CT-based 3D conformal radiotherapy treatment planning has been used clinically at our Centre since 1995. Our institution utilizes the Cadplan treatment planning system. To date 2226 patients have been planned using this system. 98 of them had primary CNS malignancies. Among them four patients were planned for Craniospinal Radiotherapy (CSR). The CT-based 3D planning process for CSR is described. Dose distributions throughout the treatment volume are presented. Particular attention is given to the areas where adjacent field matching is required. Dose distributions are super-imposed on CT images and digitally reconstructed radiographs (DRRs). Various planning tools such as dose volume histograms (DVHs), beam eye views (BEVs) and 3D volume rendering are shown.

The approach employed above offers several advantages over conventional 2D treatment planning for CSR. This is evident when considering (i) time required for planning, (ii) accurate assessment of dose delivery to the target volume particularly at the junctions of adjacent fields, (iii) ability to visualize critical areas (meninges, cribriform plate, optic nerve, … etc.) and (iv) ability to spare normal dose limiting structures and accurately calculate doses they receive (e.g. pituitary gland, thyroid, lungs, oesophagus, gonads, etc.)

Our experience to date has demonstrated clearly that 3D treatment planning, particularly coupled with CT-simulation, is the preferred approach to radiotherapy treatment planning of CSR in a state-of-the-art environment.