Disparities in Non-melanoma Skin Cancer with Longer Travel to Surgical Treatment and to Nearest Dermatologist Based on Mohs Surgery Defect Size

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Introduction

Non-melanoma skin cancer (NMSC), primarily basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), is highly prevalent. Mohs micrographic surgery (MMS) is a standard treatment, but access to general dermatologists and MMS providers alike is limited in non-metropolitan areas. There is a lack of research on measurable clinical manifestations of increased travel time to surgical treatment and general dermatology on the pathogenesis of NMSC. Longer travel time may represent an important barrier to the care of NMSC.

Methods

Patients treated by a single provider with MMS at VCU Health for NMSC from 07/2023- 12/2024 were collected.

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Electronic medical records were reviewed, and data collected for addresses, tumor measurements, and sociodemographic factors

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Address data was geocoded and travel time calculated in ArcGIS pro.

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Postoperative tumor defect area (cm^2) was modeled by travel time (mins) to Mohs surgery in 4 categories (<30, 30-<60, 60-<90, 90+) adjusting for age, sex, race, insurance, immunocompromised status, and smoking; secondary analysis used travel time to the nearest dermatologist.

Results

Figure 1. % Difference in Mohs Defect Size Compared to <30 mins of Travel to Academic Mohs Treatment *

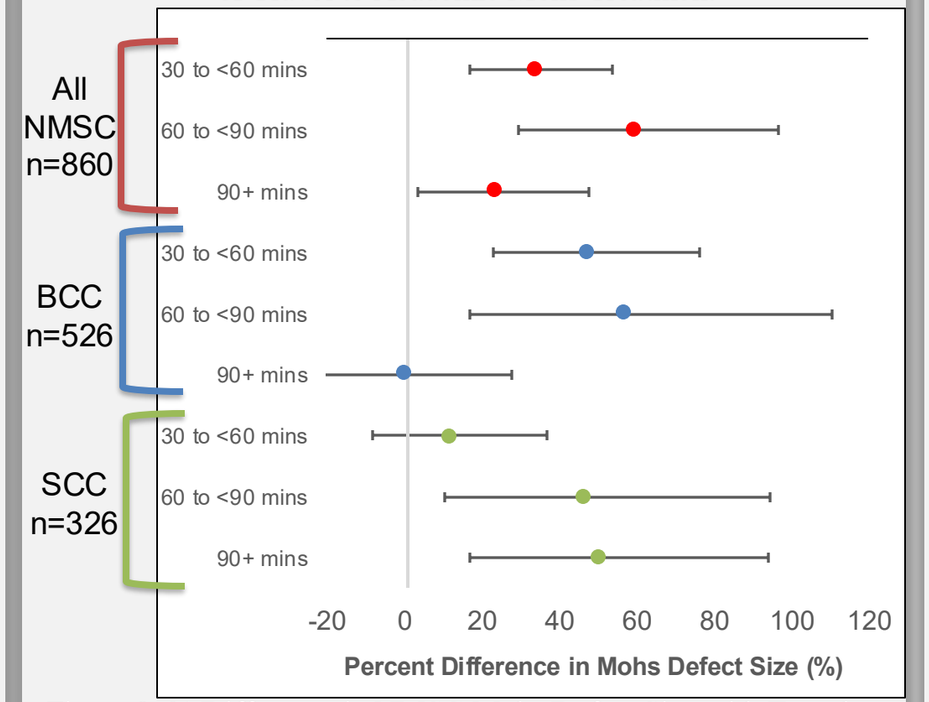

Figure 2. % Difference in NMSC Mohs Defect Size with Travel Time to Nearest Dermatologist *

	% Difference [95% CI]	P value
Travel time to dermatologist (Per 15 minutes)	+7.0% [1.0 — 14.3]	**.046**
Age (Per 5 years)	+6.5% [3.0 — 10.0]	**<.001**
Immunocompromised	+39.2% [18.3 — 63.9]	**<.001**

*All results adjusted for age, sex, race, immunocompromised status, insurance, and smoking status

Discussion

Longer travel time to MMS treatment and nearest dermatologist is independently associated with increased Mohs defect size.

Covariates immunosuppressed status and older age also consistently displayed larger defect sizes consistent with prior literature.

These findings suggest travel time to dermatological care as a burden that may lead to higher-risk tumors, more extensive surgical interventions, and worse outcomes, underscoring geographic disparities in NMSC management and supporting expanding dermatologic care and education.

References

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