

The first patient was treated at the Gershenson Radiation Oncology Center neutron therapy facility at Harper Hospital, Wayne State University in September 1991. Up to the end of January 1998 a total of 851 patients have been treated. The patient load has been steadily increasing over the years and in 1997 two hundred and twenty five patients were treated with 9070 fields in 2222 fractions (~ 25% increase over 1996). During 1997 downtime accounted for 6.5% of the scheduled clinical time of 10 – 11 hours/day, 5 days/week. Most patients are treated with complex conformal irradiation techniques; the average number of fields treated per fraction was 4.1 in 1997, which is relatively high. Approximately 70% of the patients treated have been prostate cancer cases. Results at WSU with this group of patients suggest that mixed neutron/photon irradiation is the treatment of choice for most prostate patients. It has been demonstrated that, in a large US academic radiation oncology department, the treatment of prostate cancer patients with mixed neutron/photon therapy can be cost effective in comparison to conventional x ray therapy. Strategies for further improving efficiency are under consideration. It is estimated that present patient throughput could be increased by a factor of at least two by replacing the existing multirod collimator, an analog device requiring manual operation, with a computer controlled multileaf collimator, and by increasing the working day to 14 hours. With these changes it should be possible to treat up to 600 prostate patients with mixed neutron/photon therapy.