Semiconductor diodes are being increasingly used as secondary dose monitoring devices for patients undergoing radiation therapy. The measured output from the diode system is usually compared with the expected output for the patient setup, and a tolerance is set to accept the difference. The aim of the present investigation is to determine the factors that affect the output of the diodes during *in vivo* dosimetry relative to that in the calibration condition. Since the diode is placed on the skin of the patient, it is close to the wedge, block, compensator and the multi leaf collimator (MLC) of the Varian 2100 C/D accelerator at our clinic. The secondary electrons generated by the beam modifying devices as well as the electron contamination of the photon beams were found to significantly affect the diode output. For example, the field size factors for diodes were found to be substantially different for rectangular fields shaped by the MLC as compared to that from the collimator jaws. Results of our measurement of correction factors to the diode output under the calibration conditions due to the variation of SSD and the presence of beam modifying devices for a VeriDose Patient Dose Monitor system from Nuclear Associates used in our Varian Clinac 2100 C/D with MLC will be presented. Our experience with commissioning of the diode *in vivo* dosimetry system and patient dose monitoring in the clinic will also be discussed.