Purpose/Objective: Dynalogs are text files produced by the MLC controller on Varian Linacs for IMRT deliveries. Parameters such as leaf positions, jaw positions or dose rate are read by the MLC controller and this file is log in every 50 ms. Dynalogs give information on the performance of the Linac and they might be a useful tool in dynamic IMRT treatment verification.

A recent multi-institution study carried out by Kerns et al. analyses over 85000 dynalogs determining mean leaf RMS errors and suggests tolerance levels. The aim of this study is to assess the error committed in our Trilogy Linac and to compare these results to the ones obtained by the multi-institution study.

Materials and Methods: Five hundred and twenty Varian dynalogs, corresponding to portal dosimetry verifications of 35 dynamic IMRT plans, were irradiated in our Trilogy Linac and analysed. Irradiated plans include 6 head and neck, 6 prostate with seminal vesicles, 4 pelvis, 4 prostate, 4 and analysed. Irradiated plans include 6 head and neck, 6 prostate with seminal vesicles, 4 pelvis, 4 prostate, 4 oesophagus, and 11 plans from other localisations. Dynalogs were analysed using a custom-made Matlab software. Errors were calculated as the difference between the planned and the actual leaf position at each measuring instant.

Results: Differences in the actual positions of the leaves respect to the planned positions were assessed. The average error for each localisation ranged from 0.24 to 0.41 mm, being the total RMS average error 0.31 mm. Total mean 95th percentile error obtained was 0.63 mm, and it ranged from 0.47 to 0.68 mm when analysed by location.

In the multi-institution study, mean leaf RMS error vary from 0.22 to 0.37 mm for different institutions, with an average of 0.32 mm. In regard to the 95th percentile error, the mean was 0.64 mm, oscillating from 0.45 to 0.69 depending on the institution.

Conclusions: Leaf positioning errors performed by our Trilogy Linac were compared to a multi-institution study. Results obtained for the mean leaf RMS and the mean 95th percentile were close to the mentioned study.

Purpose/Objective: Peer review of treatment plans and structure sets is considered to be good clinical practice and takes place routinely in large cancer centres and in clinical trials. In smaller centres where there are fewer numbers of consultant clinical oncologists with some being lone practitioners, facilities to improve communication between specialists can reduce the need to physically relocate to allow discussion to take place. This is particularly relevant for head and neck treatment planning where there are multiple target volumes and organs at risk.

Software that can incorporate different planning systems and allow participant users to present cases would obviate the need to duplicate identical planning systems.

Materials and Methods: In 2014, the Exeter and Taunton clinical oncology centres worked together to identify processes to facilitate cross site peer review of treatment plans for head and neck patients. A known problem was the use of different planning systems on both sites. Efforts focussed on the use of NHS Secure File Transfer to move data between sites, though it was known that this would not allow a live and interactive review unless each centre had access to each other’s planning systems. Discussions had taken place with Information Governance departments on both sites regarding this option. Travelling between departments was not considered to be practical or cost effective.

The Taunton IT Department made the teams aware that it was testing Microsoft Lync 2013th with a view to improving communications within the hospital, wider NHS network and beyond.

Lync communication is via microphone and/or message box, but PC screens can also be viewed by remote users. On request, control can be transferred to any user logged in to the Lync session to allow them to scroll through plans. Furthermore, screen sharing across geographical sites may also be undertaken to allow any site to be the host PC for viewing of contours/plans.

In Taunton and Exeter, Pinnacle and Eclipse Planning Systems, are in use respectively. Both are PC based and have dual display screens. All communications take place within the N3 network, satisfying clinical governance requirements for data security and confidentiality.

Results: Several process problems were resolved and the system has been implemented into clinical use, with weekly interactive clinical review sessions between the two sites. Oncologists review contours and plans and offer suggestions in real-time for modification if required. Comments and observations made during review are written in the Lync Messaging Box and cut and pasted into the patient electronic record. In Taunton and Exeter, these are held on MOSAIC and ARIA respectively. Sessions may also be recorded and stored as mp4 files for future playback.

Conclusions: Microsoft Lync 2013th has been successfully used to implement peer review of treatment planning processes between two geographically distant cancer centres with differing treatment planning systems.