

A procedure using film to measure dose distributions for electron beams incident on an anthropomorphic phantom has been developed as part of a program to clinically implement an in-house electron Monte Carlo treatment planning system (Radiation Physics and Chemistry, 53 (1998) 217-227). This technique has an accuracy of 3% in relative dose and 1mm spatially. Measurements are made using Kodak XV verification film. The film is removed from the bag, cut to match the surface contour of the phantom and then sandwiched between the phantom slices. Black PVC tape is used to prevent light contamination of the film. A locally measured sensitivity curve is used to convert the optical density to dose. Dose distributions measured using this technique with flat solid water phantoms for a 14 MeV electron beam agree with electron diode measurements in water at the 2% level. Two small titanium tipped rods are placed in holes already present in the RANDO phantom. These are clearly visible in the CT scan with minimal artifacts and they physically mark the surface of the film. These marks are used to align the measured and calculated data sets to better than 1 mm. Measurements have been made at a location relevant clinically for treatment of the parotid gland or tonsil. This technique is proving to be a useful QA tool for our Monte Carlo treatment planning system.