Purpose:
The purpose of this study was to investigate the usefulness of our original quality assurance (QA) program and patients’ treatment of MLC data analysis for dynamic IMRT as routine practice.

Method and Materials:
As to the QA program, we have made three MLC sweep test patterns by changing MLC travel speed of 0.5, 1.0 and 2.0 cm/sec, respectively. All three fields were irradiated by three gantry angles of 0, 90 and 270 degree as daily QA. Each MLC logs of the QA program and patients’ treatment were recorded during Aug 2009 to Nov 2010. Actual MLC position errors (Bank A, Bank B) and gap errors compared with planned position were analyzed by a program (Matlab, Cybernet Inc.). Systematic and random errors of each MLC and gap were determined by everyday and every month. And then, the temporal data were also evaluated.

Results:
The accuracy of MLC position was depended upon its travel speed and gantry angle. Our data showed that the MLC errors in the QA program got worse as twice if the gantry angle was 270 deg compared to other angles. From patients’ treatment data analysis, we could monitor the accuracy of MLC during the whole treatment courses.

Conclusion:
In this study, we have found that our original QA program and patients’ treatment of MLC data analysis could be useful for clinical routine MLC QA for dynamic IMRT to identify MLC position accuracies by time-line.

Conflict of Interest (only if applicable):