

Exposure Rates Around Patients Receiving Endovascular Irradiation of the Coronary Artery in the Beta-Cath™ System Trial, DE Mellenberg*, K Zhen, JD Rossen, EC Pennington, JJ Lopez and DH Hussey, The University of Iowa, Departments of Radiology and Cardiology, Iowa City, IA 52242

Radiation exposure to the patient and cath lab personnel can be minimized by using a pure beta emitting radioisotope to irradiate the coronary arteries of patients following balloon angioplasty and prior to stent placement as compared to gamma emitting radioisotopes. Exposure rate measurements around patients treated as part of the Beta-Cath™ system trial show that Strontium-90 is an acceptable isotope for irradiating the coronary artery from the standpoint of radiation safety. Exposure rates in the cath lab during treatment were found to be less than 2 mR/hour in all cases. The exposure rates where the interventional cardiologist, radiation oncologist, and other cath lab personnel position themselves during irradiation were found to be less than 0.7, 0.5 and 0.2 mR/hr. The exposure rate at the patient's chest, head and feet average 1.3, 0.3 and 0.1 mR/hr respectively. With dwell times that are between 2 and one half and 4 minutes there is minimal radiation exposure risk to patients and cath lab personnel when using the Beta-Cath™ system. The Strontium-90 transfer device has exposure rates between 220 and 260 mR/hr above its viewing window on contact and less than 70 mR/hr on surfaces that contact the radiation oncologist's, physicist's and other cath lab personnel's hands. This work was supported in part by Novoste Corporation as part of the Beta-Cath™ system trial.