Part One:

Original Passage: As is well known, radiation therapy of irregular contours of the head and neck can be complex. Facial topology skews isodose lines, making treatment planning difficult. In order to compensate for these irregular surfaces, boluses can be fabricated to present a uniform flat surface to the incident radiation. Paraffin wax can be considered approximately tissue equivalent and paraffin box boluses are widely used. Unfortunately, custom fabrication of paraffin boluses is a multi-step process that involves making a mold of the irregular surface to be treated, the construction of a box cast, and manipulation of hot molten wax. This can be difficult and time consuming. A much simpler technique has been developed using materials very familiar to medical dosimetrists. Aquaplast® (WFR Aquaplast Corp., P. O. Box 635, Wyckoff, NJ 07481) and Super Stuff® (TX 151, Oil Center Research Corp., Rt 2 Box 49, Lafayette, LA 70505) bolus can be easily formed into an effective alternative to the paraffin wax box bolus.

Although the particular case described here is malignant melanoma of the nose, the technique presented will be valuable for other treatment sites.

Paraphrase: Head and neck treatment planning can be challenging because of the irregular surfaces and air cavities associated with this area. Without any type of correction for these irregularities, isodose line distribution would be less than adequate for many tumor volumes. Bolus and tissue compensators made from paraffin wax have been helpful in improving dose distribution, but their construction is often time consuming and difficult. Instead of using molten wax as bolus, commercially available materials, such as Super Stuff® and Aquaplast®, can be easily formed into wax alternative compensators useful for many anatomical areas.


Part Two:

Abstract: Irregular facial contours can make radiation therapy of head and neck tumors difficult. Isodose lines become skewed, making treatment planning complex. A traditional solution to this problem is the paraffin wax box bolus. Such a bolus is made to fit the irregular surface compensating for the topology and creating an even surface. The fabrication of a wax bolus can be a difficult and time-consuming process. A method that is simple and efficient has been devised. Super Stuff® a bolus can be easily...
molded and has approximately the same effect as a similar paraffin wax bolus. This was verified by irradiating a Rando head phantom with both a paraffin wax bolus and a Super Stuff® bolus. Doses to various points of interest were measured with thermoluminescent dosimetry (TLD) chips (LiF). The particular case addressed is malignant melanoma of the nasal septum, but the technique described can be useful in the treatment of other sites as well.

Abstract Key Components: An abstract summarizes the main points of an article. It should include the study objective and background, the design and methods, a summary of results and findings and the principal conclusions of the article.

The objective of this study was to compare the effectiveness of Super Stuff® to paraffin wax as a bolus for irregular facial contours. Paraffin wax was presented as the current standard, thus giving background to bolus construction. The design of the experiment involved creating a wax bolus (traditional method) and a Super Stuff® bolus (new quicker and easier method) for the nasal area of a Rando head phantom. The method involved irradiating the phantom with both boluses in place. Prior to irradiating the phantom, TLDs were placed on the phantom’s nose for dose verification at various points. The TLD results concluded that Super Stuff® had approximately the same bolus effect as paraffin wax and could also be useful in the treatment of other sites.