**Abstract**

This project describes numerous aspects of non-melanoma skin cancer (NMSC) and the role of high-dose-rate (HDR) brachytherapy in the treatment of these lesions. The project discusses the frequency and trends of NMSCs as well as the appearance and frequency of the two main types, Basal Cell Carcinoma and Squamous Cell Carcinoma. Radiation Therapy and brachytherapy are defined, and two different types of brachytherapy treatment, low-dose rate and high-dose rate, and the two main types of treatment applicators, tungsten alloy applicators and custom molds and flaps, are also included and described. The process of treating a skin lesion with this method is listed, along with the side effects, healing process, and aspects affecting patient selection. NMSCs are the most common malignancies in the world and are growing in frequency with the population’s increased exposure to ultraviolet radiation. Due to the nature of these lesions, they are often located in cosmetically sensitive areas, therefore, HDR brachytherapy plays a vital role in the treatment of these lesions as it provides favorable cosmetic outcomes when compared to other treatment options. HDR brachytherapy is also an ideal alternative in treating those who are unable or unwilling to undergo surgery.

*Keywords:* non-melanoma skin cancer, radiation therapy, high-dose-rate brachytherapy