Purpose: Designing a wedge shaped midline block (WMLB) for teletherapy treatments in early cervical cancers, its dosimetric verification and clinical implementation.

Methods: The method of designing a WMLB is discussed based on the dose distribution in coronal plane obtained from treatment planning system (TPS) for manual afterloading intracavitary brachytherapy (ICBT). Horizontal profiles are taken with Kodak EDR2 film and 0.6cc ionization chamber (IC) under water equivalent slab & water phantom respectively at isocenter of telecobalt machine with WMLB at tray level. Using these measurements, WMLB was configured in the unit modeling of TPS. Clinical plans (AP/PA; Three fields, Box field techniques) related to the treatment were created with central shielding by conventional rectangular midline block (RMLB) and WMLB in TPS for a field size of 15cm X 15cm in AP/PA & 8cm X 15cm for Lateral field portals under simulated phantom geometry. Dose calculations (3D) were done at isocenter and were verified with IC (absolute & relative) dosimetric measurements.

Results: Wedge shaped MLB was found to be symmetrical within ±1.5% accuracy which was confirmed through horizontal profiles generated by Film, IC & TPS. The calculated doses from TPS were verified with ionometric measurements (Central and Off Axis) taken at isocenter and were found to be well within 3.3%.

Conclusions: The use of a RMLB results in in-homogeneity of dose around the target and should be avoided. A WMLB on the other hand would certainly improve the dose homogeneity around the target thereby minimizing the dose to the critical structures (bladder and rectum).