

HDR Brachytherapy Quality Assurance and Patient Dose Monitoring using Diodes.

Patient dose monitoring are increasingly playing an important role in the quality assurance of radiation therapy treatment delivery. This is well established in teletherapy and the most commonly done with diodes. So far, to our knowledge, there has been no attempt to explore the feasibility of such concept in HDR brachytherapy.

In this study, we are investigating the potential use of using p type Si diodes to perform patient dose monitoring for HDR Ir-192 treatments. The physical characteristics and dosimetric properties of these diodes will be presented. The philosophy of this QA program is not only designed to monitor the dose delivered to the patient but also to verify that the treatments are carried out as intended with minimal movement/disturbance of the applicators. It also, offers a permanent record for successful completion of the prescribed radiation dose. The most difficult clinical cases encountered as far as correlating the expected dose to diode readings are large interstitial implants. The preliminary results obtained demonstrate the usefulness of diodes for patient dose monitoring.