

## Regression Patterns in Non-Melanoma Skin Cancer

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### Abstract

**Background:** The high prevalence of non-melanoma skin cancers (NMSC) creates a significant financial burden for the healthcare system. More cases are diagnosed each year than the next four most common cancers combined<sup>(1)</sup>. Management of the lesions involves an initial diagnostic biopsy that is often followed by surgical excision. However, the pathologist often finds no evidence of the carcinoma within the excision<sup>(2-4)</sup>. This study aims to identify the patient and lesion characteristics associated with regression of these carcinomas, thus allowing for monitoring rather than resource consuming excision.

**Methods:** IRB approval was obtained to construct a database of all NMSCs that were biopsied and subsequently excised in the study period from 2003-2013. Study variables analyzed were patient demographics and co-morbidities, lesion characteristics, histologic findings, and time from biopsy to excision. The dependent logistic outcome variable was whether or not the cancer was present on excision. S+ statistical software was used to analyze the results and provide a numerical estimate of possibility of cancer regression. Cancer regression was defined as a cancer-free pathologic report after excision when a previous biopsy demonstrated a positive margin.

**Results:** A total of 1867 NMSCs with positive biopsy margins in 1314 patients were reviewed. There were 1079 basal cell carcinomas and 794 squamous cell carcinomas. SCC regressed more than BCC, 56.8% vs 28.7%, with an overall rate of 40.8%. Trunk and extremity lesions regressed more than facials lesions (55% vs 38%). Patients that served in Vietnam had a higher rate of regression at 57%. Agent Orange exposure had no effect on rate of regression. The pre-excision appearance of a scar demonstrated regression of 59%. The shave biopsies showed 42% regression, while the punch demonstrated 28%. History of skin cancer had no effect.

**Conclusions:** The persistence of NMSC after biopsy is a critical question as resources become more closely guarded. Thus a system by which patient and cancer characteristics can provide some data to the necessity of biopsy excision would be helpful to the plastic surgeon who is often excising these lesions. This study provides the largest and most comprehensive dataset analyzing biopsy positive excision negative lesions (BPEN). This data proves that all lesions are not equal and do fall within certain patterns defining differential regression. Certain patient characteristics were also found to play a role. Using this data a method may be developed by which to stratify lesions with a consequent change in management from excision to monitoring.

### References

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