

### **A 16-field technique for total skin electron irradiation**

Total skin treatment for mycosis fungoides with a 5 MeV electron beam (Siemens MD2) was evaluated for uniformity (<5% through 200cm vertical height), low bremsstrahlung (~4%), and clinically significant depths of penetration ( $d_{max}=1\text{mm}$ , 90% = 3mm and 50%= 9mm). The 16 field technique consisted of the patient standing AP or PA at 400 cm SSD on a platform 25cm above the floor and rotated through 4 different angles (20° and 60° both clockwise and counterclockwise) and two angled beams (68° or 112°). A 0.6cm lucite plate located at the collimator degraded the beam ( $E_0=2.1\text{ MeV}$ ). The composite treatment effects of self shielding, obliquity, and uniformity were evaluated with films in a Rando phantom at the surface and at 5mm depth. At the surface, the 20° and the 60° fields differed by about 5% in dose delivered. At 5mm, the 20° fields contributed about 1.9 times more than that of the 60° fields due to large obliquity effect at 60°. Uniform relative dose in the abdomen was contrasted with small but clinically acceptable hot spots in the neck and head due to the smaller anatomical cross sections when prescribed to the surface. Absolute dose measured with a CPPC chamber or TLDs placed in rectangular and Rando phantoms was delivered 90% from the 8 anterior fields and 10% from the remaining posterior fields. The 16-field complete treatment cycle is delivered in two days for a per treatment prescribed dose of 200 cGy.