First two-years results of Comprehensive Health Check as One Facet of the Fukushima Health Management Survey

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Fukushima Health Management (FHM) Survey

External Exposure Estimation

Basic Survey

Subjects: Residents (2 million) as of March 11, 2011
Method: Self-administered questionnaire survey
Content: Details of whereabouts and daily routine from March 11 onwards to estimate exposure.

Health Status Assessment

Detailed Surveys

Thyroid Ultrasound Examination

Subjects: Residents aged 18 years or younger
Content: Ultrasound examination Survey period: Three years

Comprehensive Health Check

Subjects: Residents in evacuation zones
Content: General health checkup items with differential leukocyte count

Subjects: Residents outside evacuation zones
Content: General health checkup items

Promotion of municipal and workplace health checkups

Additional health checkups
to reach residents not included in current services

Mental Health and Lifestyle Survey

Pregnancy and Birth Survey

Follow-ups

"Health Management File"

☆To keep health checkup records
☆To provide information on radiation

Database

◆ To provide long-term monitoring of residents' health
◆ To guide treatment
◆To inform and guide future generations

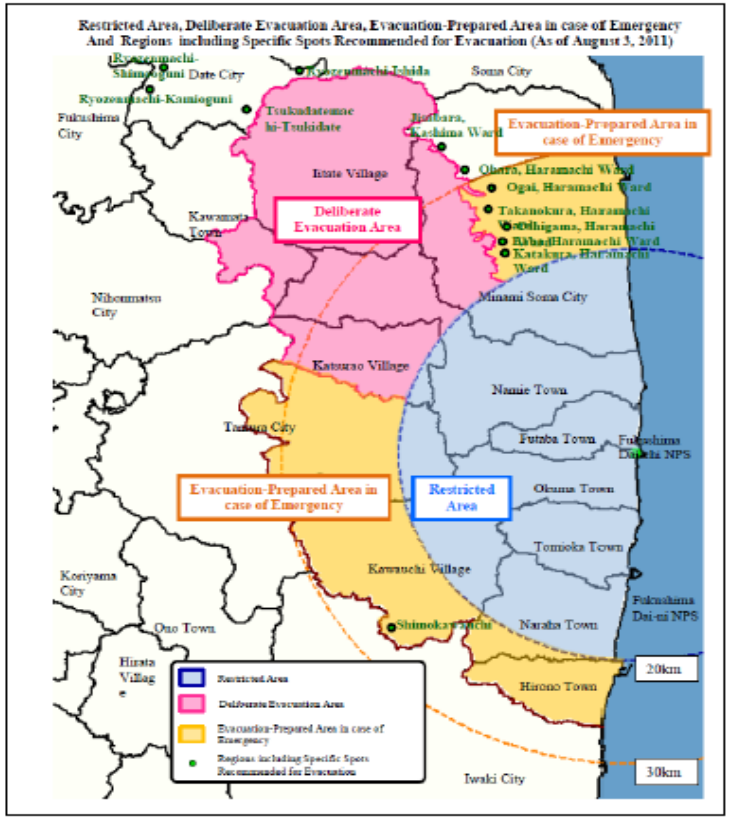
- Whole Body Counter
- Dosimeter

Consultation and support → Follow-up → Treatment

Method

- The target groups were residents of all ages had lived in the evacuation zone. The health check examinations were performed on application for health check examination by any of the residents. The examinations, including measurements of height, weight, abdominal circumference /body mass index (BMI), blood pressure, biochemical laboratory findings, and peripheral blood findings, were performed for the residents.

Evacuation Status of Residents in Fukushima

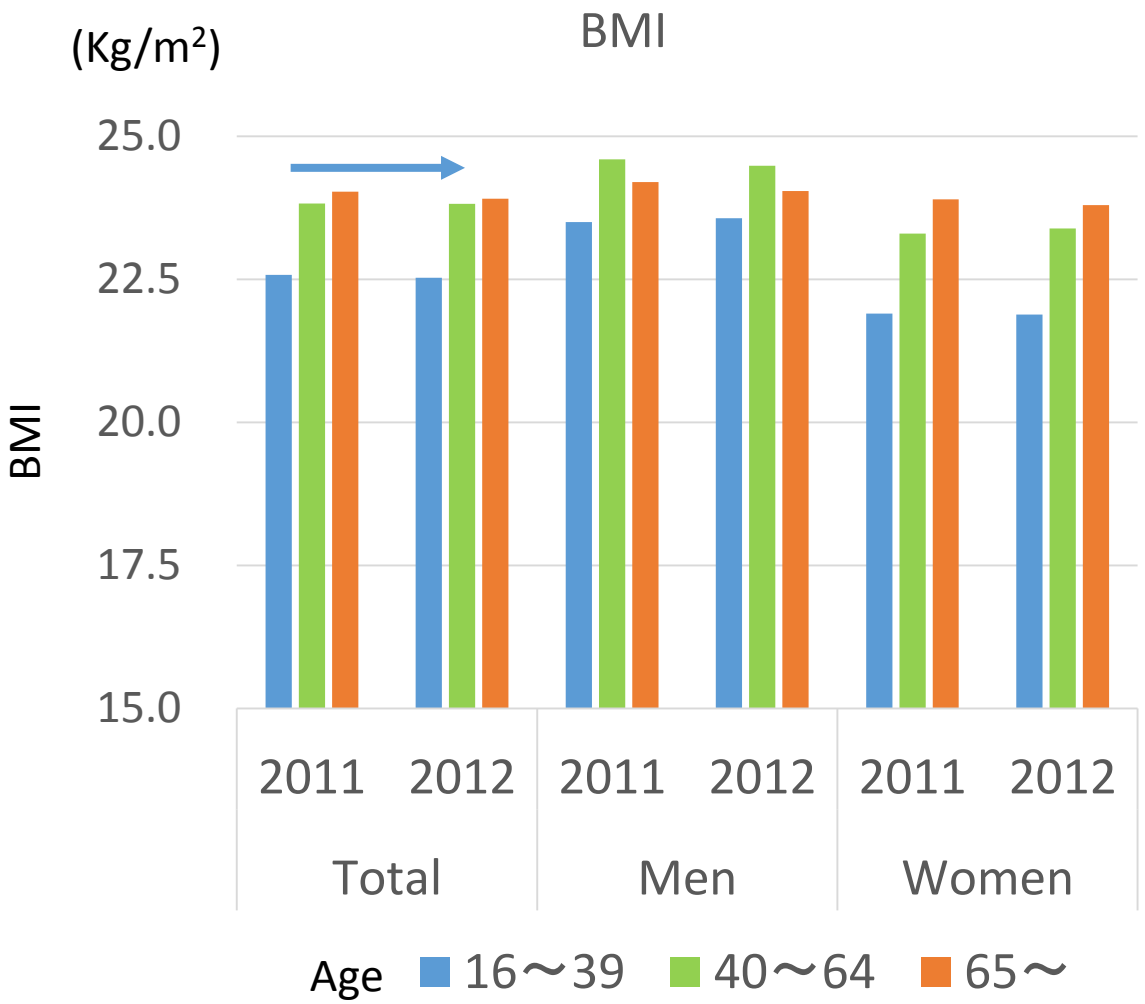


Number of residents who were forced to evacuate from their own house in accordance with moving of municipal office: Total; about 146,000 (2011)

Result

- In 2011and2012, respectively, 17,934 (64.5%) and 11,780 (43.5%) members of the residents under 16 years of age, and 56,399 (30.9%) and 47,009 (25.4%) members of the residents more than 16 years of age received health checks.

Fig. 1 Body Mass Index (BMI) and proportion of over weight in the residents of evacuation zone



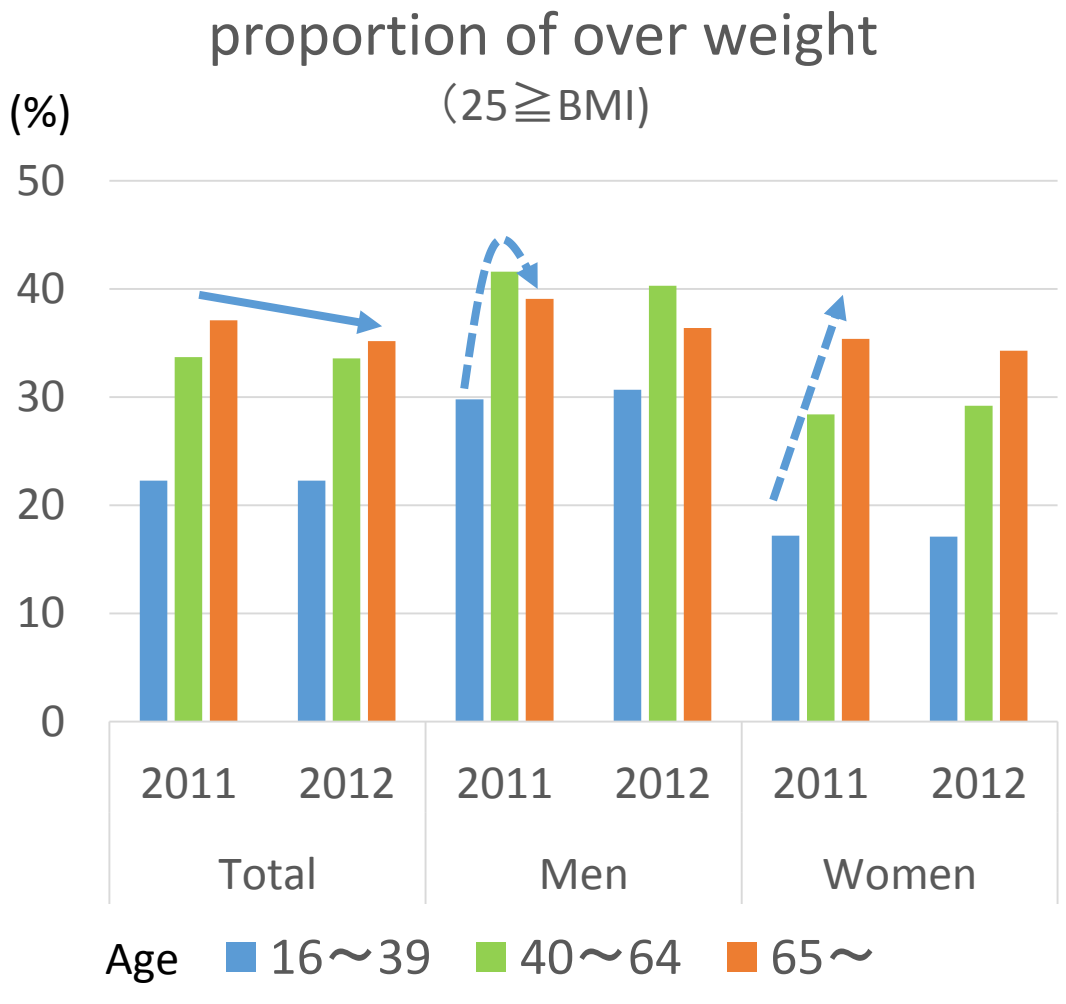
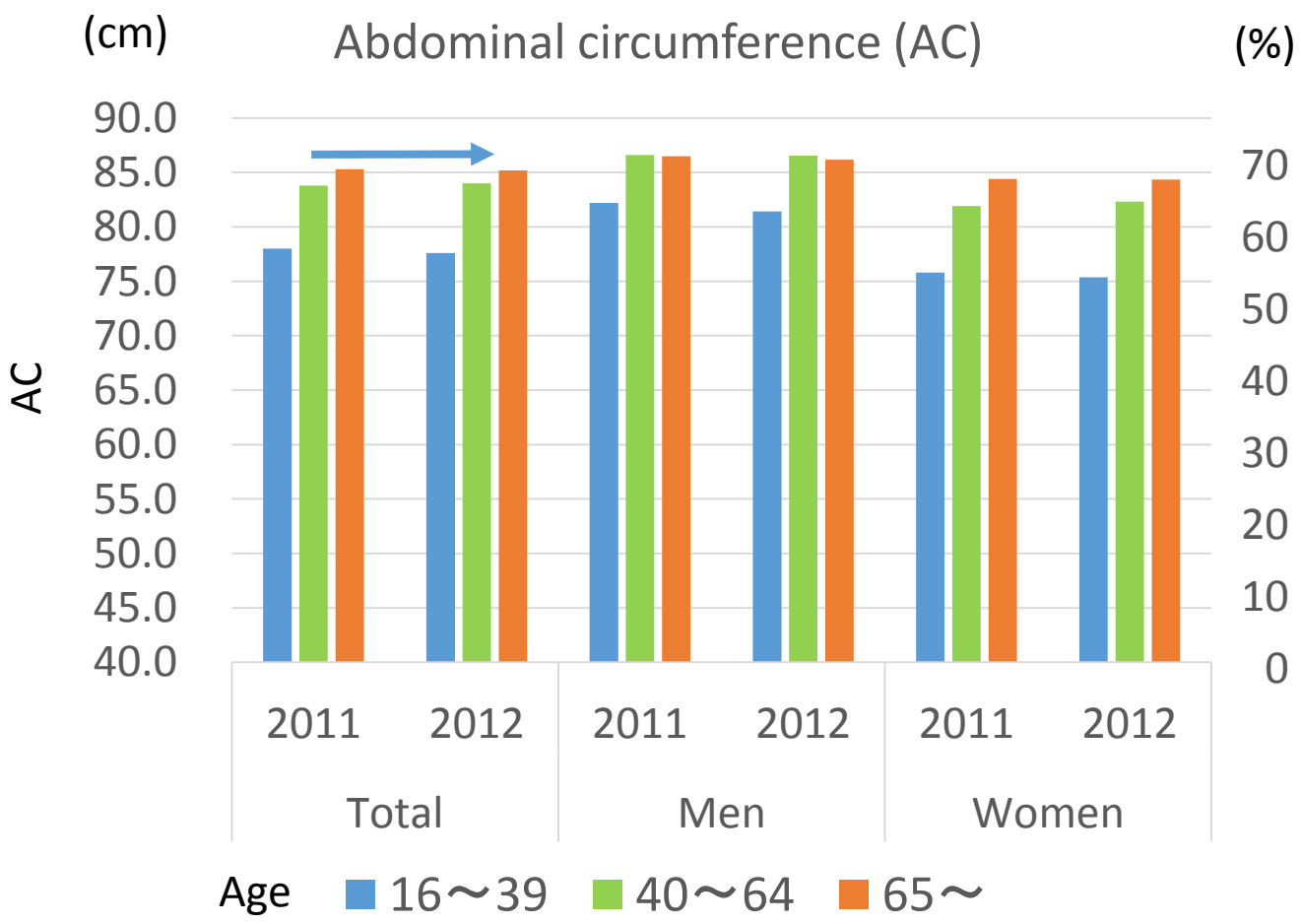


Fig.2 Abdominal circumference and proportion of abdominal adiposity in the residents of evacuation zone



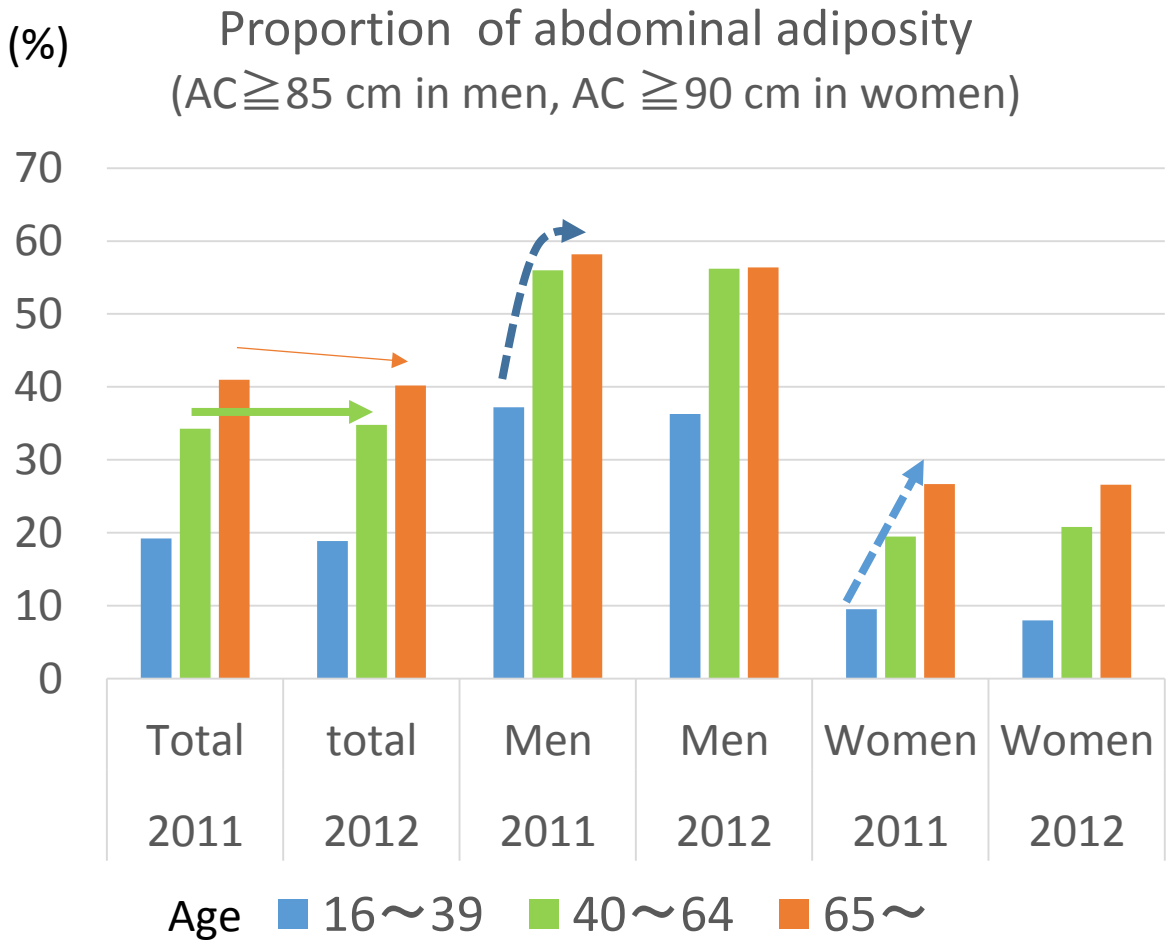
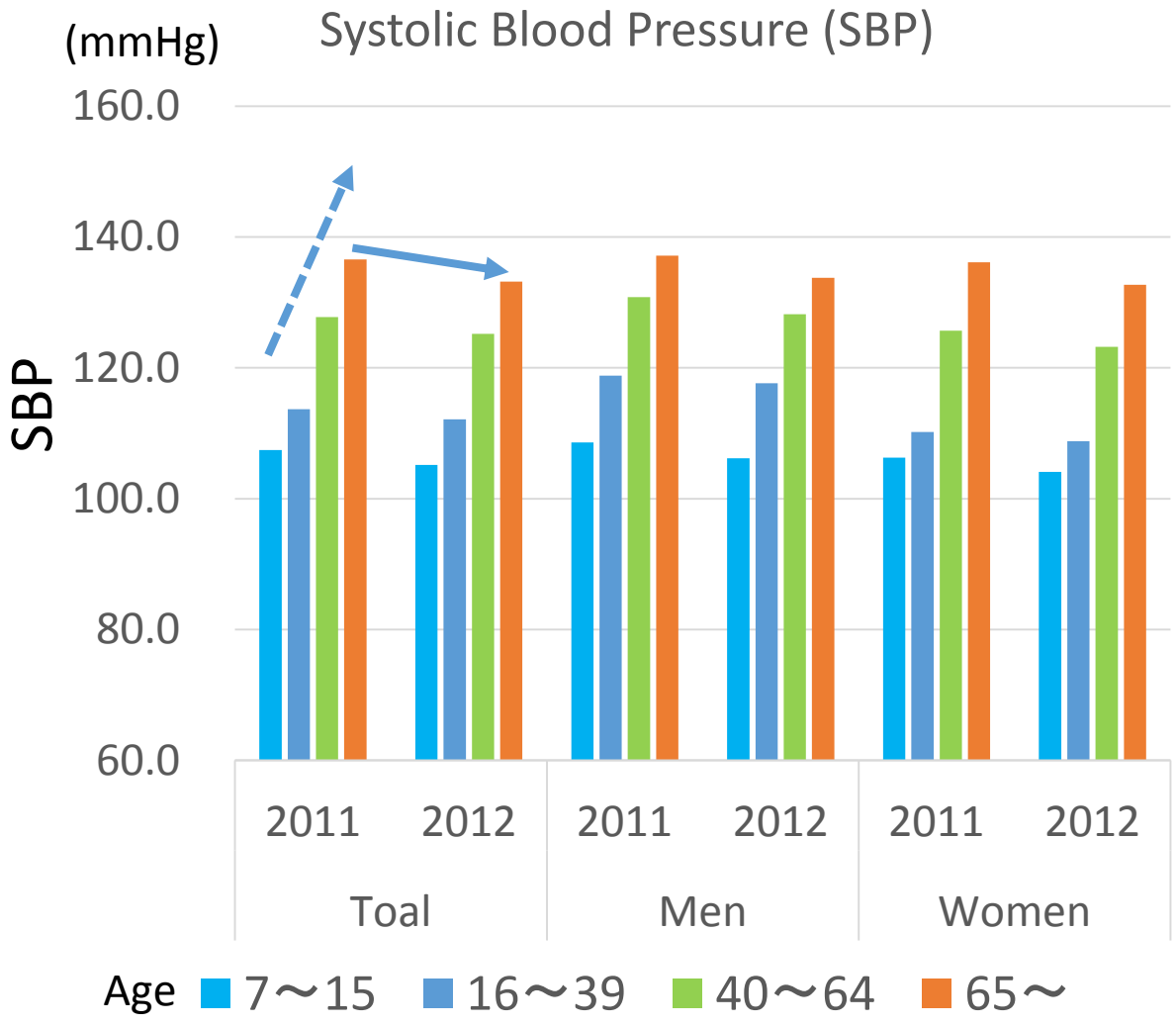


Fig.3　Systolic blood pressure and proportion of systolic hypertension in the residents of evacuation zone



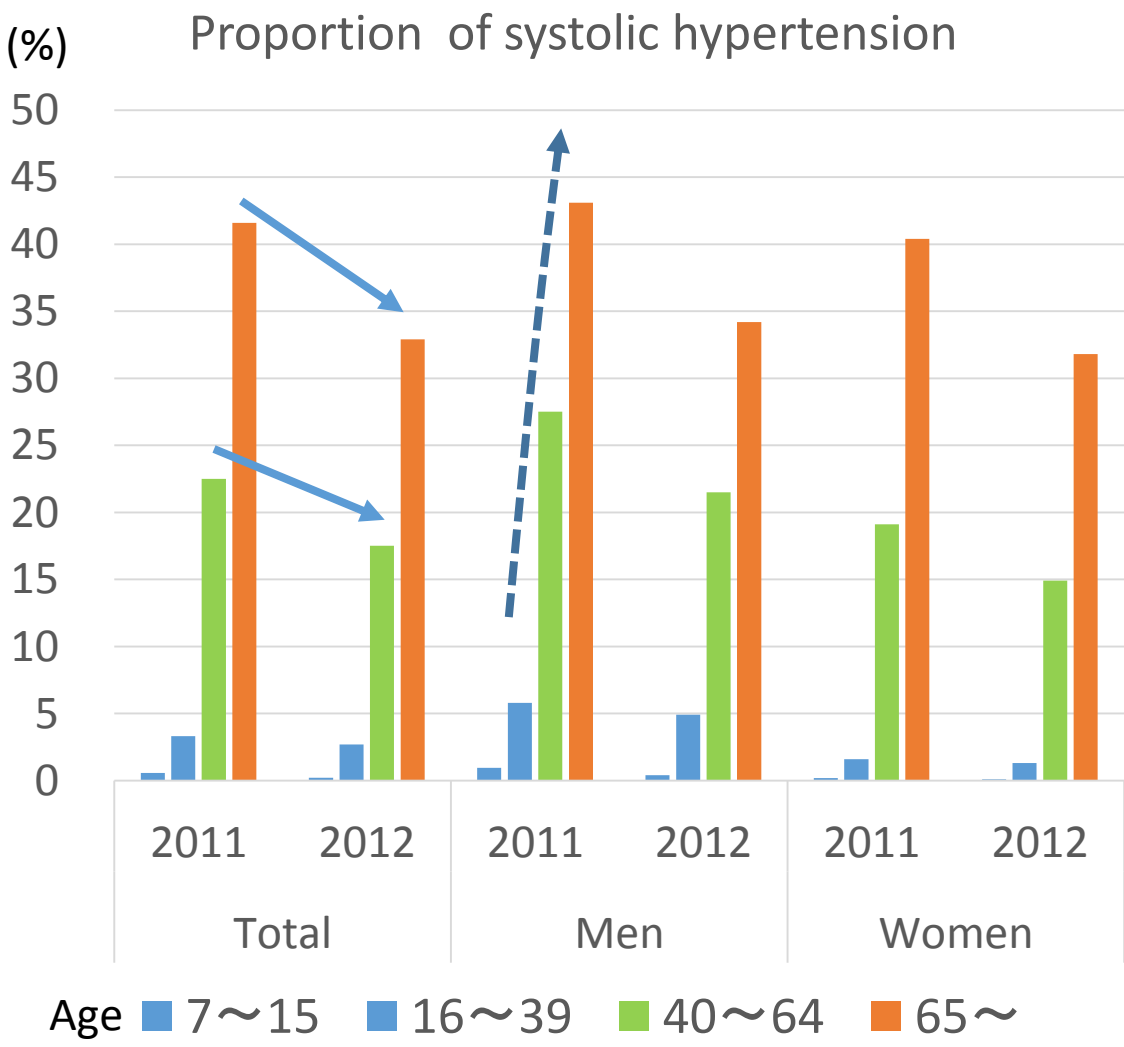
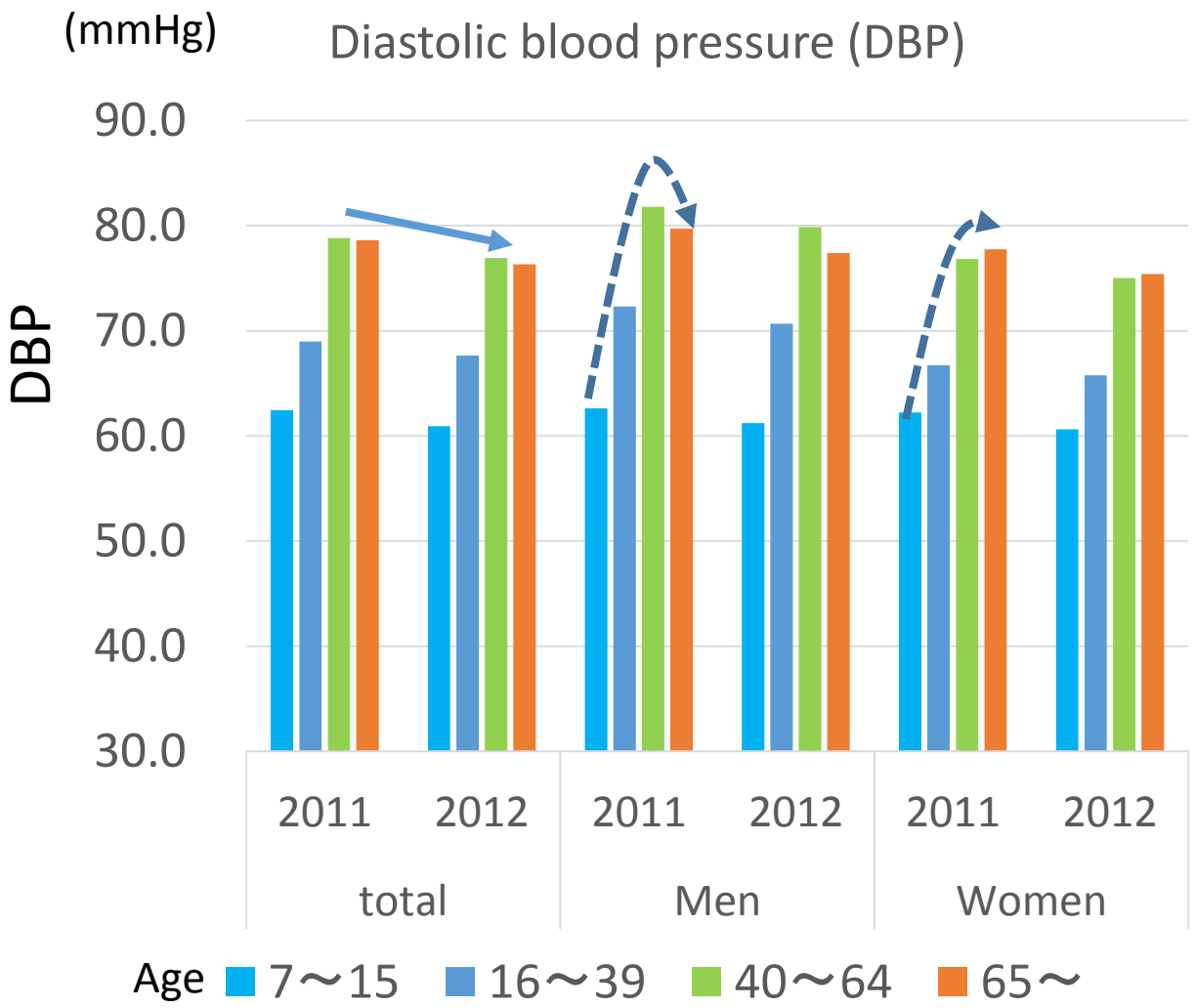


Fig.4 Diastolic blood pressure and proportion of diastolic hypertension in the residents of evacuation zone



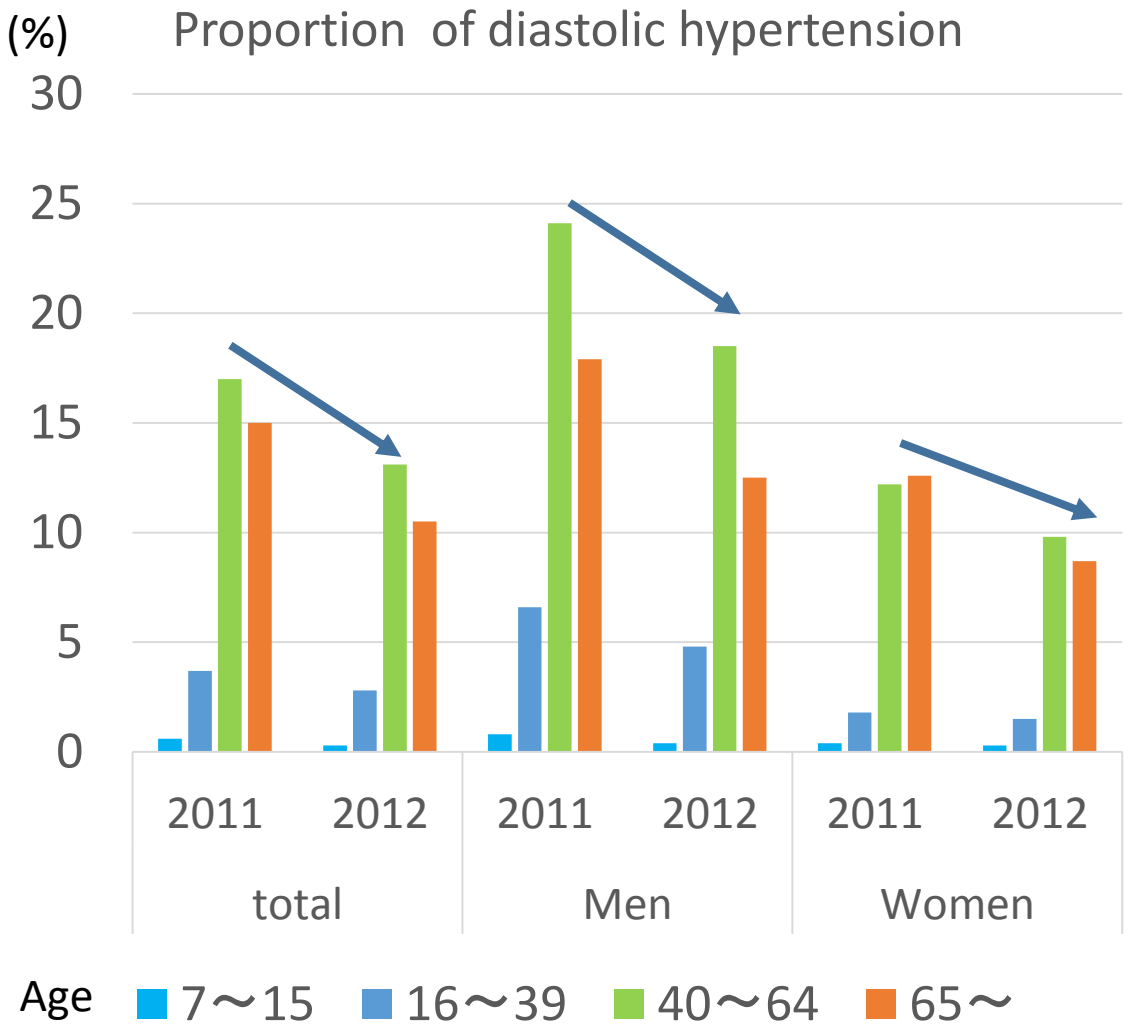
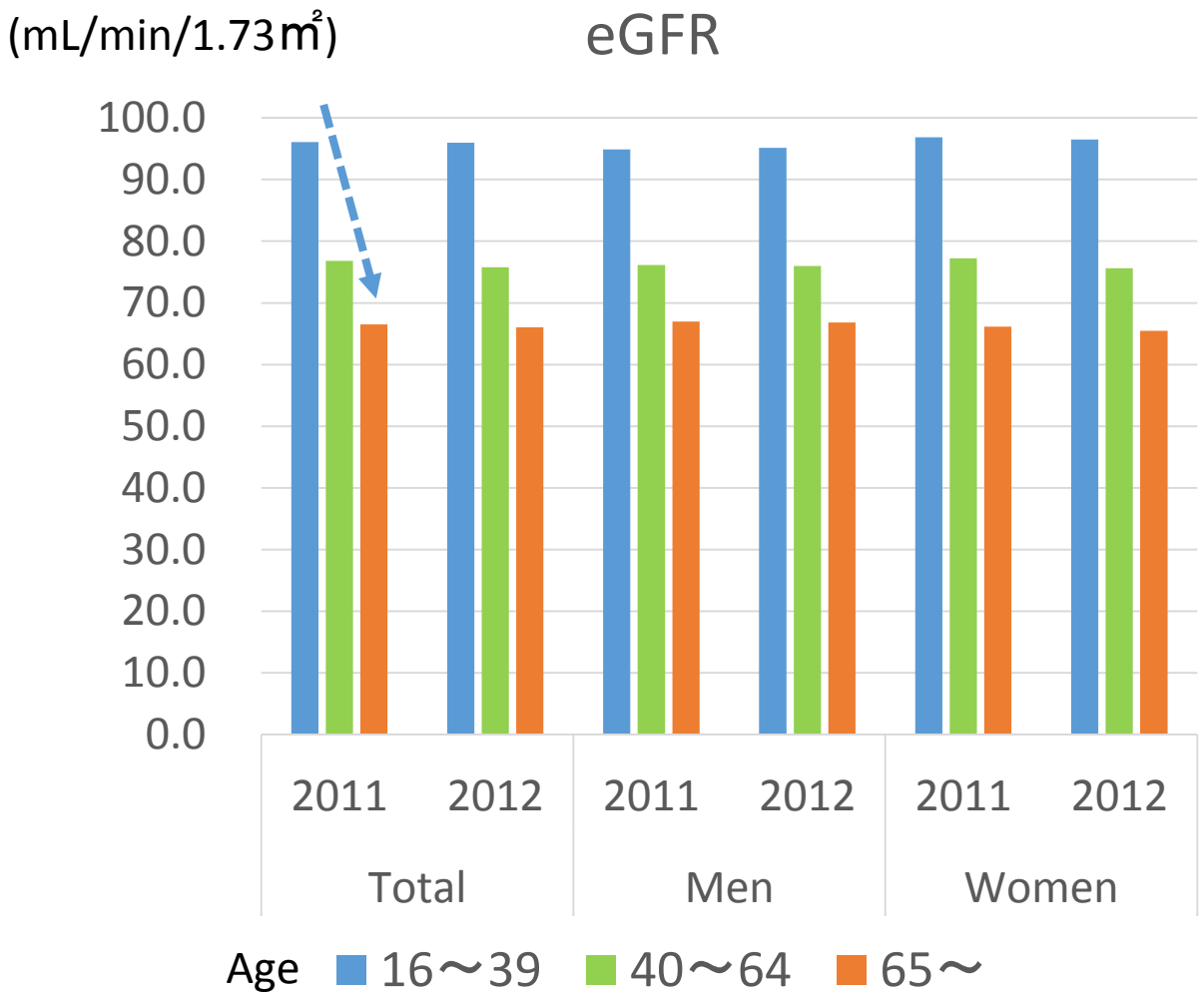


Fig.5 Estimated glomerular filtration rate (eGFR) and the proportion of renal dysfunction (eGFR <60ml/min/1.73㎡) in the residents of evacuation zone



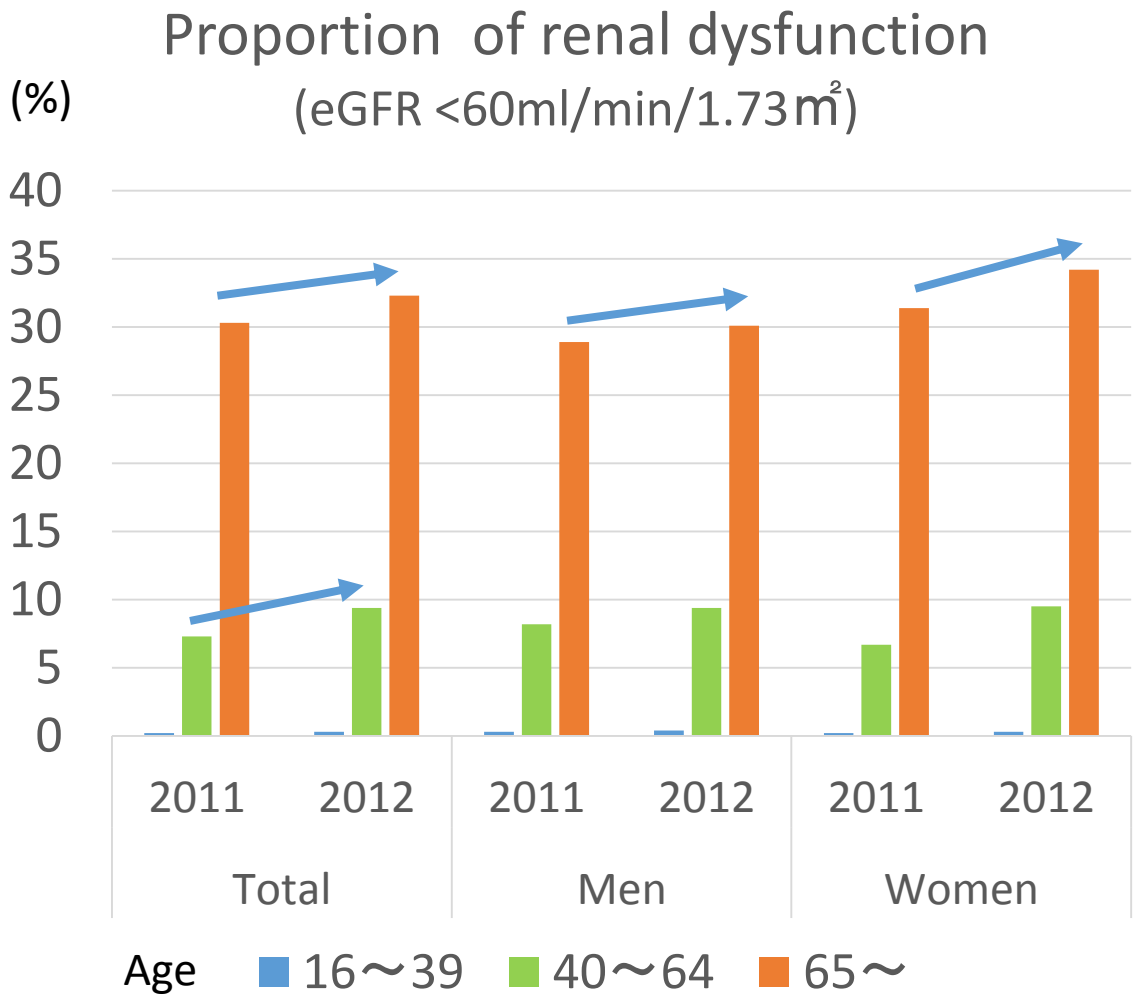
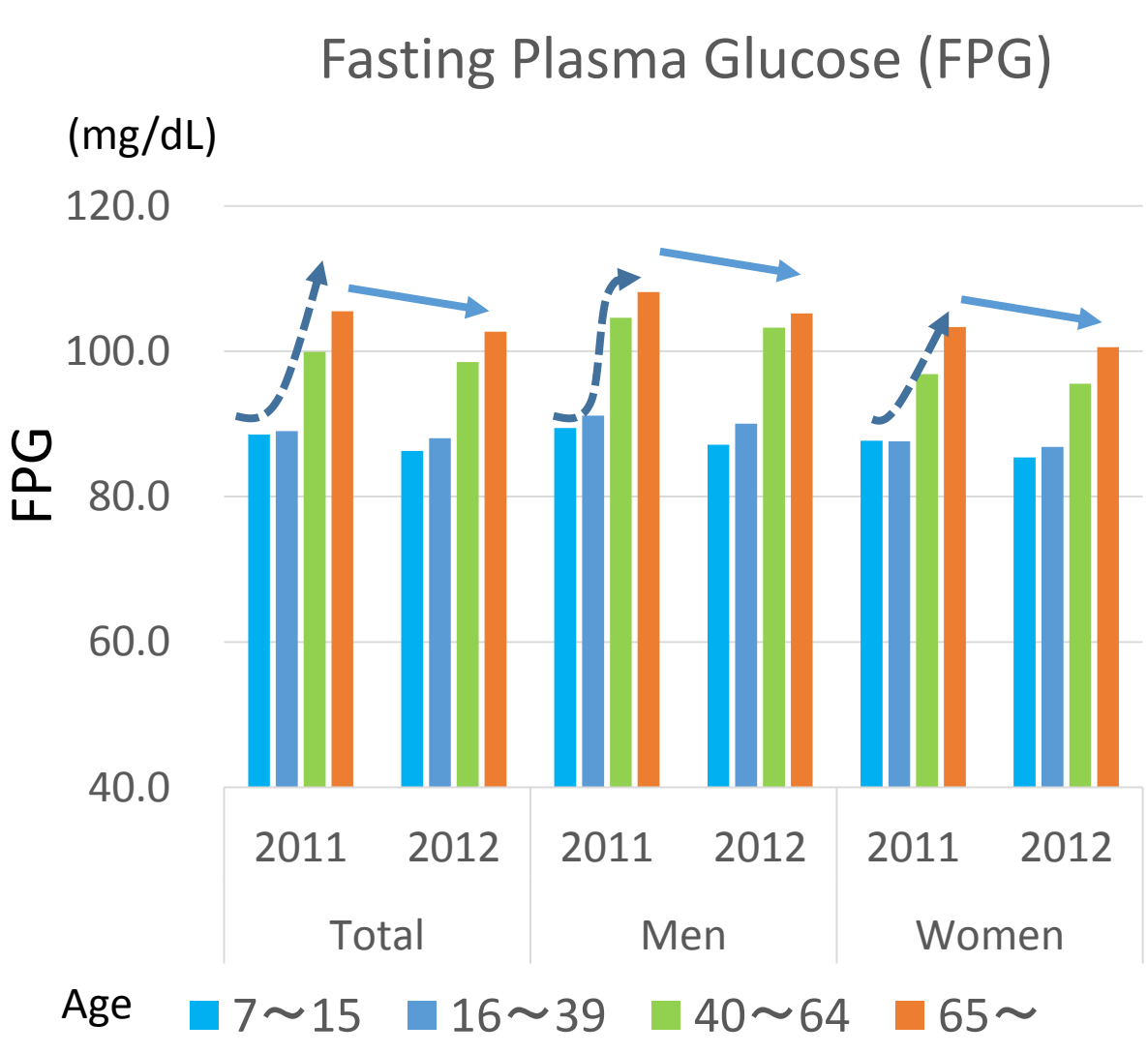


Fig.6 Fasting plasma glucose and proportion of impaired fasting plasmfa glucose (IFG) in the residents of evacuation zone



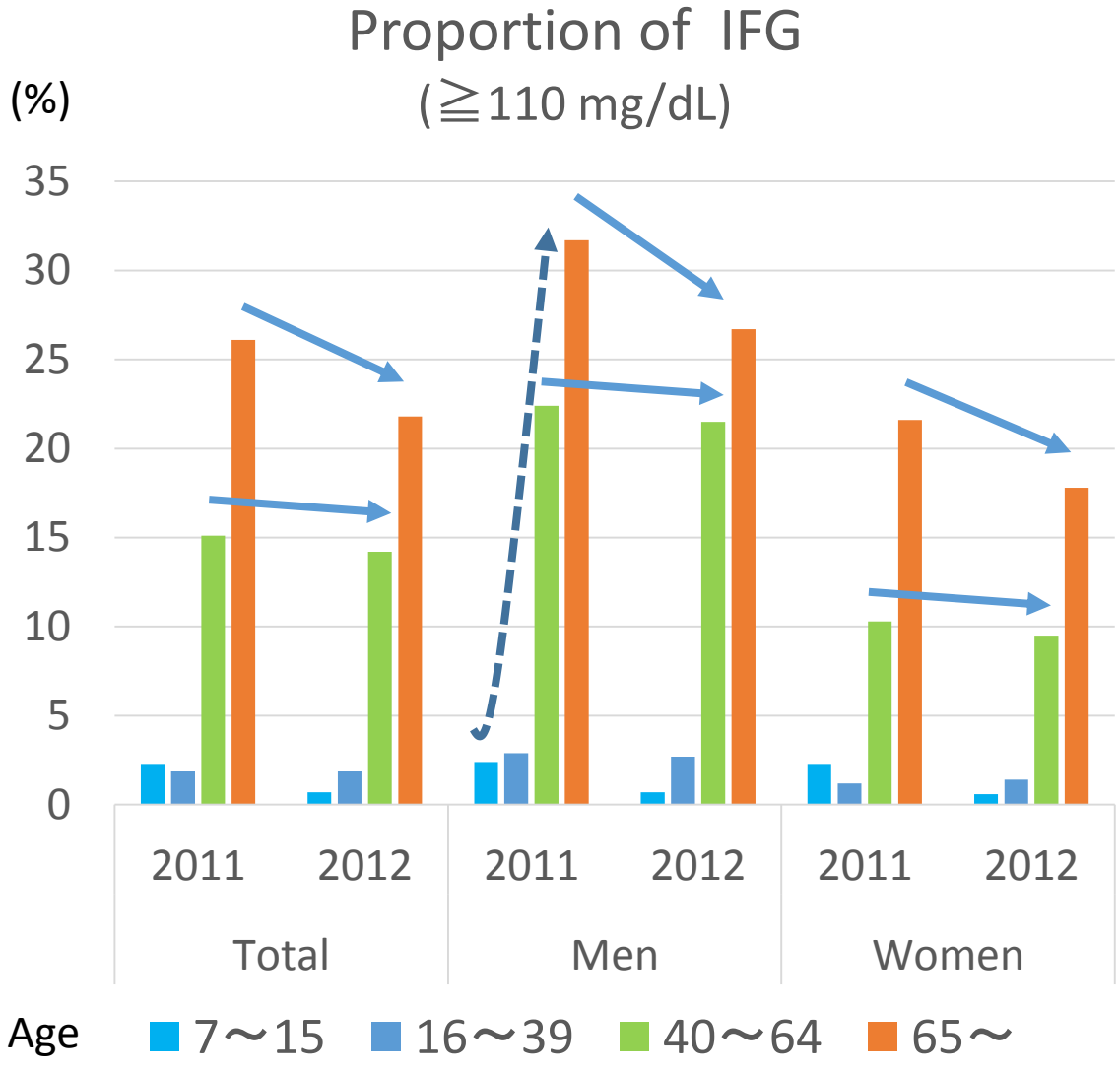
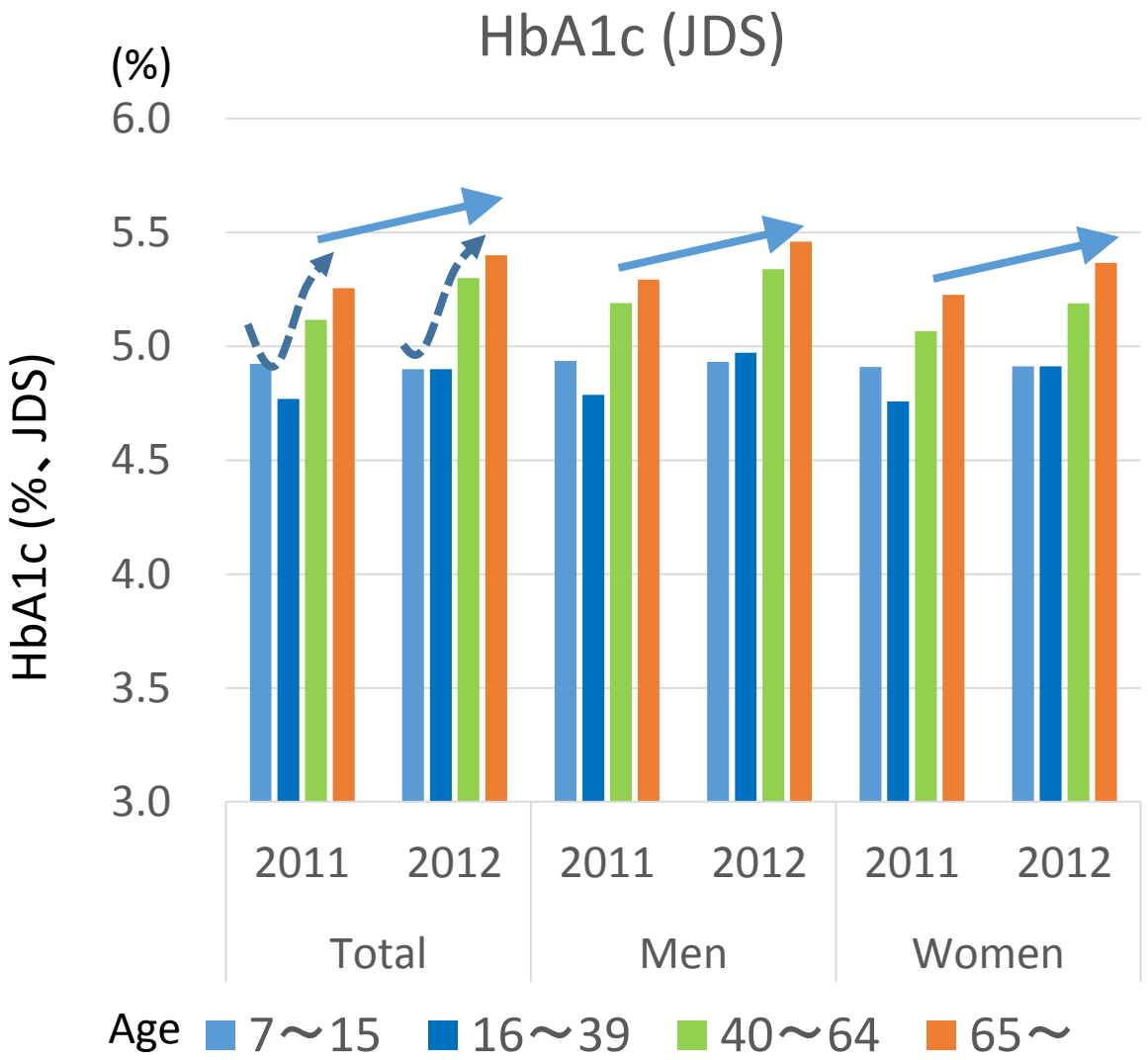


Fig. 7 HbA1c and proportion of high HbA1c value in the residents of evacuation zone



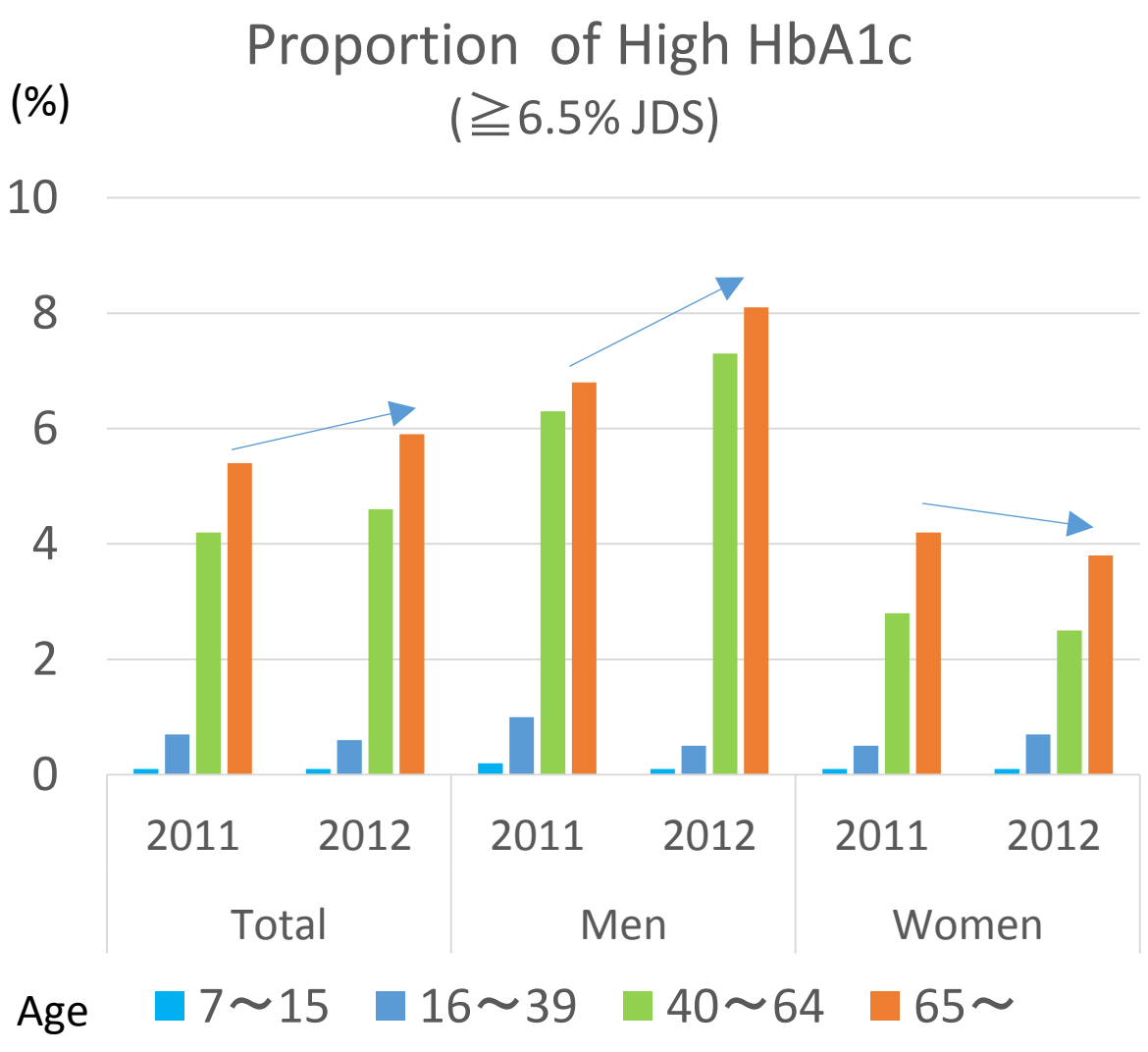
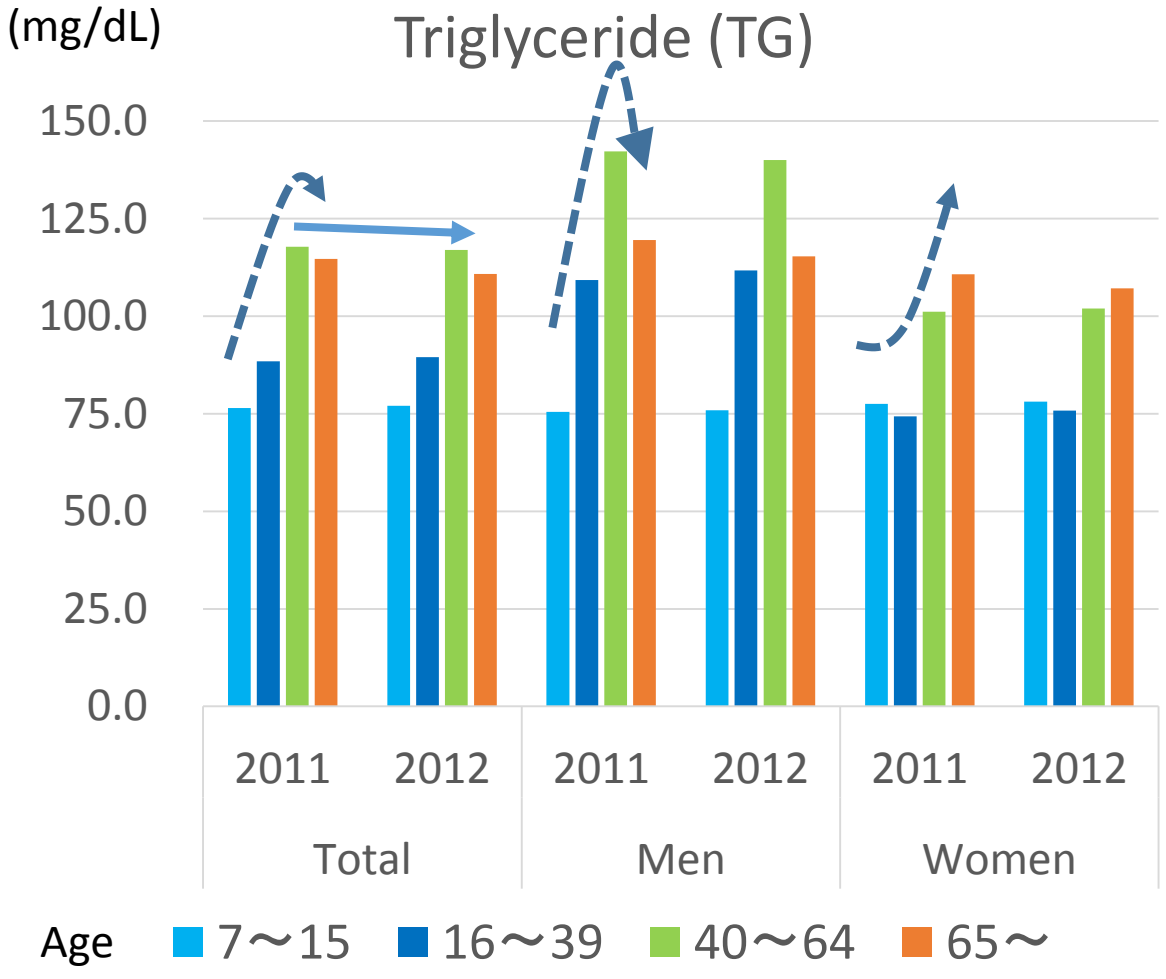


Fig. 8 Plasma Triglycerides (TG) and proportion of high TG value in the residents of evacuation zone



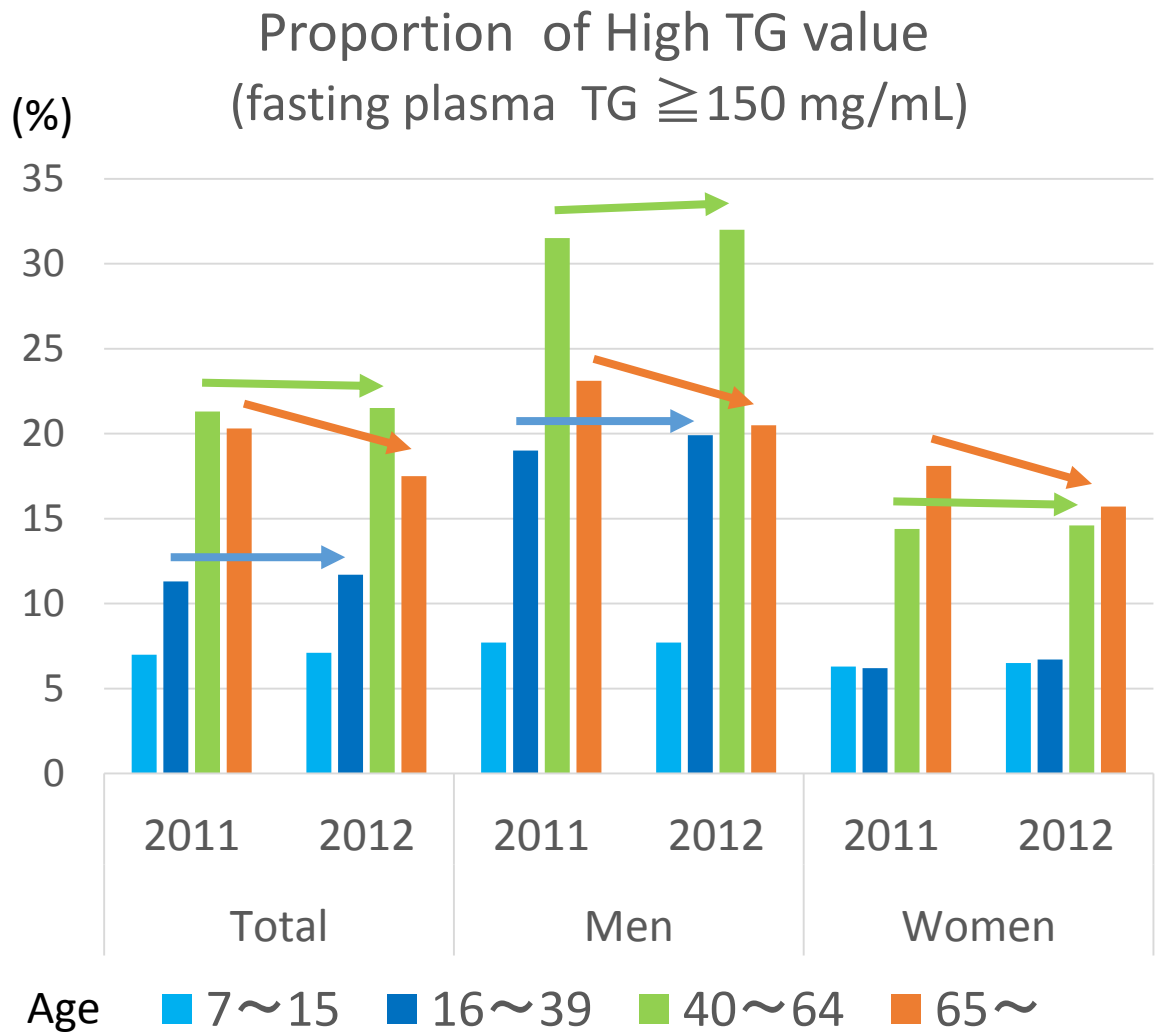
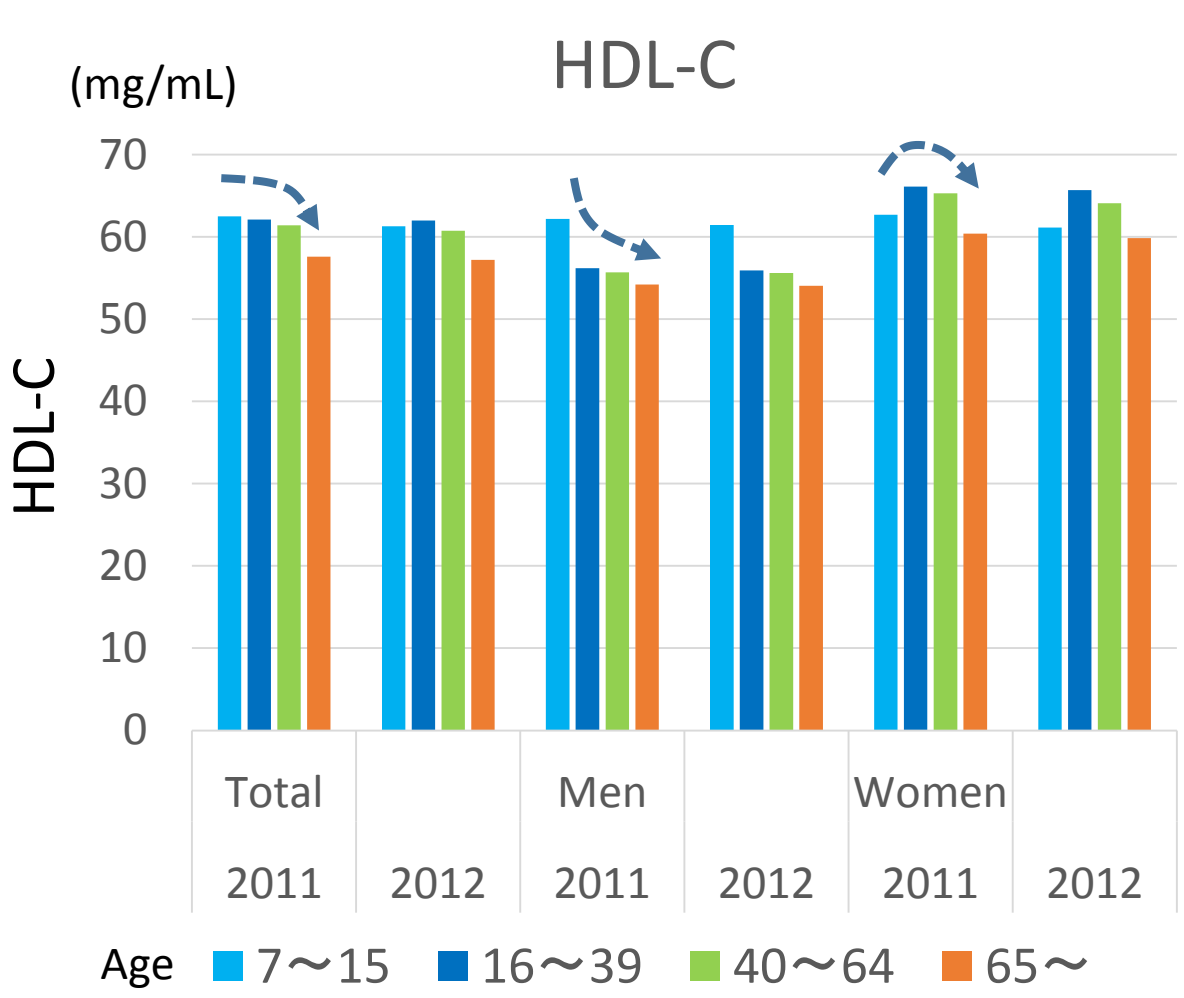


Fig. 9 Plasma HDL-C and proportion of low HDL-C value in the residents of the evacuation zone



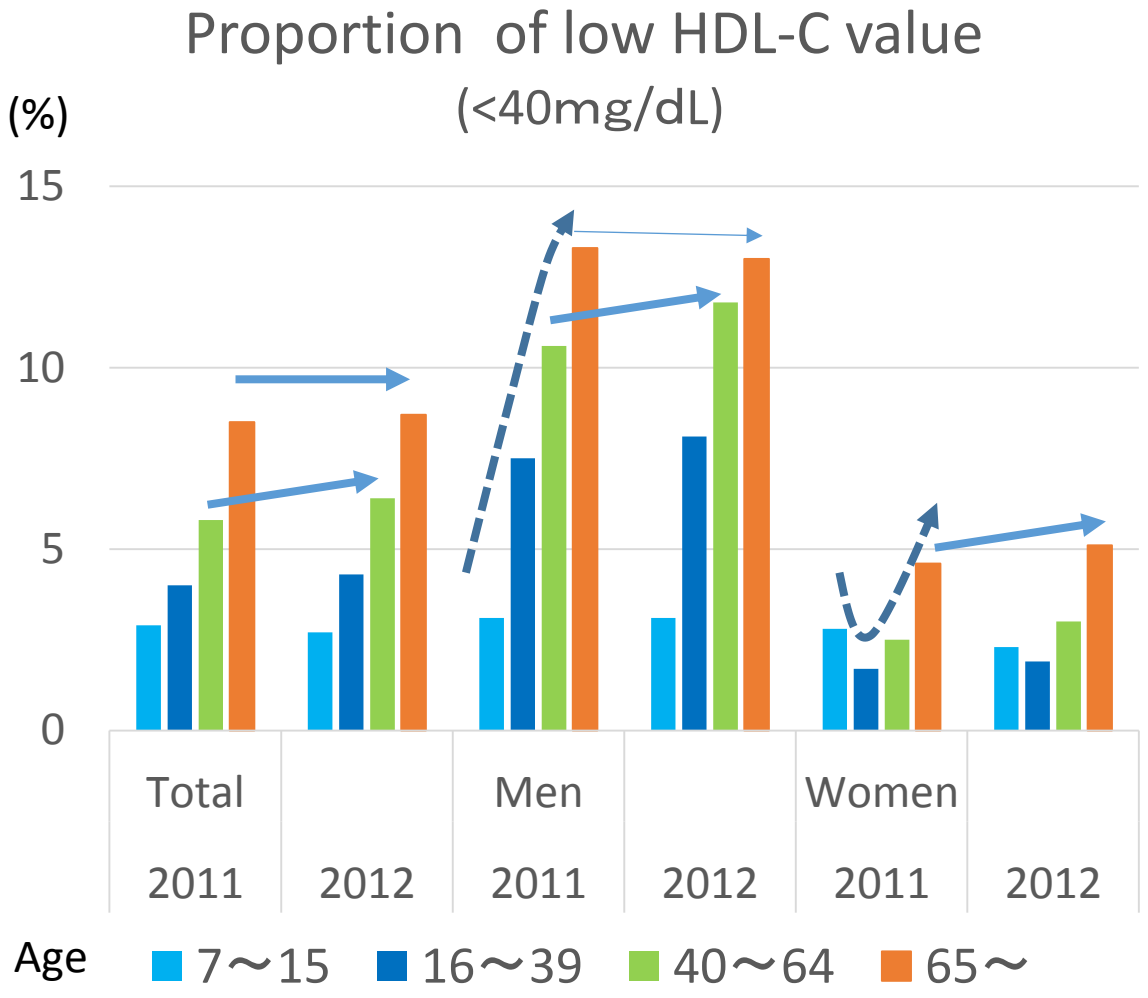
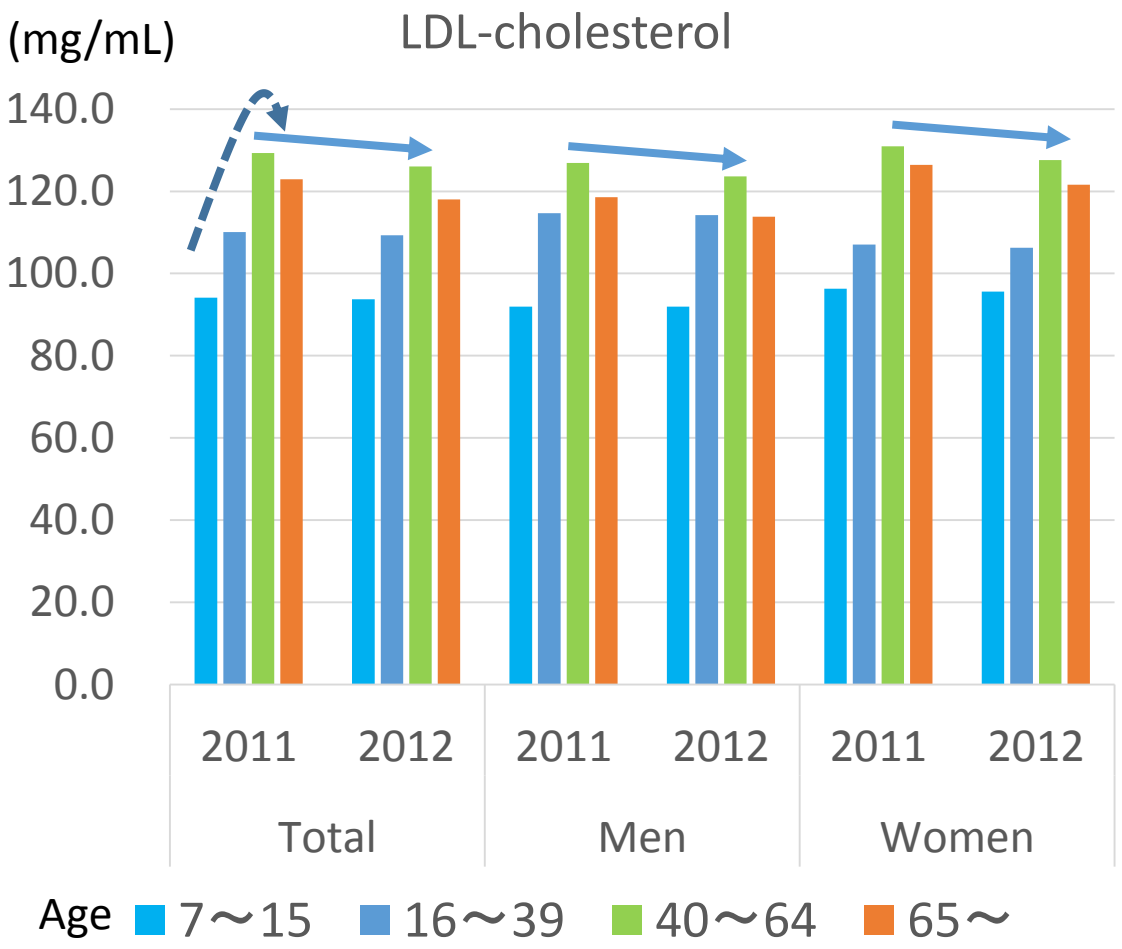


Fig.10 Plasma LDL-C and Incidence of high LDL-C value in the residents of the evacuation zone



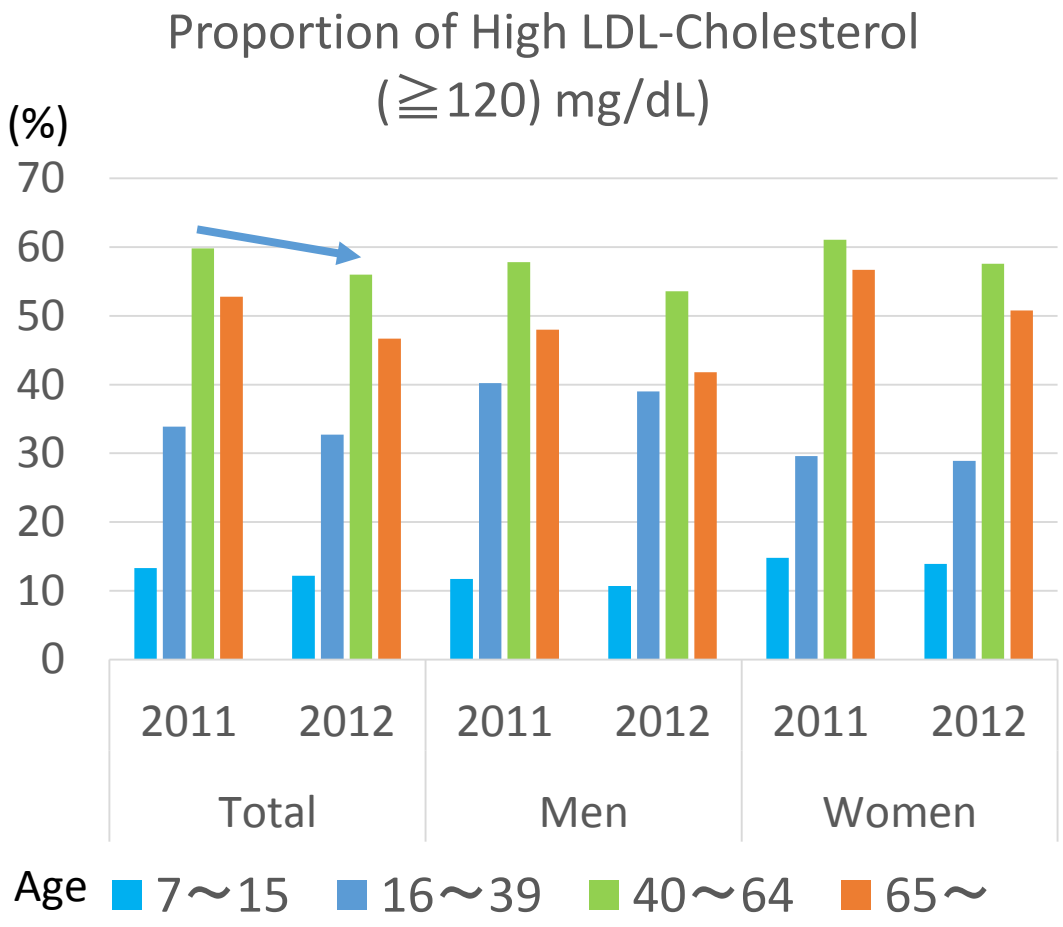
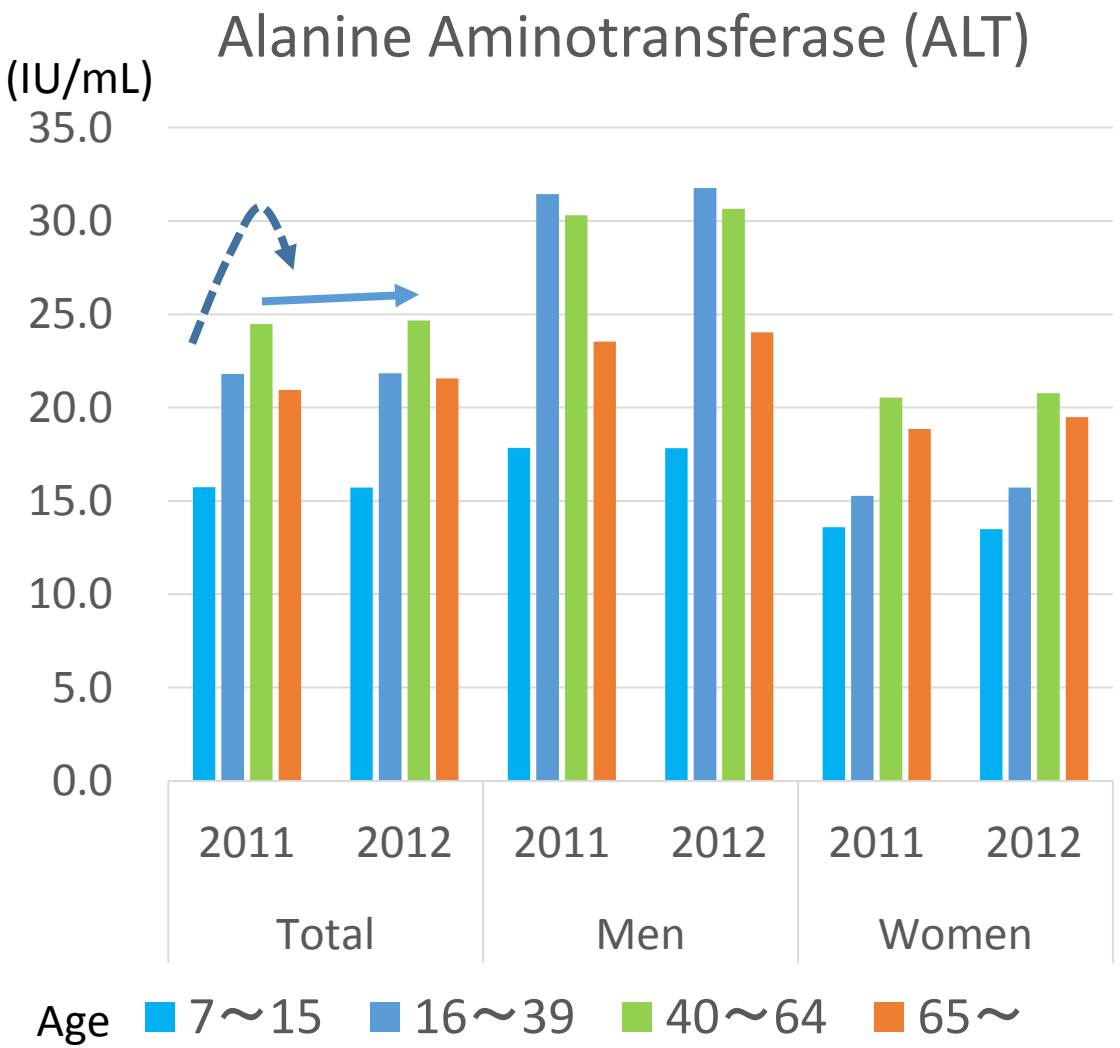


Fig.11 Plasma alanine aminotransferase (ALT) and proportion of high ALT value in the residents of the evacuation zone



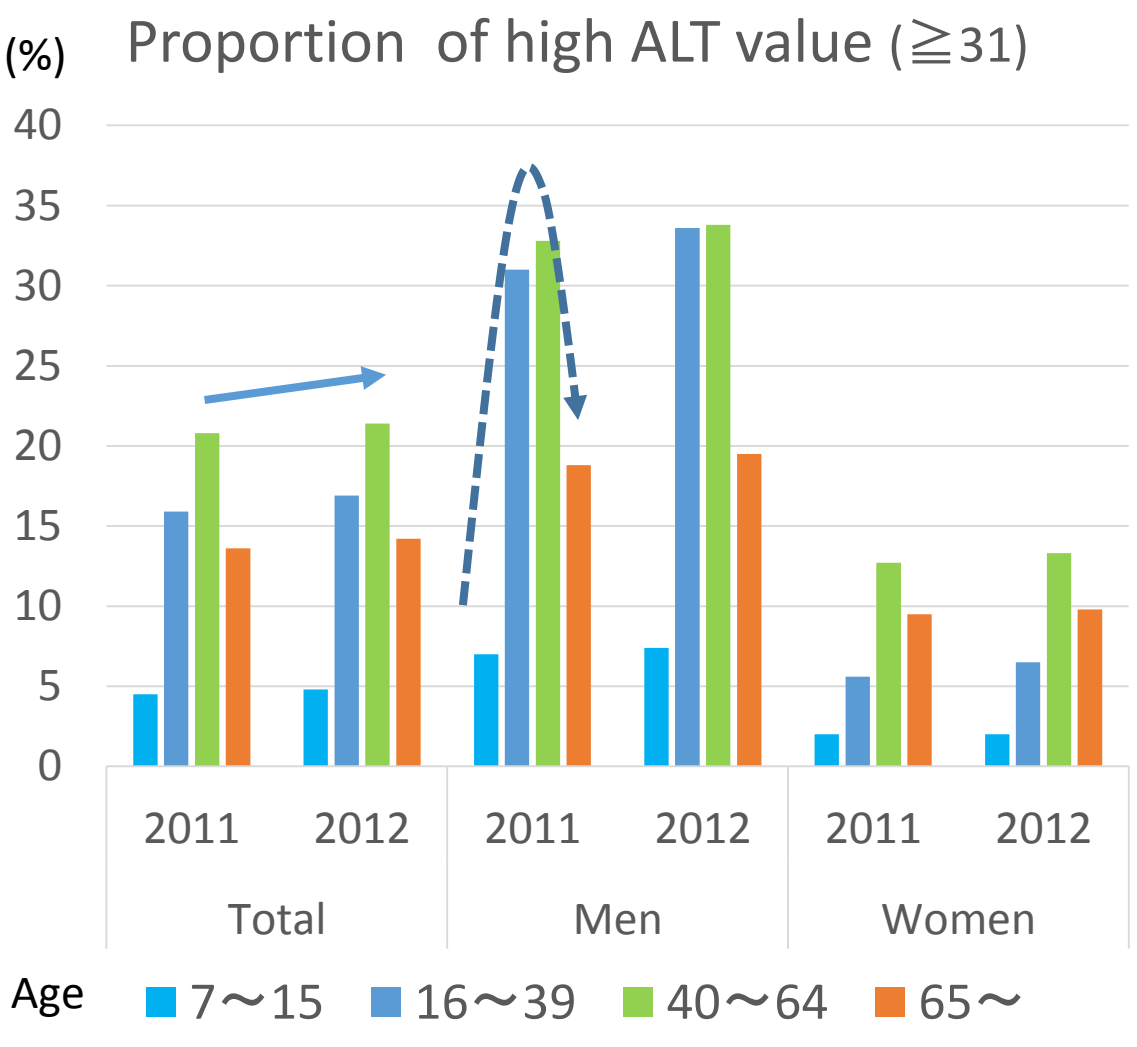
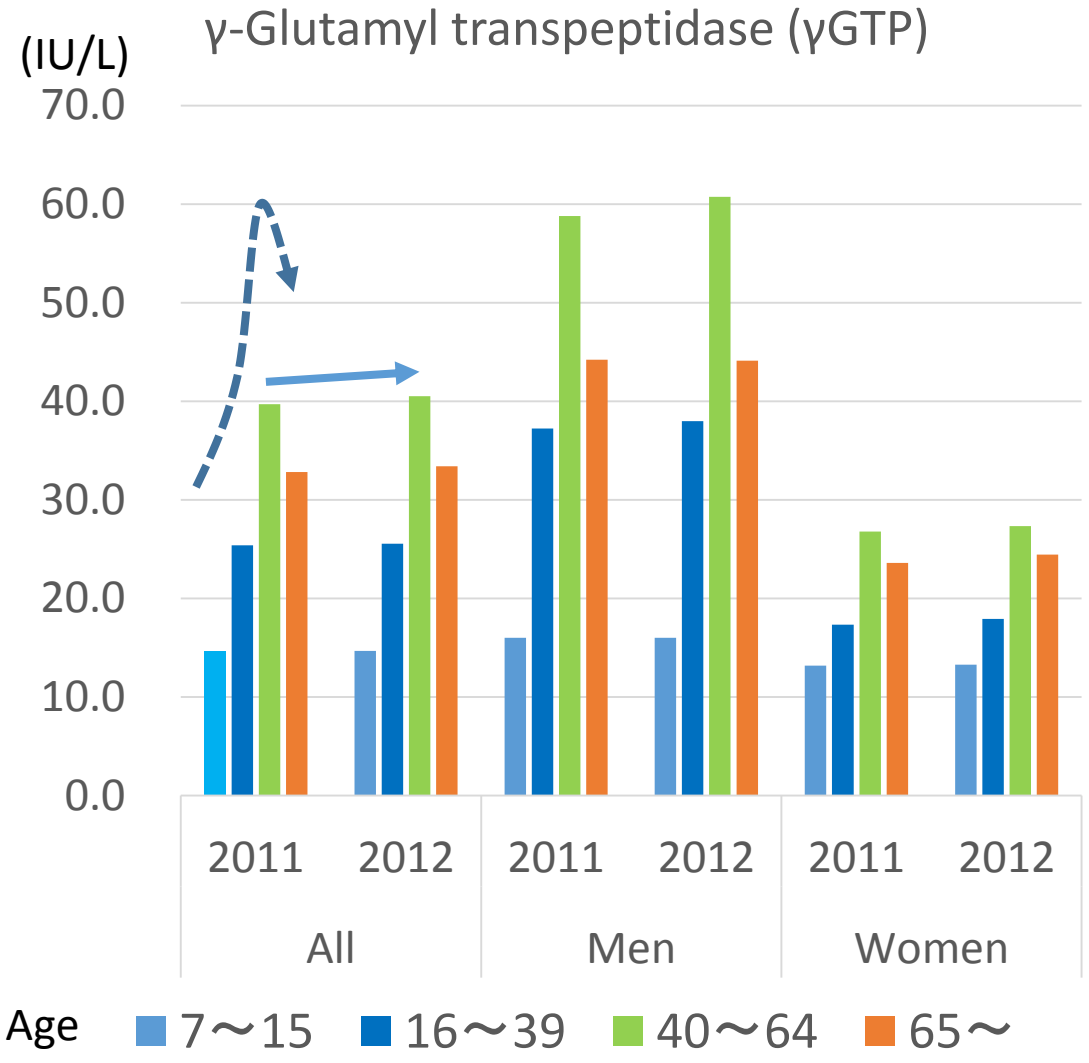
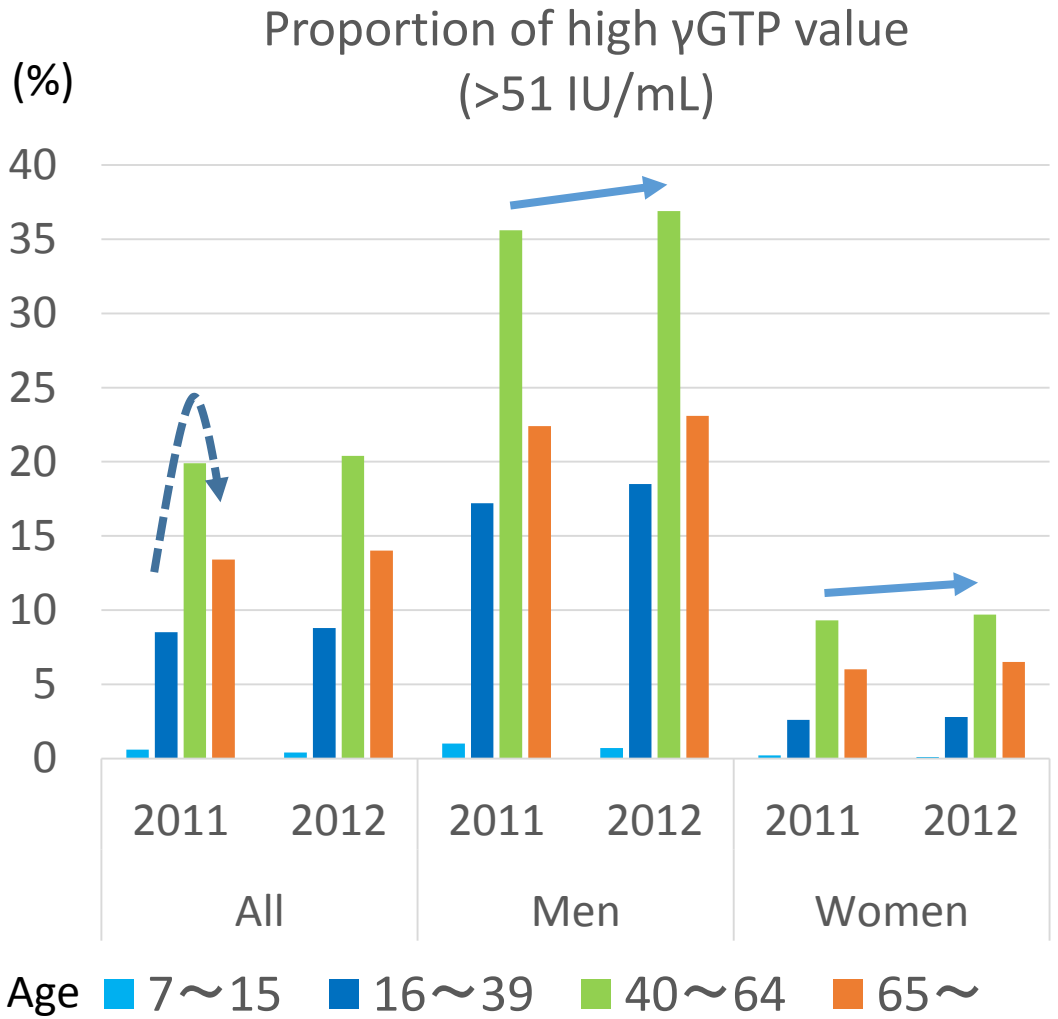


Fig.12 Plasma γ-Glutamyl transpeptidase (γGTP) and proportion of high γGTP value in the residents of the evacuation zone





Result Summary

1) In 2011and 2012, respectively, 17,934 (64.5%) and 11,780 (43.5%) members of the residents under 16 years of age, and 56,399 (30.9%) and 47,009 (25.4%) members of the residents more than 16 years of age received health checks.

2) In both years, the proportion of residents in evacuation zone with obesity or dyslipidemia increased with age. The proportion of residents in evacuation zone with hypertension, glucose metabolic abnormalities or renal dysfunction increased in aged 40 years or older.

3) The Proportion of residents with obesity, hypertension or hyperlipidemia in 2012 was lower than that in 2011. However, the Proportion of residents with glucose metabolic abnormalities, renal dysfunction, hyperuricemia or liver dysfunction in 2012 was higher than that in 2011.

Conclusion

- The proportion of abnormal test results (obesity, glucose metabolism, lipid metabolism, hypertension and liver function) increased with age. This trend was more pronounced in men. These results suggested increase in cerebrovascular or cardiovascular event risk.
- These results could also be very important for periodic health checkup and lifestyle recommendations for evacuees.
- Comprehensive health check should be continue to prevent and improve their lifestyle-related diseases.