

International Survey on Dermoscopic Image Management: ISIC Data on Capture, Storage, and AI Integration in Dermatology

Aarthi Parvathaneni¹, Madison M. Taylor^{1,2}, T. Austin Black^{1,2}, Kelly C. Nelson²

¹ John P. and Katherine G. McGovern Medical School at The University of Texas Health Science Center at Houston, Houston, Texas, USA

² Department of Dermatology, The University of Texas MD Anderson Cancer Center, Houston, Texas, USA

Citation: Parvathaneni A, Taylor MM, Black TA, Nelson KC. International Survey on Dermoscopic Image Management: ISIC Data on Capture, Storage, and AI Integration in Dermatology. *Dermatol Pract Concept.* 2025;15(2):4896. DOI: <https://doi.org/10.5826/dpc.1502a4896>

Accepted: October 21, 2024; **Published:** April 2025

Copyright: ©2025 Parvathaneni et al. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (BY-NC-4.0), <https://creativecommons.org/licenses/by-nc/4.0/>, which permits unrestricted noncommercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.

Key words: Dermoscopy, Dermatology, Image Storage, Database Management Systems, Artificial Intelligence

Funding: None.

Competing Interests: None.

Authorship: All authors have contributed significantly to this publication.

Corresponding Author: T. Austin Black, BS. 6431, Fannin St, Houston, TX 77030. ORCID ID: 0000-0001-9685-5078. E-mail: troy.a.black@uth.tmc.edu

Introduction

The International Skin Imaging Collaboration (ISIC) Archive is the largest repository of dermoscopic images available for educational purposes and the development and validation of artificial intelligence (AI) [1]. While the utilization of AI in skin cancer detection shows promise, current results are limited, as datasets are predominantly composed of Caucasian patients [2]. Increasing the diversity of image uploads helps create a more representative dataset, which can be used to enhance the accuracy of AI. Additionally, because variations in image storage, query, and sharing exist globally and across practice types, broad investigation into industry practices can enhance archive development and utilization. In hopes of increasing diverse representation and overall utilization of the ISIC Archive, we surveyed dermatologists across the globe regarding image handling behaviors and opportunities to improve usability of the platform.

Findings

The MD Anderson IRB reviewed and approved a 22-question survey, distributed via the International Dermoscopy Society (IDS) website and ISIC email Listserv between October 6, 2023 and February 6, 2026 10/6/23 and 2/6/24. Collected data were both quantitative and qualitative in nature, with three reviewers (AP, MT, TAB) independently analyzing qualitative data. A total of 228 responses were recorded, with the majority of respondents practicing in Europe (46.56%) in either independent (42.02%) or academic (25.46%) settings (Table 1). Common methods for image storage included personal devices (45.09%), secure software (28.60%), and office devices (24.63%), with 48.26% of respondents adding metadata to images (Supplementary Table S1). The majority of participants (87.20%) were unfamiliar with the ISIC Archive. Top barriers to sharing images were legality (43.14%) and personal resources (29.41%). Respondents would be

Table 1. Global Dermatology Image Use, Handling, and Sharing Practices Among Survey Respondents.

Category	Subcategory	# (%)
Respondent Demographics		
	Geographic Location	
	Europe	61 (46.5)
	N. America	20 (15.3)
	S. America	18 (13.7)
	Africa	12 (9.1)
	Asia	12 (9.1)
	Australia	8 (6.1)
	Practice Setting*	
	Independent	137 (42.0)
	Hospital	89 (27.3)
	Academic	83 (25.5)
	Government Agency	12 (3.7)
Image Sharing		
	Are you familiar with the ISIC Archive?	
	No	184 (87.2)
	Yes	27 (12.8)
	What would motivate you to share images with the ISIC Archive for educational purposes?*	
	Self-Advancement	37 (25.3)
	1.1 Acknowledgment of contribution	8 (5.5)
	1.2 Financial incentives	5 (3.4)
	1.3 Publication opportunities	11 (7.5)
	1.4 Self-educational improvement	13 (8.9)
	Facilitation of process and assurance of platform security	61 (41.8)
	Community promotion	33 (22.6)
	No issues with sharing images	15 (10.3)
	What barriers would you anticipate in sharing images with the ISIC Archive for educational purposes?*	
	Legality	66 (43.1)
	1.1 HIPAA/Patient privacy	19 (12.4)
	1.2 Hospital/Employer regulations	5 (3.3)
	1.3 National regulations	6 (3.9)
	1.4 Patient consent/Copyright	36 (23.5)
	Personal Resources	45 (29.4)
	No anticipated barriers	28 (18.3)
	Archive infrastructure	7 (4.6)
	Improper/Unauthorized use of uploaded images	7 (4.6)
Image Handling		
	After capturing clinical images, do you add metadata?	
	No	104 (51.7)
	Yes	97 (48.3)

Table 1. Global Dermatology Image Use, Handling, and Sharing Practices Among Survey Respondents. (continued)

Category	Subcategory	# (%)
	If yes, what metadata do you add?*	
	1 – Identification Information	87 (30.9)
	1.1 Date	48 (17.0)
	1.2 Patient identifier	30 (10.6)
	1.3 Who took the photograph	9 (3.2)
	2 – Clinical Notes	36 (12.8)
	2.1 Actual diagnosis	22 (7.8)
	2.2 Diagnostic clues	6 (2.1)
	2.3 Pertinent patient medical history	8 (2.8)
	3 – Image Description	36 (12.8)
	3.1 General lesion description	11 (3.9)
	3.2 Lesion evolution	1 (0.4)
	3.3 Lesion location	20 (7.1)
	3.4 Lesion size/measurement	2 (0.7)
	3.5 Technical image specifications	2 (0.7)
	4 – Yes, no further information provided	19 (6.7)
	How do you store clinical images?*	
	Personal device	216 (45.1)
	Secure software (EMR)	137 (28.6)
	Office device	118 (24.6)
	Online Storage	6 (1.3)
	Does not store images	2 (0.4)
	Storage system security characteristics	
	Secured	97 (42.9)
	Unsure	78 (34.5)
	Encrypted	29 (12.8)
	Neither	22 (9.7)
	*Respondents could indicate more than one response	

more motivated to share their images through facilitation of the upload process and assurances of platform security (41.78%) (Supplementary Table S1). Additional data analysis can be found in Supplementary Table S1.

Conclusions

Two consistent themes were identified in the response content: patient consent/privacy concerns and a lack of platform awareness. Given that dermoscopic images only capture approximately 12 millimeters of skin, they are considered de-identified and do not require consent for archiving or sharing. Open-source archives should include clear wording reassuring providers of their ability to store and share

dermoscopic images. Additionally, providers wish to be made aware of available platforms and their usability, including access to platform training and/or straightforward uploading modalities. These implementations, along with promotion of platform availability, could increase engagement. Best practices for image technique and general storage have previously been reported [3, 4]. When dermoscopic image sharing is intended, our recommendations for efficient storage include removal of patient-identifying metadata, storage on an internet-accessible drive or device, and image/location labeling with the histopathologically confirmed diagnosis.

Limitations

This study was limited to ISIC and IDS members.

The ISIC Archive is a promising database with significant potential for expanded reach and impact. This study highlights generalized industry practices and beliefs regarding dermoscopic image handling, offering insights for optimizing archive development and awareness. Addressing respondents' concerns could encourage increased image uploads, enhance the database's effectiveness for education and AI development, and ultimately improve disease identification.

References

1. The International Skin Imaging Collaboration. *ISIC*, www.isic-archive.com/. Accessed 12 May 2023.
2. Adamson AS, Smith A. Machine Learning and Health Care Disparities in Dermatology. *JAMA Dermatol*. 2018 Nov 1;154(11):1247-1248. DOI: 10.1001/jamadermatol.2018.2348. PMID: 30073260.
3. Finnane A, Curiel-Lewandrowski C, Wimberley G, et al. International Society of Digital Imaging of the Skin (ISDIS) for the International Skin Imaging Collaboration (ISIC). Proposed Technical Guidelines for the Acquisition of Clinical Images of Skin-Related Conditions. *JAMA Dermatol*. 2017 May 1;153(5):453-457. DOI: 10.1001/jamadermatol.2016.6214. PMID: 28241182.
4. Gandhi S, Kaliyadan F, Chatterjee K, Sharma A. "Storage, Backup and Archiving of Images"- E-Dermatology Task Force (IADVL Academy). *Indian Dermatol Online J*. 2022 May 5; 13(3):321-325. DOI: 10.4103/idoj.idoj_642_21. PMID: 38364421