Diagnostic Bias in AI Models for Skin of Color in Dermatology

LONDON, ONTARIO, CANADA, September 17, 2024 /EINPresswire.com/ -- VisualDx, an award-winning, diagnostic clinical decision support system was developed to provide clinical support and to enhance the accuracy and efficiency of the dermatologic diagnostic process. VisualDx uses an advanced artificial intelligence (AI) diagnostic approach, designed to aid general practitioners in the accurate diagnosis of a broad spectrum of skin conditions across diverse skin tones by processing uploaded clinical images and providing a differential diagnosis.

> "Artificial Intelligence models in dermatology must be trained with diverse skin tones to ensure accurate diagnoses for all patients."
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> *Dr. Katrina Cirone*

In this new study in SKIN: The Journal of Cutaneous Medicine®, Dr. Katrina Cirone and her coauthors analyzed the diagnostic accuracy of sixteen common dermatologic conditions using the VisualDx platform, revealing a significant reduction in diagnostic accuracy for skin of color compared to lighter skin tones. Skin diseases such as atopic dermatitis, basal cell carcinoma, and post-inflammatory hyperpigmentation exhibited some of the lowest accuracy for richly pigmented skin. Overall, a pronounced bias was noticed for images of lighter skin tones for most conditions, except for those like acanthosis nigricans and melasma, which more commonly affect patients with darker skin. Moreover, attempts to enhance correct diagnosis by artificially altering images of lighter skin tones to resemble darker ones only further reduced the AI's diagnostic accuracy.

Across all tested conditions, this study found that VisualDx maintained high accuracy, particularly for conditions that present consistently across different skin types. Conditions such as prurigo nodularis and seborrheic keratosis also scored very high, confirming the tool's reliability in helping clinicians achieve accurate diagnoses. The research highlights that for these dermatologic conditions, VisualDx excels in detecting and classifying diseases.

Despite these findings, with its strong diagnostic performance for many common conditions, VisualDx is poised to continue making significant contributions to dermatologic care. In the future, AI tools like VisualDx have the potential to significantly assist in the accurate and efficient diagnosis of a broad spectrum of skin conditions, helping patients receive timely treatment and improving outcomes.

SKIN: The Journal of Cutaneous Medicine® is a peer-reviewed online medical journal that is the

official journal of The National Society for Cutaneous Medicine. The mission of SKIN is to provide an enhanced and accelerated route to disseminate new dermatologic knowledge for all aspects of cutaneous disease.

For more details, please visit www.jofskin.org or contact jofskin@gmail.com.

Cirone, K., Akrout , M. , Simpson, R. and Lovegrove, F. 2024. Investigating the Performance of VisualDx on Common Dermatologic Conditions in Skin of Color. SKIN The Journal of Cutaneous Medicine. 8, 5 (Sep. 2024), 1788–1796. DOI:https://doi.org/10.25251/skin.8.5.2.

Katrina Cirone
Schulich School of Medicine and Dentistry
katrinadomenica@outlook.com

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