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# The Clinical Definition and Characterization of Field of Cancerization in Patients with Actinic Keratoses

Stuti Prajapati  
*Rowan University*

Christina Kontzias  
*Wake Forest School of Medicine*

Mallory Zaino  
*Wake Forest School of Medicine*

Steven Feldman  
*Wake Forest School of Medicine*

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# The Clinical Definition and Characterization of Field Cancerization in Patients with Actinic Keratosis

Stuti Prajapati MS<sup>1,2</sup>, Christina Kontzias BS<sup>2</sup>, Mallory Zaino MD<sup>2</sup>, Steven R Feldman MD, PhD<sup>2,3,4</sup>

1. Rowan School of Osteopathic Medicine, Stratford, New Jersey, 2. Center for Dermatology Research, Department of Dermatology, Wake Forest School of Medicine, Winston-Salem, North Carolina, 3. Department of Social Sciences & Health Policy, Wake Forest School of Medicine, Winston-Salem, North Carolina, 4. Department of Dermatology, University of Southern Denmark, Odense, Denmark,

## Background

- Actinic keratoses (AKs) are precancerous proliferations of keratinocytes that present as red or brown, pigmented plaques on sun-exposed areas.<sup>1</sup>
- Field of cancerization assumes that the chronic sunlike exposure responsible for visible AKs increases the risk of malignant evolution in the surround area. Field treatments, such as topical 5-fluorouracil, imiquimod, tirbanibulin, diclofenac, and photodynamic therapy, treat multiple AKs in an area.<sup>1,2</sup>
- However, there are no clear clinical criteria for determining the size of the field of cancerization

## Objectives

- To identify clinical features that may be used to define the field of cancerization and guide treatment.

## Method

- This is a prospective, cross-sectional study of 100 patients diagnosed with AKs enrolled from Atrium Health Wake Forest Baptist dermatology clinics.
- AKs and the field of cancerization were defined by a dermatologist.
- For each patient, we recorded the number of AKs as well as the presence of dyspigmentation, dryness, and scaling on a specific anatomical area.
- We then quantified the size of the field of cancerization (cm<sup>2</sup>) in this area.
- We completed an Investigator's Global Assessment (IGA) score to score the severity of patients' AKs.

Score	Description
0	Clear No visible AK lesions. No erythema, induration, or oozing/crusting. Dyspigmentation may be present.
1	Almost Clear Barely perceptible lesion, erythema, induration, scaling. . Dyspigmentation may be present. Oozing and crusting are absent.
2	Mild A few AK lesions. Perceptible erythema, induration, scaling. . Dyspigmentation may be present. Oozing and crusting are absent.
3	Moderate 3-10 AK lesions. Marked perceptible erythema, induration, scaling, . Dyspigmentation is present. Oozing and crusting may be visible.

Table 1: Investigator's Global Assessment (IGA) scoring system for the severity of field cancerization

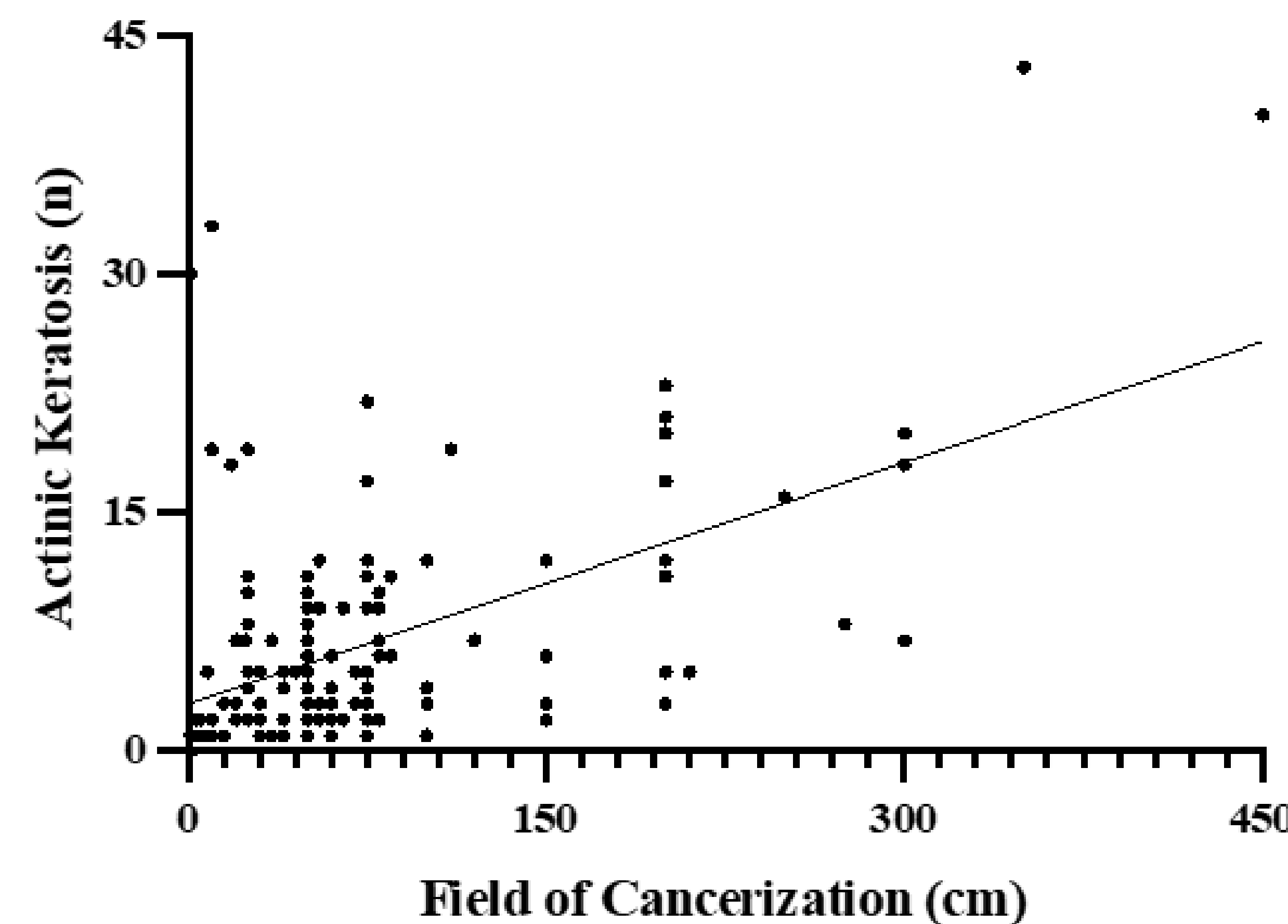


Figure 1. Field of cancerization (cm<sup>2</sup>) vs number of AKs (n)

Anatomic site	Scalp	Face	Ear	Chest	Arm	Hand	Leg	p-values
Number of values	30	38	6	10	37	16	11	
Numbers of AKs, mean	10.0	5.1	3.2	2.3	7.9	8.6	3.8	p=0.0087
Size of field (cm <sup>2</sup> ), mean	67.8	60.4	42.0	64.1	99.3	53.8	130.9	p=0.0337

Table 2: Number of actinic keratoses (n) and size of field of cancerization (cm<sup>2</sup>) per anatomic site

## Results

- The average number of AK in this patient cohort was 6.8 (standard deviation (SD)= 7.3 cm<sup>2</sup>)
- 111 (75%) of patients presented with a field of cancerization greater than 25cm<sup>2</sup>
- The number of AKs positively correlated with the size of the field of cancerization (Figure 1).
- The mean size of the field of cancerization and the mean number of AKs differed based on the body region affected (p=0.0337)
- IGA grade positively correlated with the size of the field of cancerization (p=0.0041)

## Conclusion

- Chronic UV radiation may cause cellular atypia of keratinocytes. If the surrounding area of atypia is not treated along with visible AKs, patients may remain at risk for developing AKs and potentially SCC in the future.
- When selecting therapy, a treat visible AKs, dermatologists may consider the size of the field of cancerization, the number of AKs, the anatomic location, AK grade, and individual risk factors and preferences.
- One limitation of our study is this data is from a single academic medical center.

## References

- Hashim PW, Chen T, Rigel D, Bhatia N, Kircik LH. Actinic Keratosis: Current Therapies and Insights Into New Treatments. J Drugs Dermatol. 2019 May 1;18(5):s161-166.. PMID: 31141862.
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