Purpose:
To equalize the quality of radiation therapy in Japan by supporting quality control of radiation treatment planning system.

Methods: Center for Cancer Control and Information Service in National Cancer Center supports the QA-QC of the cancer core hospitals in Japan as a third-party evaluation agency. Recently, a program for assessing the quality of treatment planning system (TPS) began as a part of our QA-QC supporting activities. In this program, a questionnaire about TPS was sent to 45 prefectural cancer core hospitals in Japan. The object of this questionnaire is to assess the proper commissioning, implement and applications of TPSs. The contents of the questionnaire are as follows; 1) calculate MUs which deliver 1000 cGy to the point of SSD = 100 cm, 10 cm depth with field sizes ranging from 5 x 5 to 30 x 30 cm², and obtain doses at several depths for the calculated MUs, 2) calculate MUs which deliver 1000 cGy to the point of SSD = 100 cm, 10 cm depth for wedge fields whose angles are from 15 to 60 degrees, and obtain doses at several depths with the MUs, 3) calculate MU which deliver 1000 cGy to the point of STD = 100 cm, 10 cm depth with 10x10 cm² field size and obtain doses at several depths with the MU.

Results:
In this program, 179 beam data from 44 facilities were collected. Data were compared in terms of dose per MU, output factor, wedge factor and TMR. It was found that 90% of the data agreed within 2%.

Conclusions: The quality of the treatment planning system was investigated through the questionnaire including the information of essential beam data. We compared 179 beam data in TPSs sent from 44 facilities and 90% of the data showed good agreement.