1\% | 1 | 2.6\% | 3 | 7.7\% | 0 | 0.0\% | 0 | 0.0\% |
| Minami-Aizu | 4 | 80.0\% | 3 | 60.0\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% |
| Total | 197 | 52.5\% | 105 | 28.0\% | 29 | 7.7\% | 22 | 5.9\% | 22 | 5.9\% | 1 | 0.3\% | 0 | 0.0\% |


|  | H |  | I |  | Absent |  | Phone number not shown |  | Denied Support |  | Other |  | Number of respondents who required support |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Kempoku | 0 | 0.0\% | 0 | 0.0\% | 40 | 42.6\% | 6 | 6.4\% | 1 | 1.1\% | 1 | 1.1\% | 94 |
| Kenchu | 0 | 0.0\% | 0 | 0.0\% | 23 | 21.7\% | 7 | 6.6\% | 1 | 0.9\% | 1 | 0.9\% | 106 |
| Kennan | 0 | 0.0\% | 0 | 0.0\% | 14 | 51.9\% | 1 | 3.7\% | 0 | 0.0\% | 0 | 0.0\% | 27 |
| Soso | 0 | 0.0\% | 0 | 0.0\% | 12 | 29.3\% | 6 | 14.6\% | 2 | 4.9\% | 0 | 0.0\% | 41 |
| Iwaki | 0 | 0.0\% | 0 | 0.0\% | 21 | 33.3\% | 2 | 3.2\% | 0 | 0.0\% | 0 | 0.0\% | 63 |
| Aizu | 0 | 0.0\% | 0 | 0.0\% | 20 | 51.3\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% | 39 |
| Minami-Aizu | 0 | 0.0\% | 0 | 0.0\% | 1 | 20.0\% | 0 | 0.0\% | 0 | 0.0\% | 0 | 0.0\% | 5 |
| Total | 0 | 0.0\% | 0 | 0.0\% | 131 | 34.9\% | 22 | 5.9\% | 4 | 1.1\% | 2 | 0.5\% | 375 |

The denominator is the sum of respondents who required support.
Breakdown is shown by running number.
A: We listened and dealt with issues of respondents.
B: Respondents were given information about counseling services.
C: Respondents who were confirmed to have visited clinics for consultation.
D: We answered respondents' questions.
E: Respondents were recommended to receive medical treatment.
F: Respondents were connected to a radiation consultation office
G: Respondents were connected to municipal governments.
H: Respondents were referred to clinical psychologists.
I: Specialists answered the respondents' questions.


[^0]:    * Table 3, 4, and Appendix 1 include the data in the estimation period less than four months.

[^1]:    Percentages have been rounded and may not total to $100 \%$.

[^2]:    Fractions have been rounded and may not total to $100 \%$.

[^3]:    * Results of the participants with confirmed test results of the Full-scale survey.

    This is not the breakdown of the total $(300,476)$ of confirmed screening results from the Preliminary Baseline Screening.

[^4]:    * See Appendix 6 for details.

[^5]:    Fractions have been rounded and may not total to $100 \%$.

[^6]:    ** Issue not mentioned in FY 2011 survey

