
AAD ANNUAL MEETING
AEDV
highlights
SAN DIEGO
8-12 MARZO
#AEDVENAAD2024
AEDV
1909
ACADEMIA ESPAÑOLA
DE DERMATOLOGÍA
Y VENEREOLOGÍA

Diagnóstico por imagen en Dermatología y Dermatoscopia

ACADEMIA ESPAÑOLA DE DERMATOLOGÍA Y VENEREOLOGÍA

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Diagnóstico por imagen en Dermatología y Dermatoscopia

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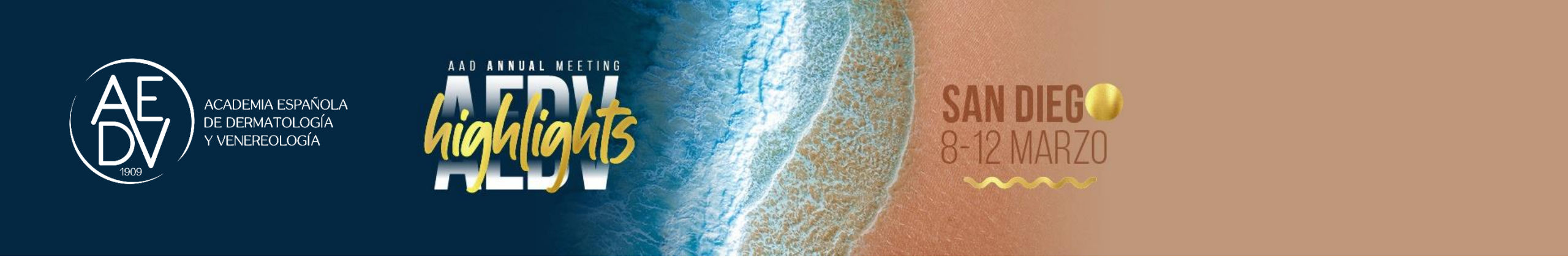

CONFLICTOS DE INTERÉS

Almirall S.A (consultancy, speaker, clinical trials)
Leo Pharma (consultancy, speaker, advisory board)
Isdin (speaker)
Isispharma (consultancy, speaker)
BMS (speaker, consultancy)
MSD (speaker)
Abbvie (speaker)
Bioderma (consultancy)
La Roche Posay (speaker)
Pierre Fabre (speaker)
Philogen (clinical trials)
Novartis (consultancy)
Kiowa Kirin (advisory board)
UCB (speaker)
Viatris (speaker)

Agenda

AAD ANNUAL MEETING AEDV highlights SAN DIEGO 8-12 MARZO

- Fotografia corporal total y dermatoscopia digital
- Gamificación en dermatología y dermatoscopia
- Dermatoscopia de gran aumento
- Apps, teledermatología e IA
- Pósteres

Fotografía corporal total y seguimiento digital

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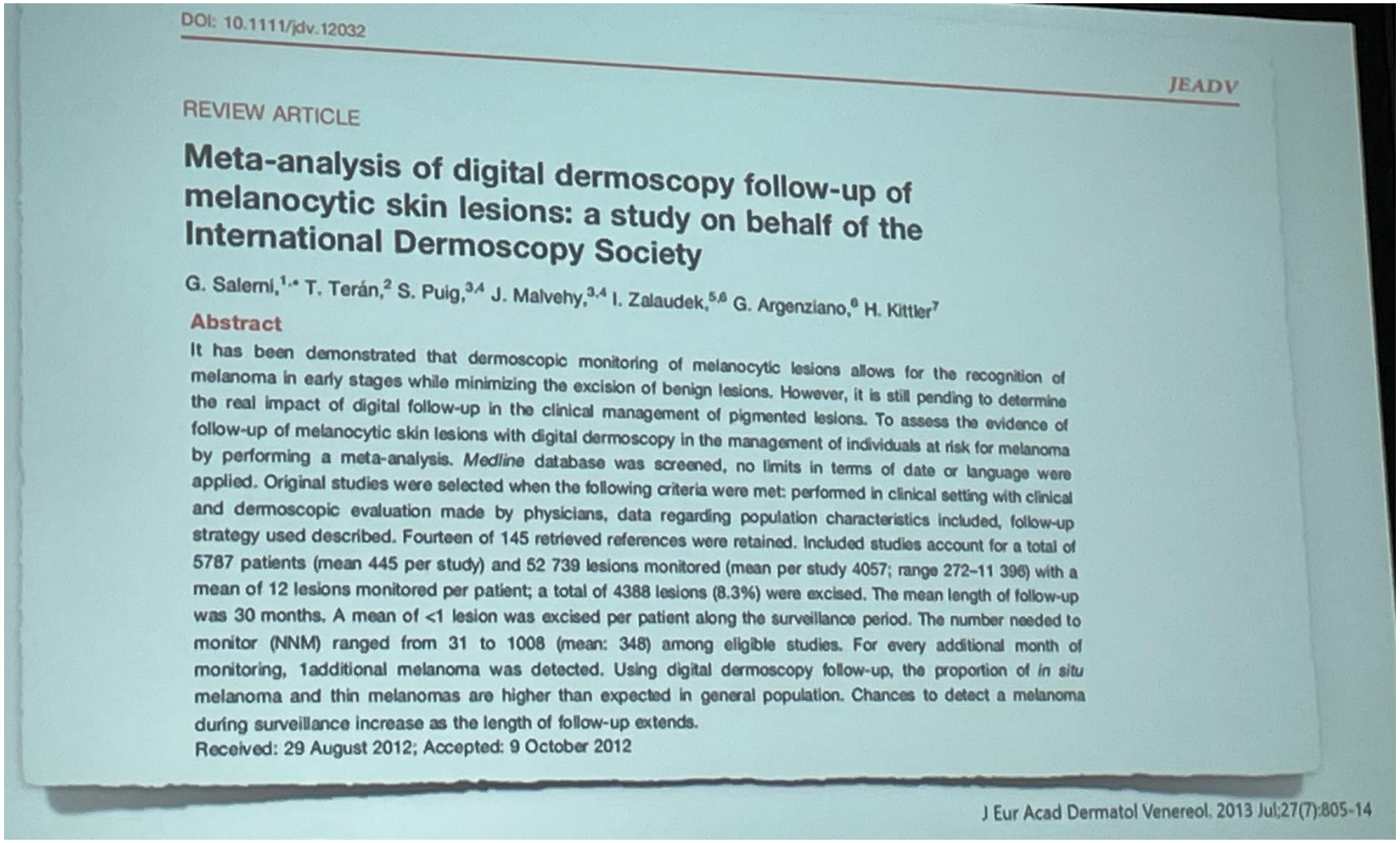
Fotografía corporal total y dermatoscopia digital



DOI: 10.1111/jdv.12032

JEADV

REVIEW ARTICLE

Meta-analysis of digital dermoscopy follow-up of melanocytic skin lesions: a study on behalf of the International Dermoscopy Society

G. Salerni,[1,*] T. Terán,[2] S. Puig,[3,4] J. Malvehy,[3,4] I. Zalaudek,[5,6] G. Argenziano,[6] H. Kittler[7]

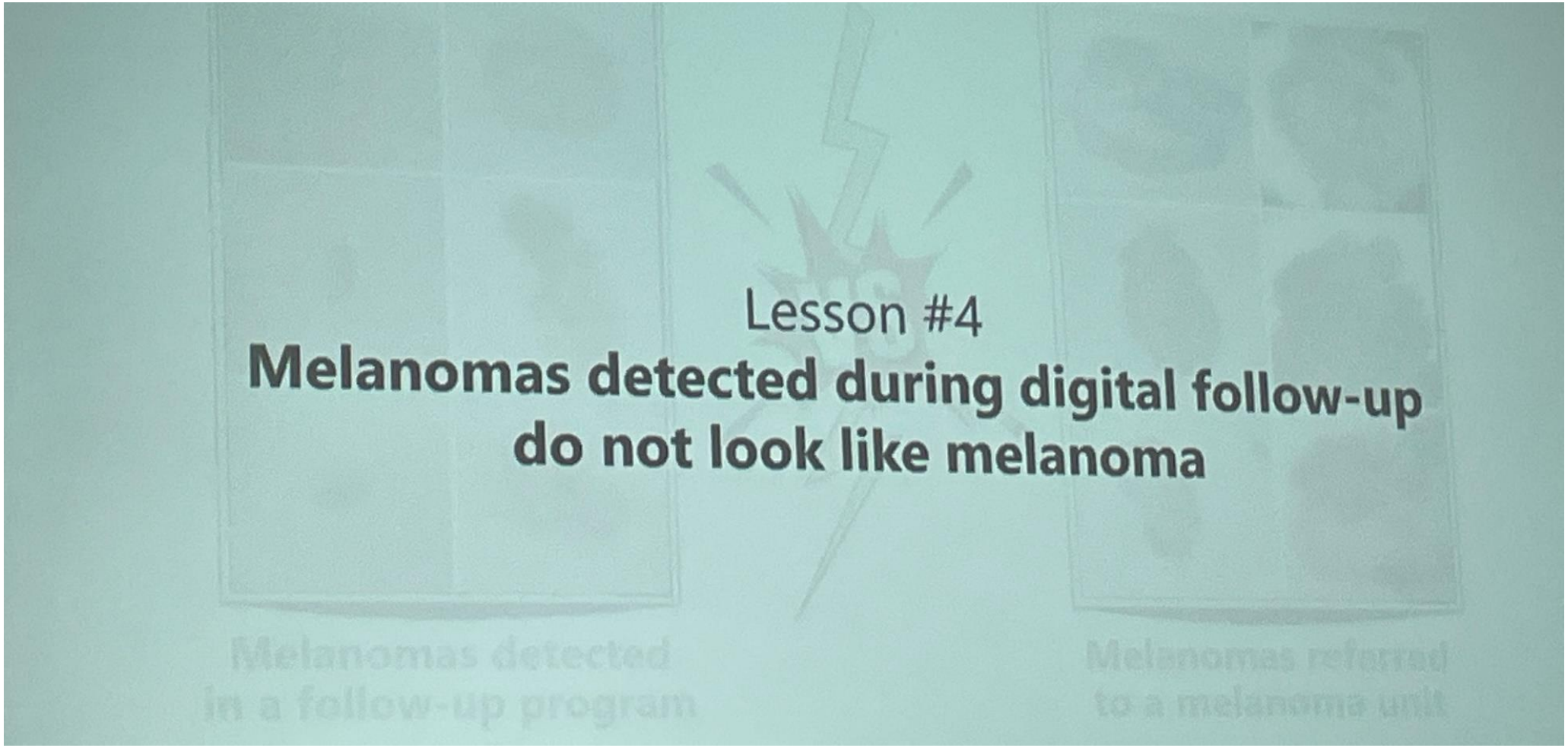
Abstract

It has been demonstrated that dermoscopic monitoring of melanocytic lesions allows for the recognition of melanoma in early stages while minimizing the excision of benign lesions. However, it is still pending to determine the real impact of digital follow-up in the clinical management of pigmented lesions. To assess the evidence of follow-up of melanocytic skin lesions with digital dermoscopy in the management of individuals at risk for melanoma by performing a meta-analysis. *Medline* database was screened, no limits in terms of date or language were applied. Original studies were selected when the following criteria were met: performed in clinical setting with clinical and dermoscopic evaluation made by physicians, data regarding population characteristics included, follow-up strategy used described. Fourteen of 145 retrieved references were retained. Included studies account for a total of 5787 patients (mean 445 per study) and 52 739 lesions monitored (mean per study 4057; range 272–11 396) with a mean of 12 lesions monitored per patient; a total of 4388 lesions (8.3%) were excised. The mean length of follow-up was 30 months. A mean of <1 lesion was excised per patient along the surveillance period. The number needed to monitor (NNM) ranged from 31 to 1008 (mean: 348) among eligible studies. For every additional month of monitoring, 1additional melanoma was detected. Using digital dermoscopy follow-up, the proportion of *in situ* melanoma and thin melanomas are higher than expected in general population. Chances to detect a melanoma during surveillance increase as the length of follow-up extends.

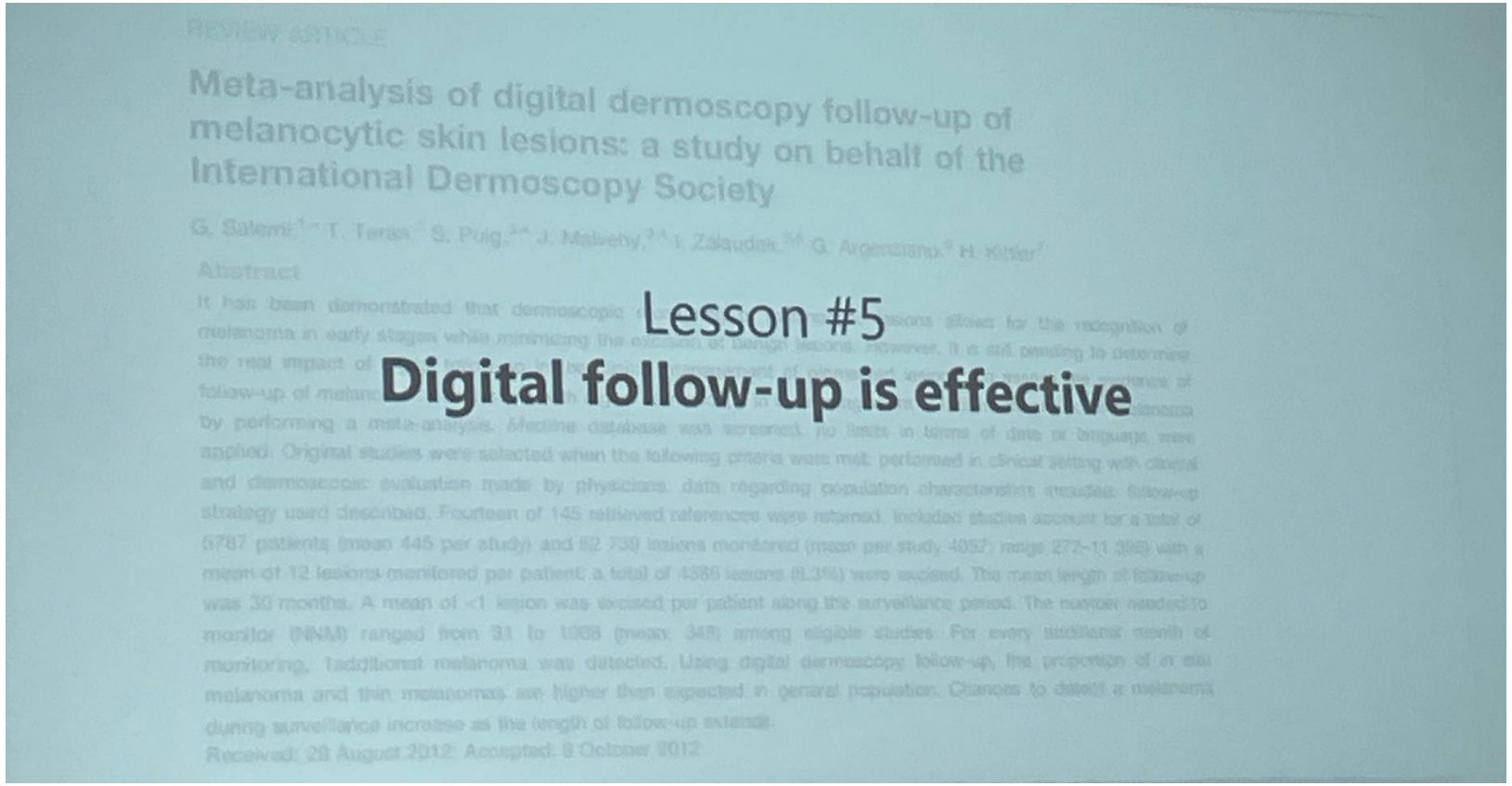
Received: 29 August 2012; Accepted: 9 October 2012

J Eur Acad Dermatol Venereol. 2013 Jul;27(7):805-14

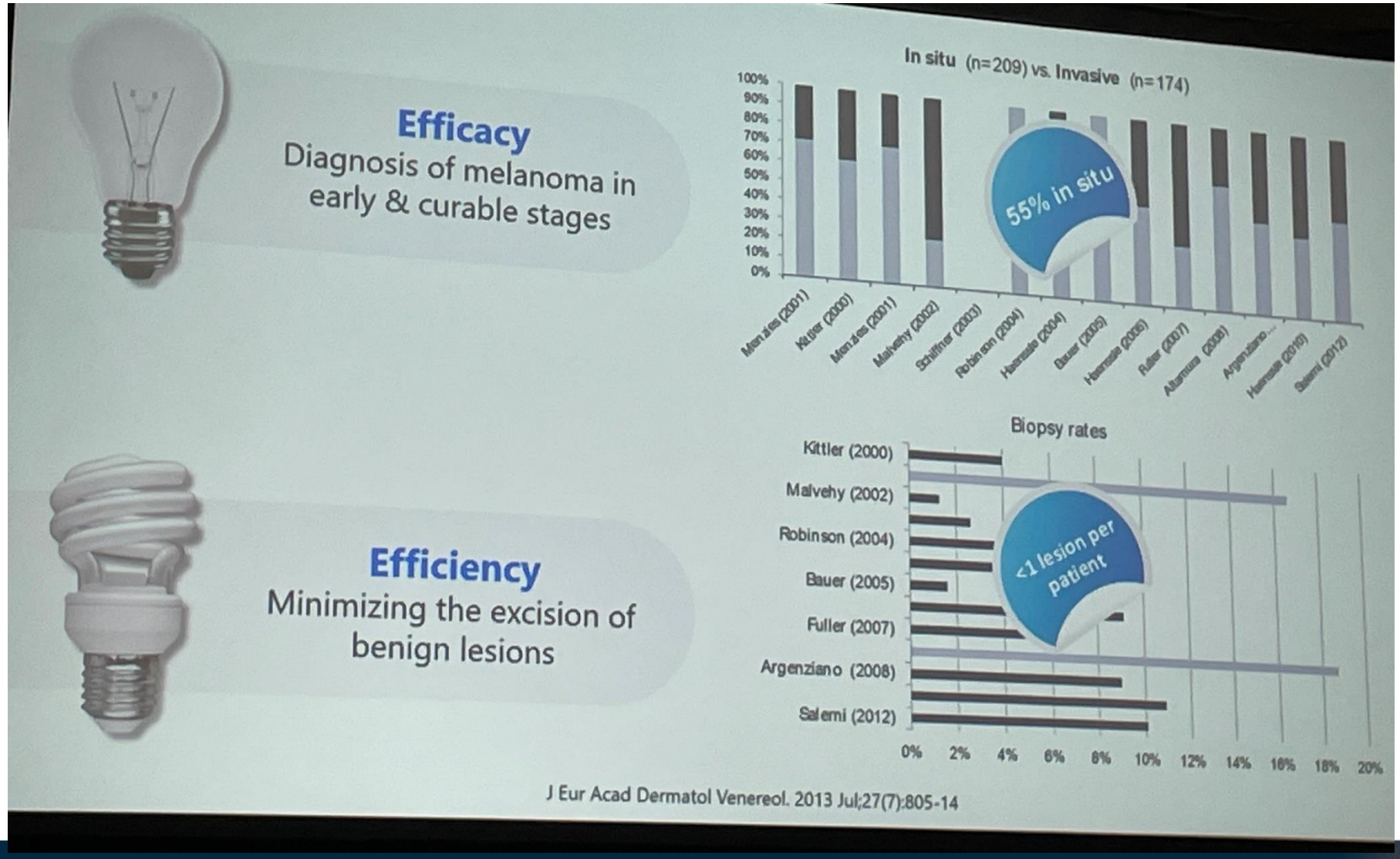
Fotografía corporal total y dermatoscopia digital



Fotografía corporal total y dermatoscopia digital



Fotografía corporal total y dermatoscopia digital



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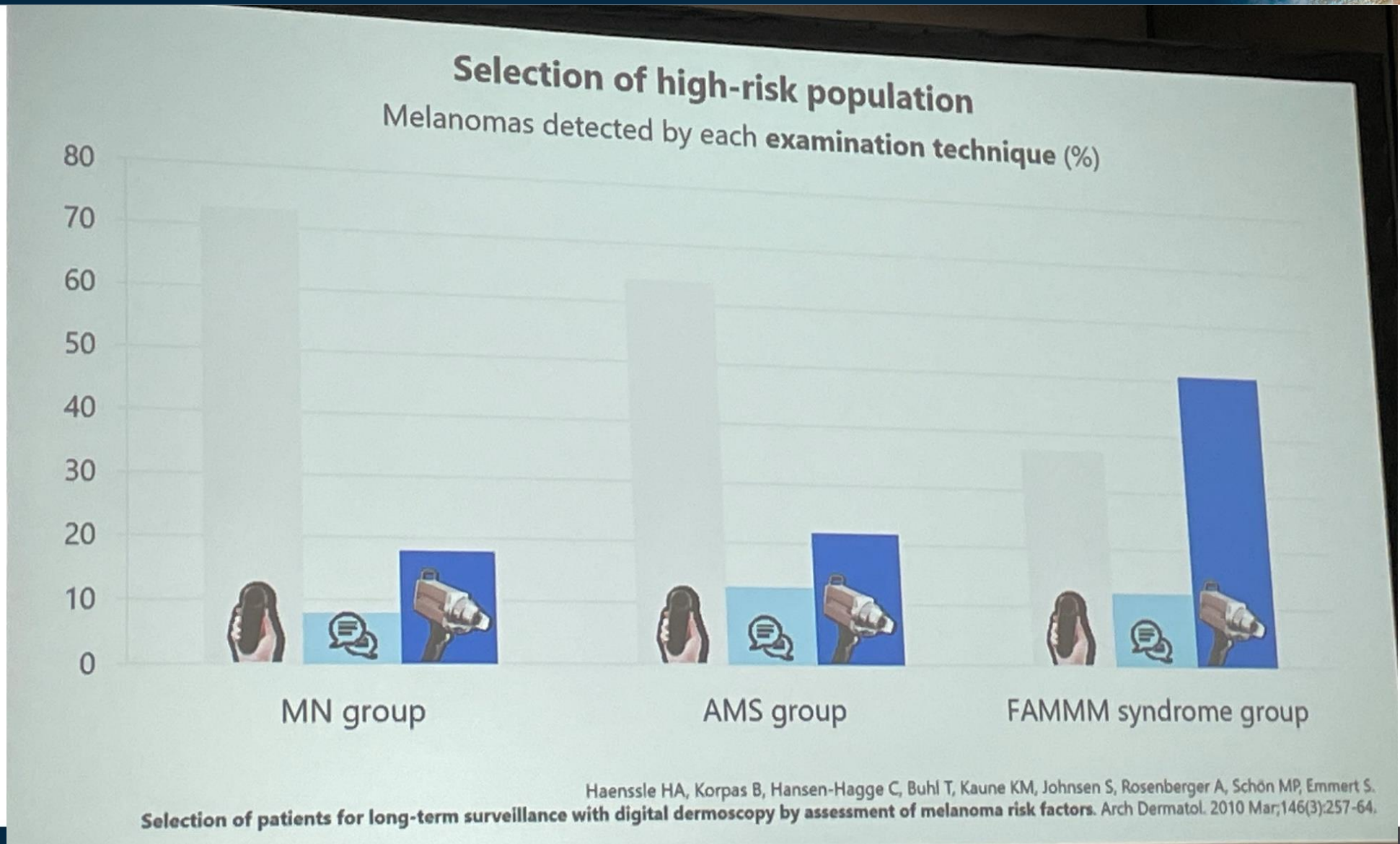
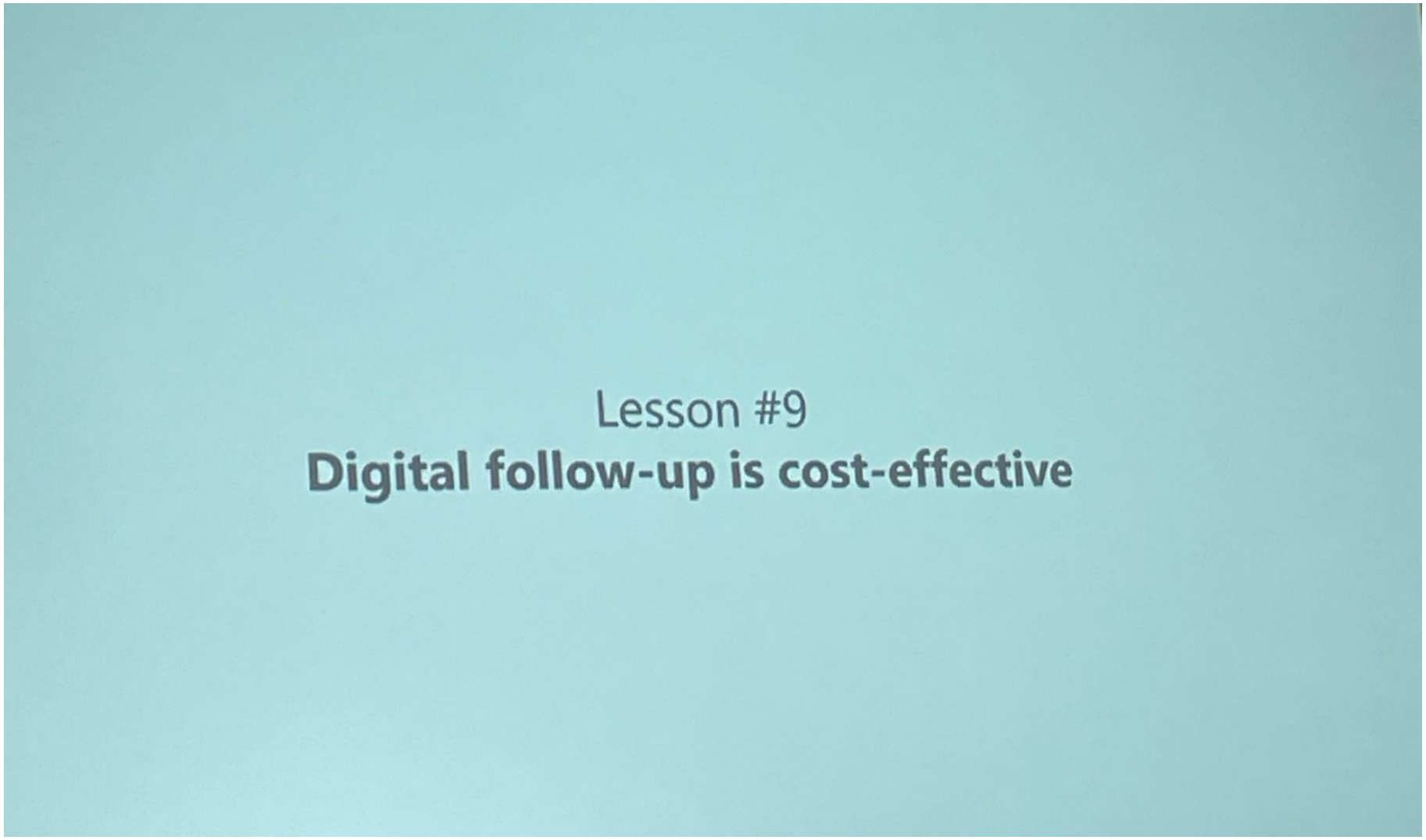


Fotografía corporal total y dermatoscopia digital



Fotografía corporal total y dermatoscopia digital

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Table 1. Model Inputs for Specialized Surveillance and Standard Care Treatment Strategies

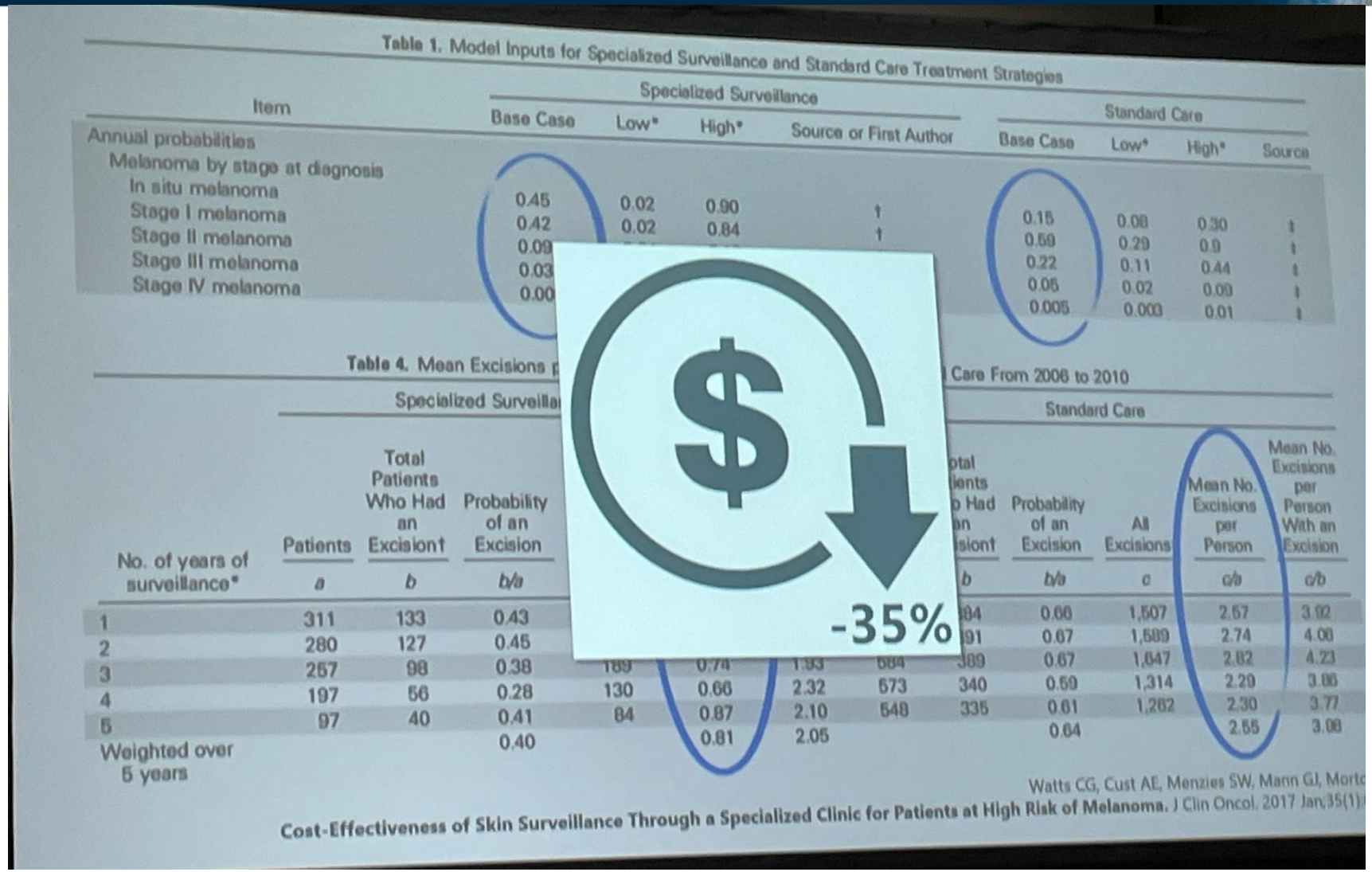
Item	Specialized Surveillance				Standard Care			
	Base Case	Low*	High*	Source or First Author	Base Case	Low*	High*	Source
Annual probabilities								
Melanoma by stage at diagnosis								
In situ melanoma	0.45	0.02	0.90	†	0.15	0.08	0.30	‡
Stage I melanoma	0.42	0.02	0.84	†	0.59	0.29	0.9	‡
Stage II melanoma	0.09	0.04	0.18	†	0.22	0.11	0.44	‡
Stage III melanoma	0.03	0.02	0.06	†	0.05	0.02	0.09	‡
Stage IV melanoma	0.000	NA	NA	†	0.005	0.003	0.01	‡

Table 4. Mean Excisions per Person in Specialized Surveillance and Standard Care From 2006 to 2010

No. of years of surveillance*	Specialized Surveillance (High Risk Clinic)						Standard Care					
	Patients	Total Patients Who Had an Excision†	Probability of an Excision	All Excisions‡	Mean No. Excisions per Person	Mean No. Excisions per Person With an Excision	Patients	Total Patients Who Had an Excision†	Probability of an Excision	All Excisions	Mean No. Excisions per Person	Mean No. Excisions per Person With an Excision
	a	*b*	*b/a*	*c*	*c/a*	*c/b*	*a*	*b*	*b/a*	*c*	*c/a*	*c/b*
1	311	133	0.43	275	0.88	2.07	586	384	0.66	1,507	2.57	3.92
2	280	127	0.45	256	0.91	2.02	580	391	0.67	1,589	2.74	4.06
3	257	98	0.38	189	0.74	1.93	584	389	0.67	1,647	2.82	4.23
4	197	56	0.28	130	0.66	2.32	573	340	0.59	1,314	2.29	3.86
5	97	40	0.41	84	0.87	2.10	548	335	0.61	1,262	2.30	3.77
Weighted over 5 years			0.40		0.81	2.05			0.64		2.55	3.98

Watts CG, Cust AE, Menzies SW, Mann GJ, Morton RL. **Cost-Effectiveness of Skin Surveillance Through a Specialized Clinic for Patients at High Risk of Melanoma.** J Clin Oncol. 2017 Jan;35(1):63-71

Fotografía corporal total y dermatoscopia digital



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Stage IV melanoma	0.00				0.005	0.003	0.01	†

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-35%

Watts CG, Cust AE, Menzies SW, Mann GJ, Morto

Cost-Effectiveness of Skin Surveillance Through a Specialized Clinic for Patients at High Risk of Melanoma. J Clin Oncol. 2017 Jan;35(1)

Gamificación en dermatología y dermatoscopia

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Gamificación

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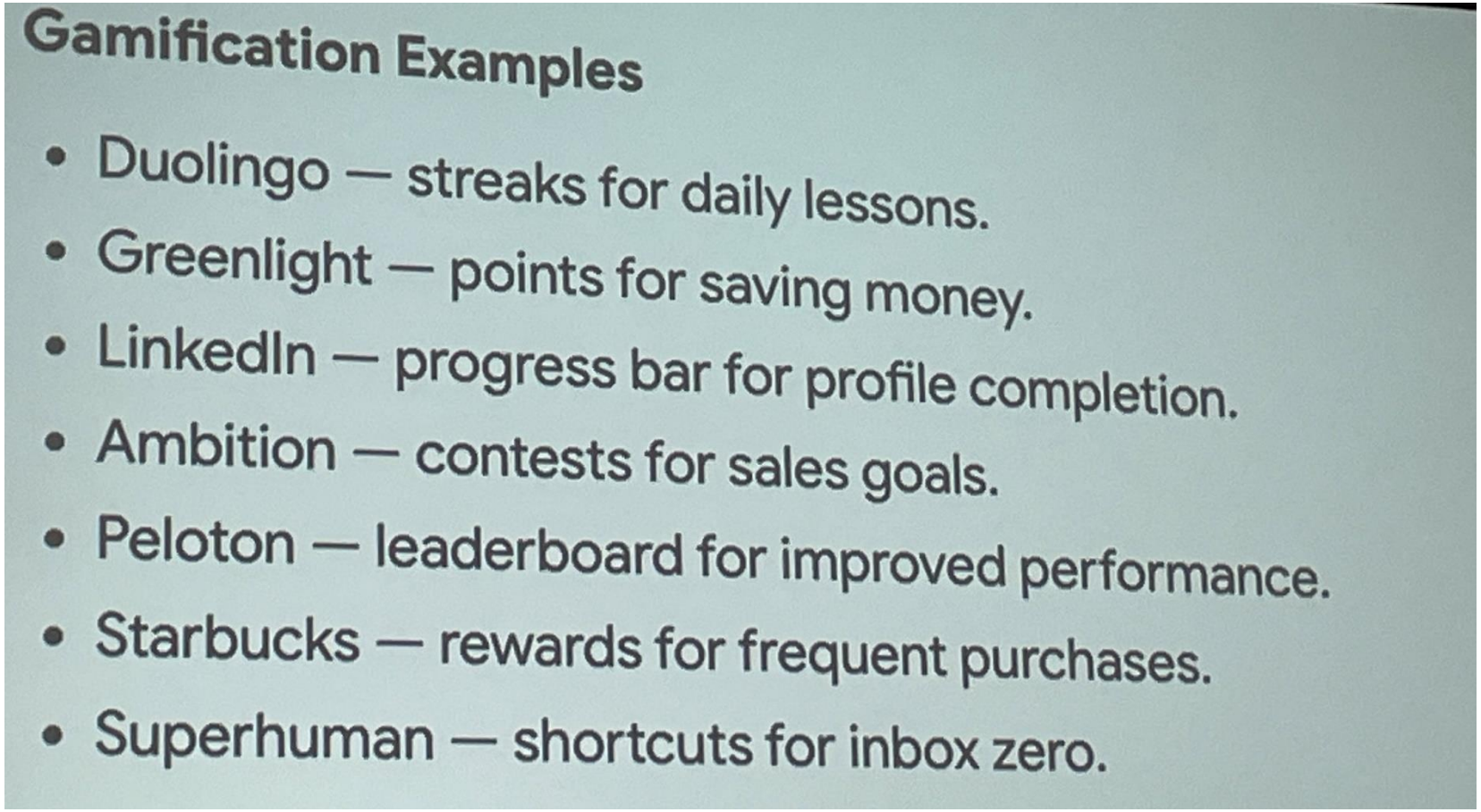
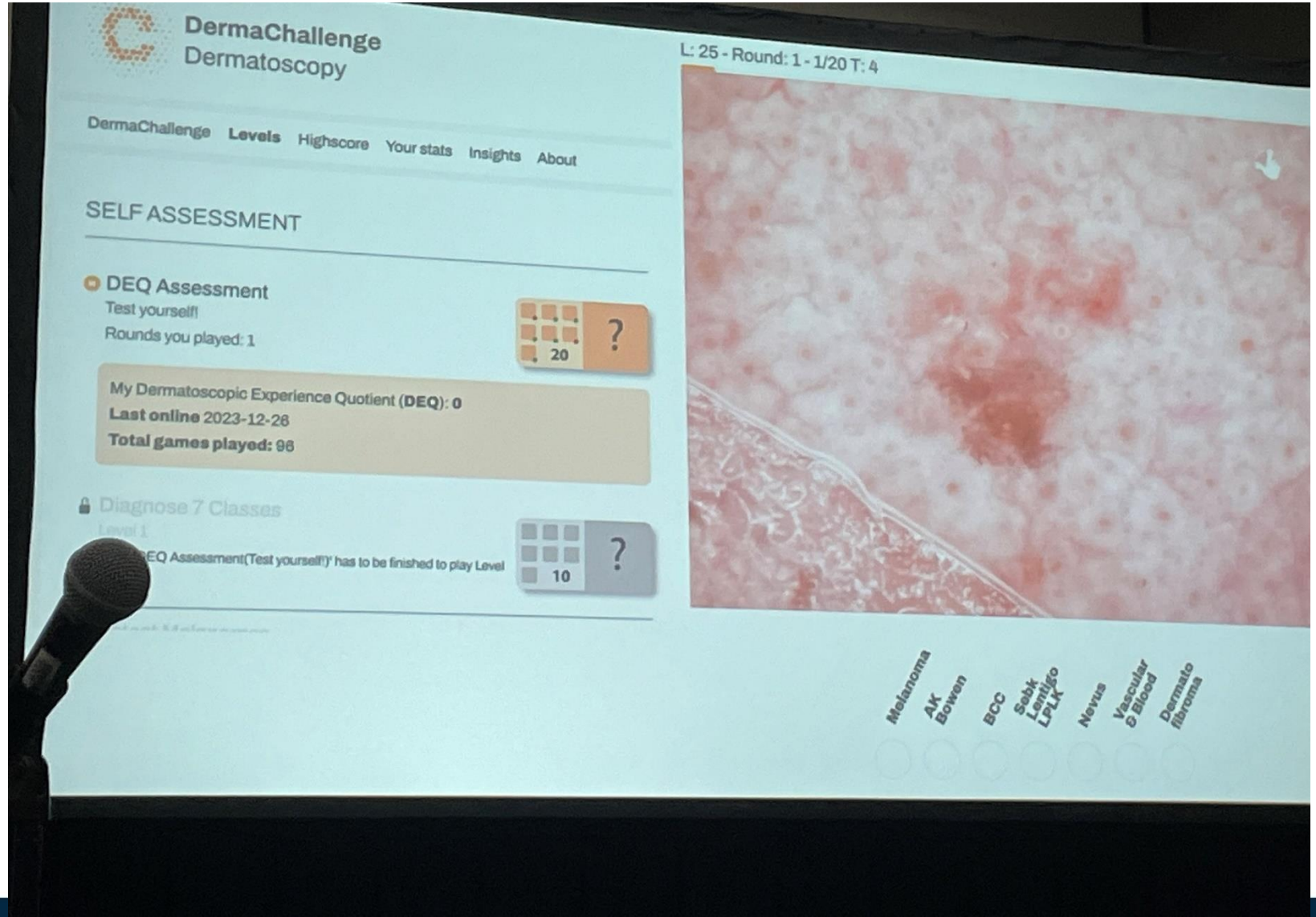
Ejemplos de gamificación



Gamificación en dermatoscopia



Gamificación en el congreso AAD

Gamificación

Gamification / Game-base learning

- Paradigm shift in education:
  - Traditional – textbook model / memorization of data
  - Comprehensive curriculum with integration and flexible learning
- Multifactorial: generational change, new technologies, etc.
- Comprehensive curriculum has shown to improve motivation, learning, and retention of students.
- These 'comprehensive curriculum' include the use of 'games' to deliver knowledge

Rationale: Video games are able to capture the attention of players and generate an intense and lasting commitment →more enjoyable and engaging teaching & learnin

Clin Exp Dermatol 2023 Aug 25;48(9):962-967

Gamificación

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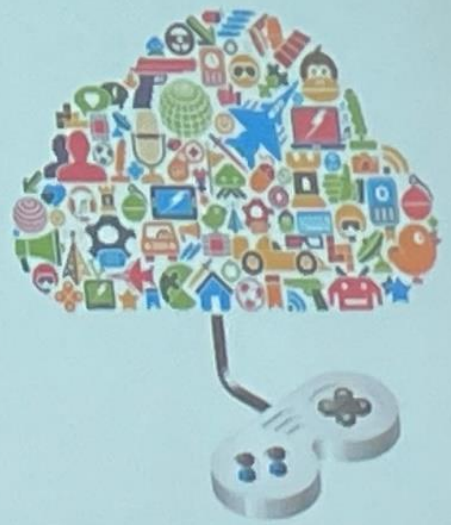
GBL: evidence in education

Review

Effects of Gamification on Behavioral Change in Education: A Meta-Analysis

Jihoon Kim [1] and Darla M. Castelli [2,*]

- 1 meta-analysis and 1 systematic review:
  - Improvement in the students' attitude, engagement and performance
  - Increased motivation and learning compared with students using non-gamified strategies



Int. J. Environ. Res. Public Health 2021, 18(7), 3550

Gamificación

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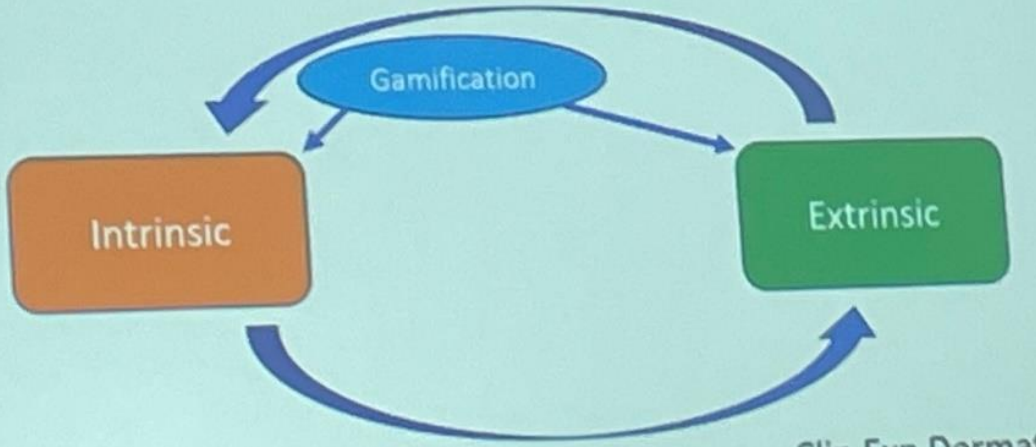
Reasons? The Self determination theory

- Motivation for learning is driven by intrinsic and extrinsic motivation.
  - Extrinsic motivation: external experiences or elements → A good teacher, a good game, colors, lights, etc.
  - Intrinsic motivation: the 'will' to learn by itself → the "entertaining experience" of gaming
- Intrinsic motivation is the main driver for learning --- but!
  - With enough extrinsic motivation a student can induce intrinsic motivation
- Game-based learning can foster extrinsic (external stimulus) and intrinsic (second step) motivation
- Not everything is perfect: gaming can lead to frustration (against intrinsic motivation)



Clin Exp Dermatol 2023 Aug 25;48(9):962-967

Gamificación

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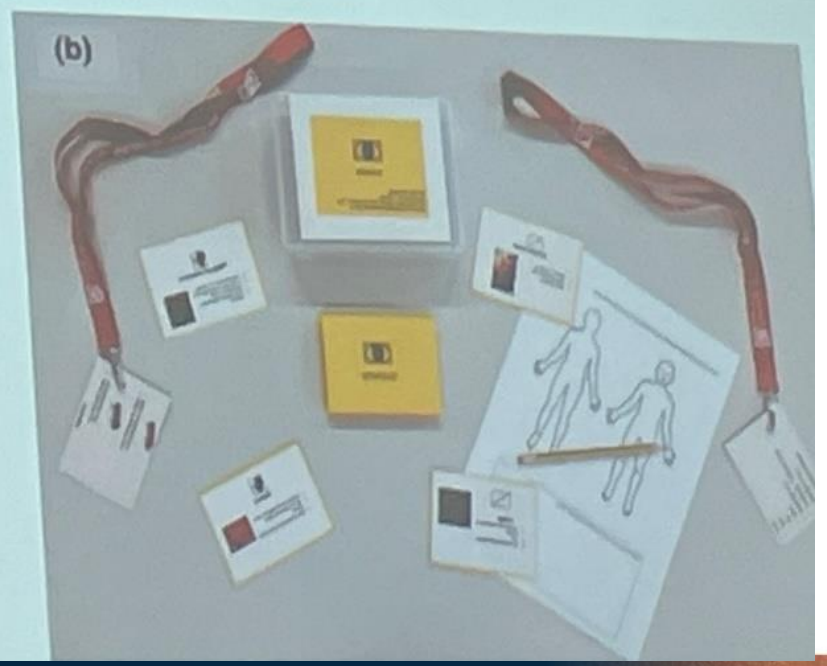
Gamified learning in dermatology and dermoscopy education: a paradigm shift

Francisca Donoso,[1] Dominga Peirano,[1] Caterina Longo,[2,3] Zoe Apalla,[4] Aimilios Lallas,[5] Natalia Jaimes[6,7] and Cristian Navarrete-Dechent[1,8]

- In dermatology: Fewer studies
- i-DERMIFY: use of cards with images and diagnosis. Students draw or describe skin conditions to their residents/classmates
  - Increase in diagnosis accuracy
- Escape room sessions, etc



Dermatoscopia de muy gran aumento

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Dermatoscopia de muy gran aumento

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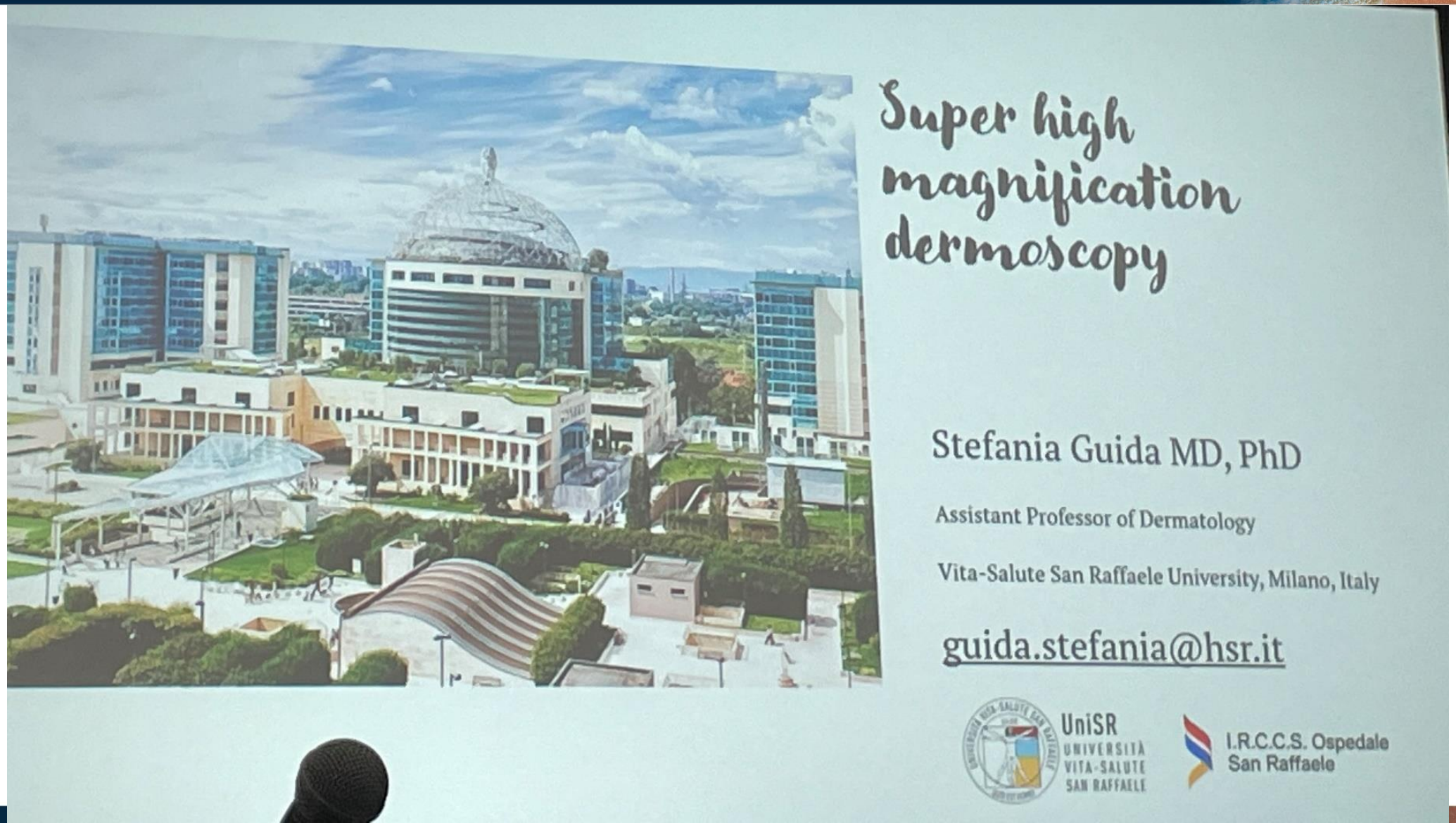
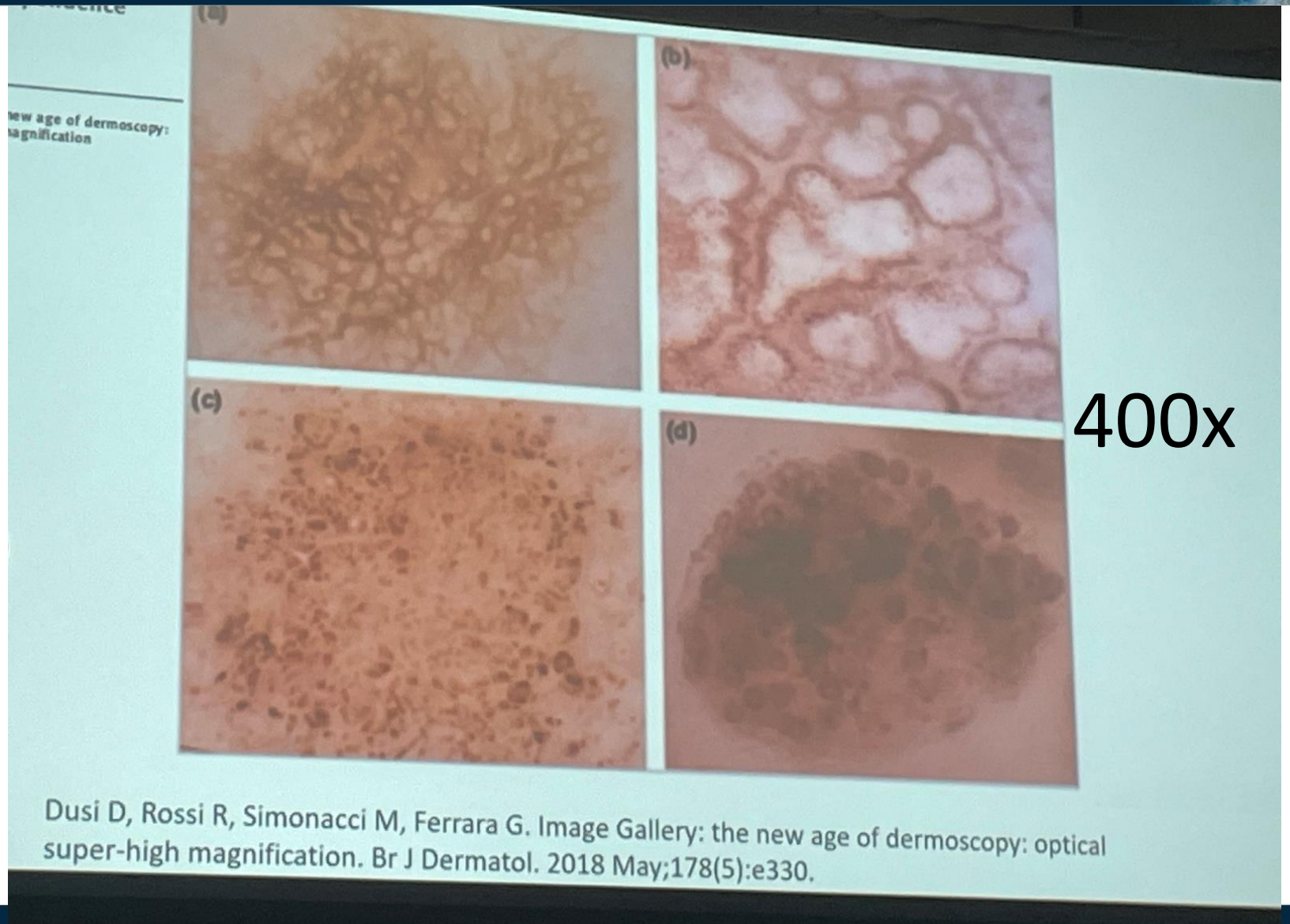


Dermatoscopia de muy gran aumento



Dermatoscopia de muy gran aumento

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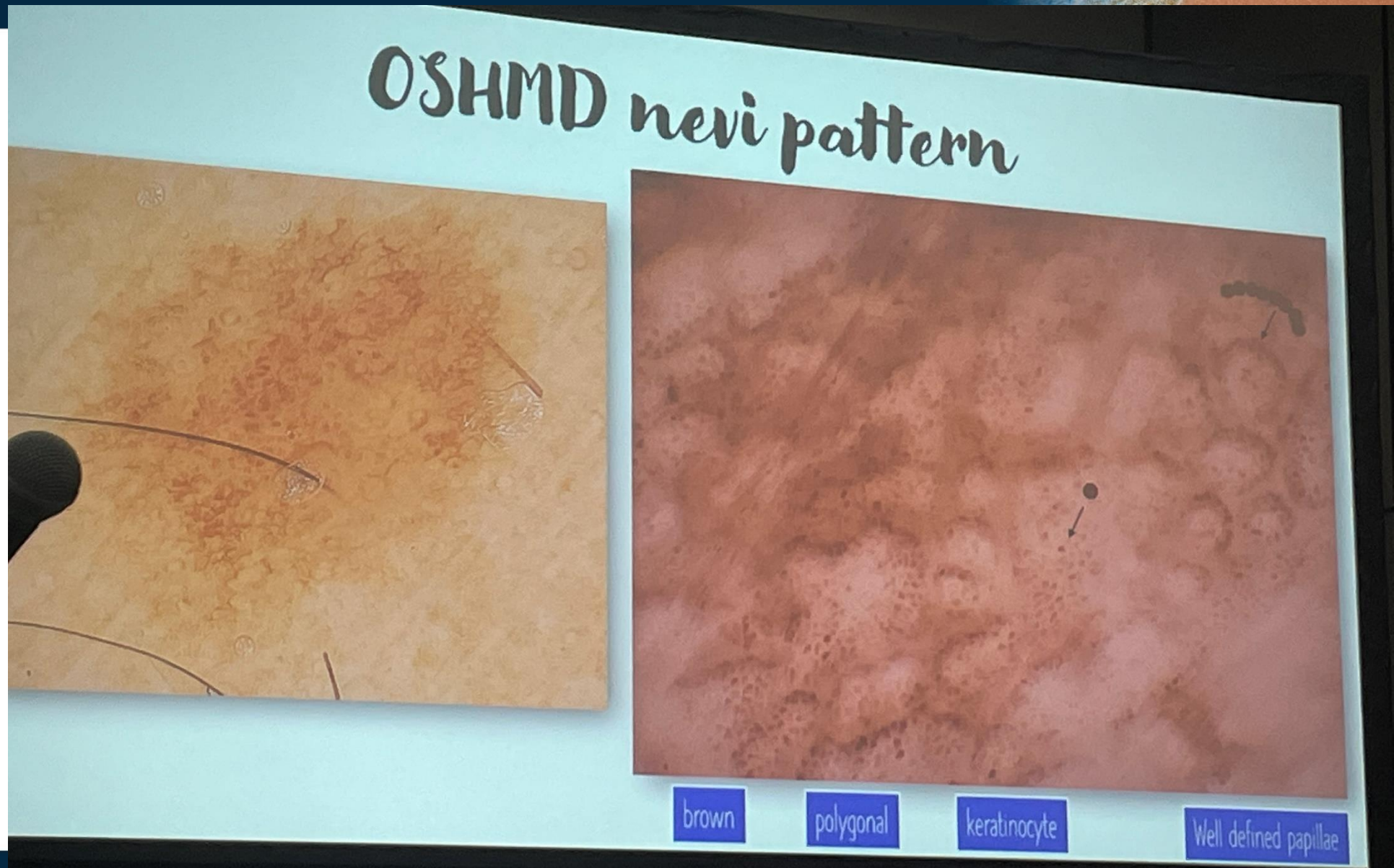
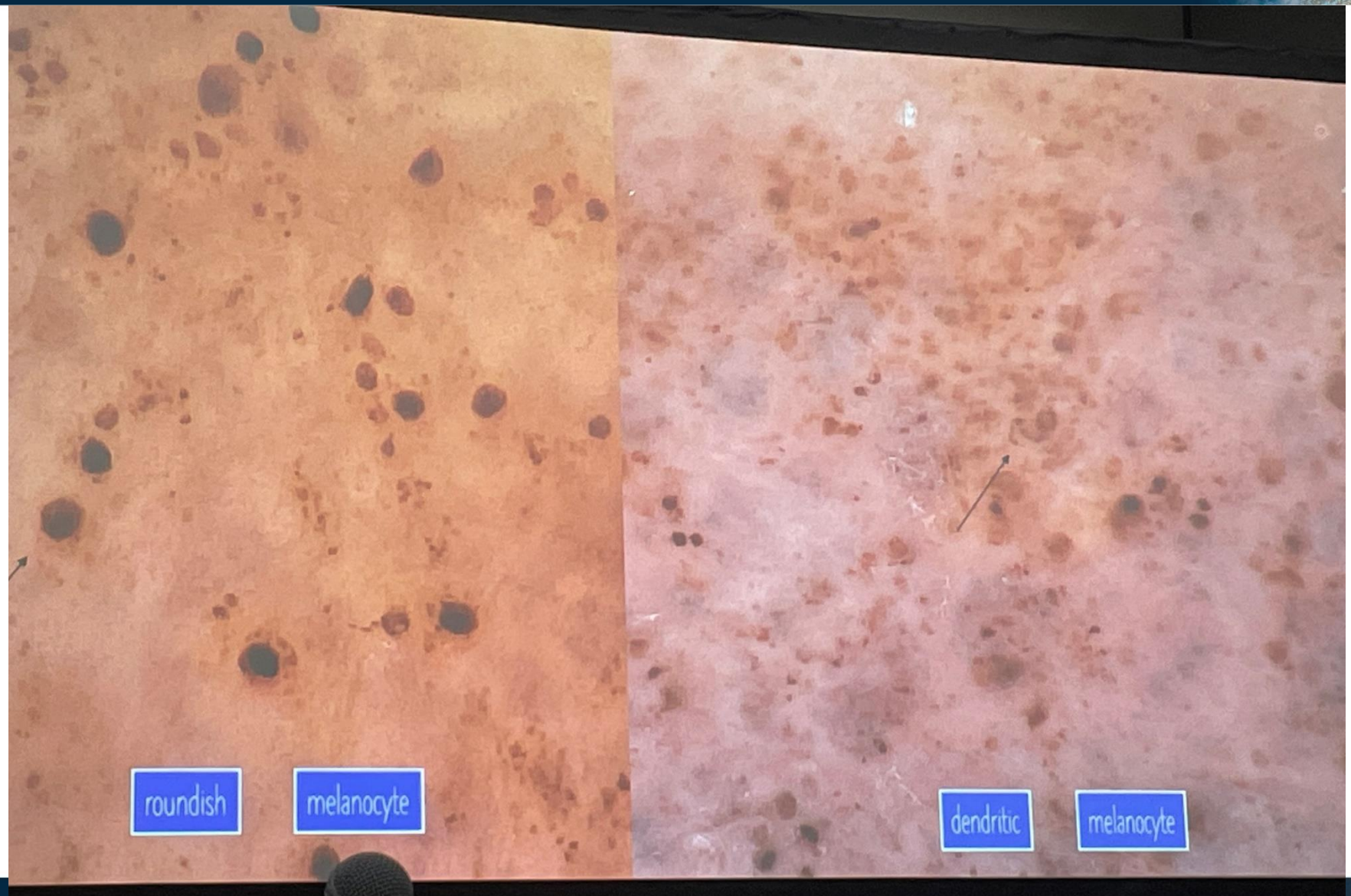
No disponemos de nomenclatura estándar

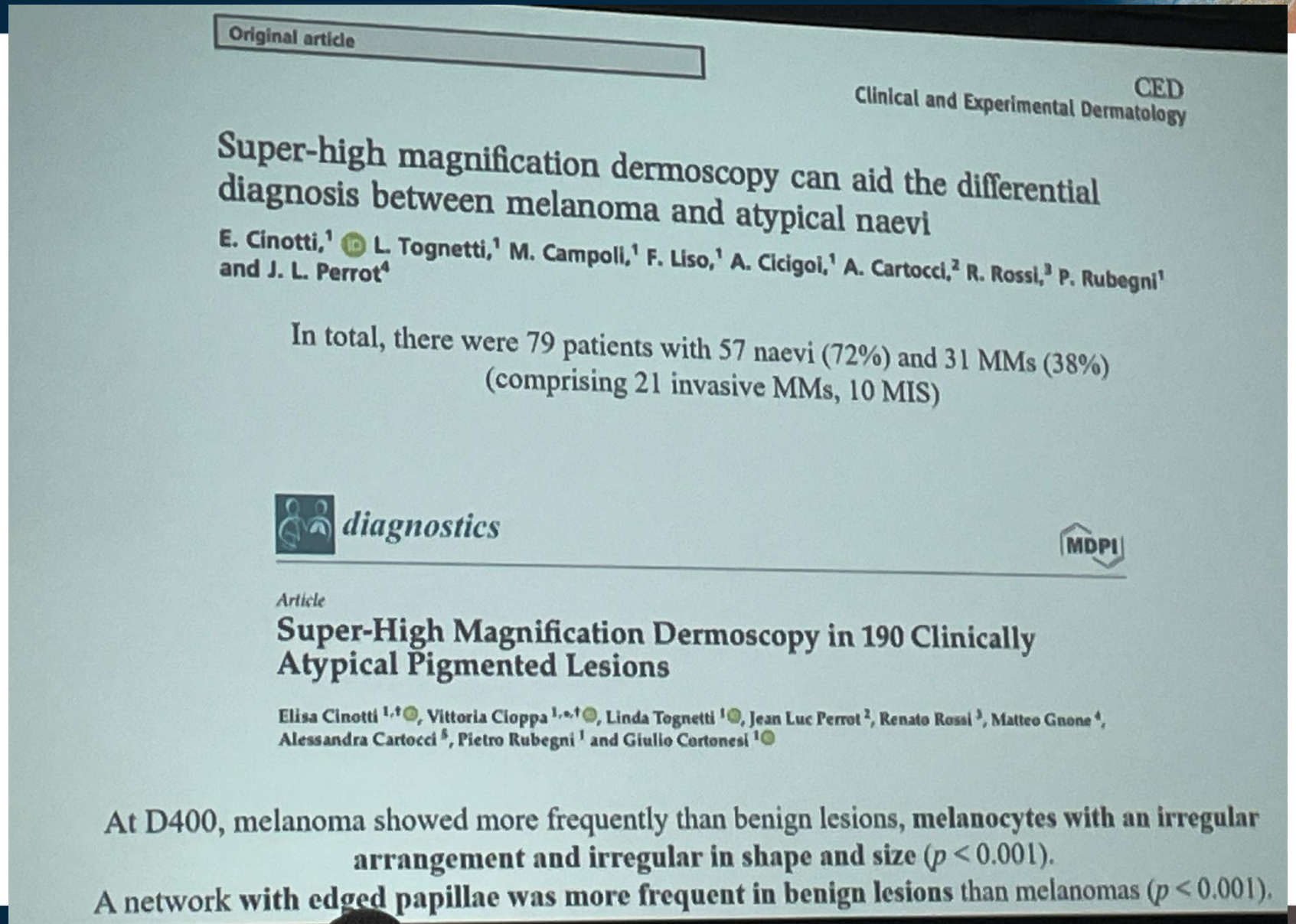


Dermatoscopia de muy gran aumento



Dermatoscopia de muy gran aumento

Pocos estudios de aplicabilidad clínica por el momento



Original article

CED
Clinical and Experimental Dermatology

Super-high magnification dermoscopy can aid the differential diagnosis between melanoma and atypical naevi

E. Cinotti,[1] L. Tognetti,[1] M. Campoli,[1] F. Liso,[1] A. Cicigoi,[1] A. Cartocci,[2] R. Rossi,[3] P. Rubegni[1] and J. L. Perrot[4]

In total, there were 79 patients with 57 naevi (72%) and 31 MMs (38%) (comprising 21 invasive MMs, 10 MIS)

diagnostics

MDPI

Article

Super-High Magnification Dermoscopy in 190 Clinically Atypical Pigmented Lesions

Elisa Cinotti [1,†], Vittoria Cioppa [1,*,†], Linda Tognetti [1], Jean Luc Perrot [2], Renato Rossi [3], Matteo Gnone [4], Alessandra Cartocci [5], Pietro Rubegni [1] and Giulio Cortonesi [1]

At D400, melanoma showed more frequently than benign lesions, **melanocytes with an irregular arrangement and irregular in shape and size** ($p < 0.001$).

A network **with edged papillae was more frequent in benign lesions** than melanomas ($p < 0.001$).

Apps, teledermatología e IA

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Smartphone apps in Teledermatology and AI

George Han, MD, PhD

Director of Clinical Research and Teledermatology,
Northwell Health Dermatology

Associate Professor
Zucker School of Medicine at Hofstra / Northwell

SkinVision

- 3.5 million uses (instances) globally
- Over 1.8 million users
- Over 50,000 skin cancers detected
- Worldwide team including Dan Siegel from SUNY Downstate

J Eur Acad Dermatol Venereol. 2020 Mar;34(3):648-655. doi: 10.1111/jdv.15915. Epub 2019 Oct 8.

Accuracy of a smartphone application for triage of skin lesions based on machine learning algorithms

A Udrea [1,2], G D Mitra [2], D Costea [1,2], E C Noels [3], M Wakkee [3], D M Siegel [4,5], T M de Carvalho [3], T E C Nijsten [3]

Affiliations + expand

PMID: 31494981 DOI: 10.1111/jdv.15915

Validation of a Market-Approved Artificial Intelligence Mobile Health App for Skin Cancer Screening: A Prospective Multicenter Diagnostic Accuracy Study

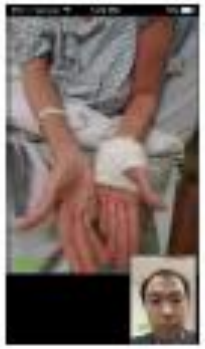
SkinVision

- Training set of 131,873 images from 31,449 users (not biopsy-confirmed)
- Reported sensitivity is 95% (93% for melanoma, 97% for NMSC) and specificity is 78.3%
- Another study showed sensitivity of 86.9% sensitivity and 70.4% specificity
  - How similar is the test set to the training set?
- For reference, a training program in Europe for PMD's reported sensitivity of 79% with dermoscopy and specificity of 71%
- What's the catch?
  - Spot checks only
  - Output is: low, low + symptoms, or high
  - Reports of focus issues affecting iPhone 11 through 13

Pfiddermann A, Heneghan C, Thompson M, Wolstenholme J, Price CP. Dermoscopy for the diagnosis of melanoma: primary care diagnostic technology update. Br J Gen Pract. 2011 Jul;61(587):416-7.

Where are we now with telederm?

- Still relying on ancient technology on encrypted video signals

Gran problema de TD:
- Mala calidad de imagen

IA para mejorar calidad de imagen

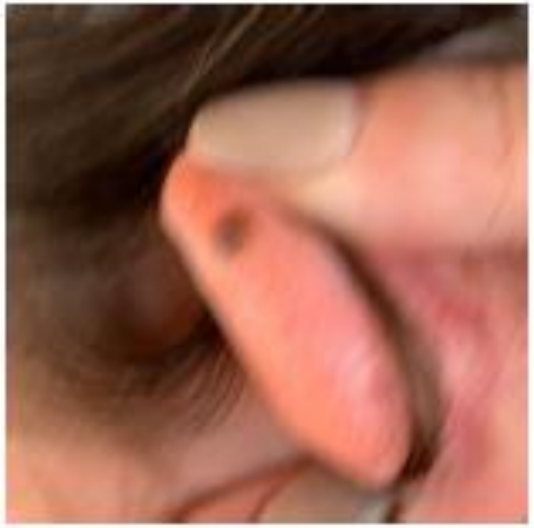
AI can help with image capture

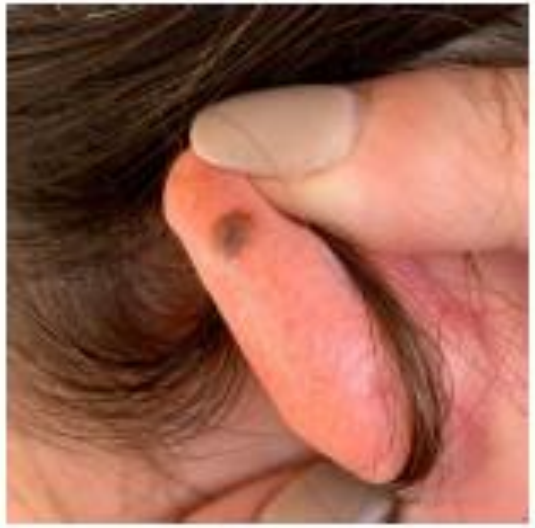
- The corollary to image quality verification for virtual check deposits
  - One of the fastest growing sectors in banking technology, generating revenues of around $250 million
- What image variables can we improve?
  - Viewpoint
  - Focus
  - Background
  - Lighting

IA para mejorar calidad de imagen

Focus

- Image not captured until in focus and not blurry
  - Deblurring filters can also be applied





IA para mejorar calidad de imagen

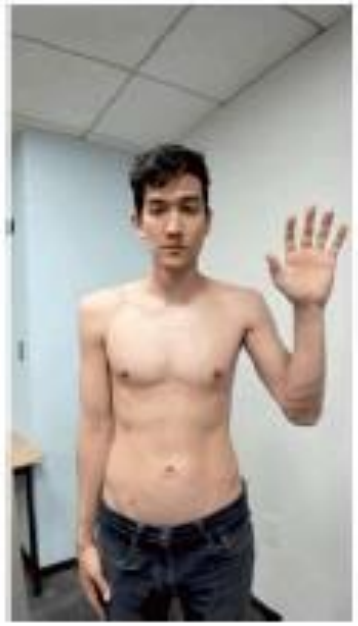
Lighting

- Image not captured until lighting optimized

IA para mejorar calidad de imagen

Viewpoint

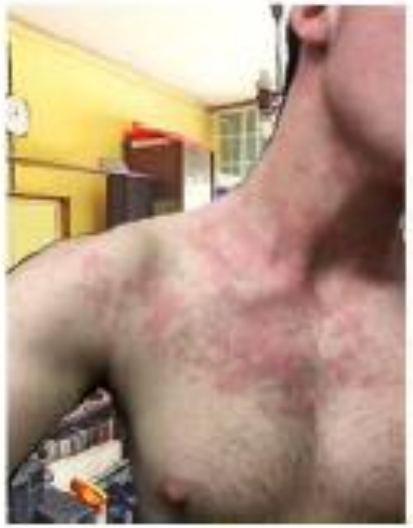
- Consistent poses can be captured via tracking previous picture poses

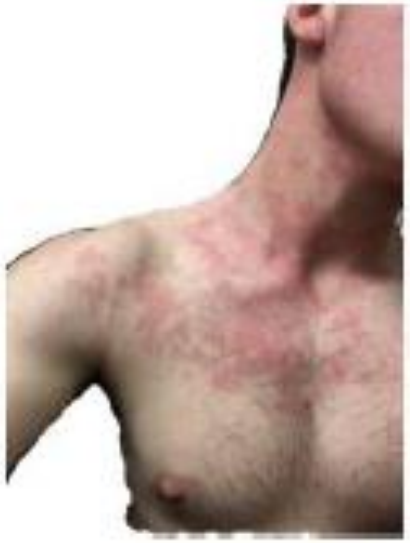


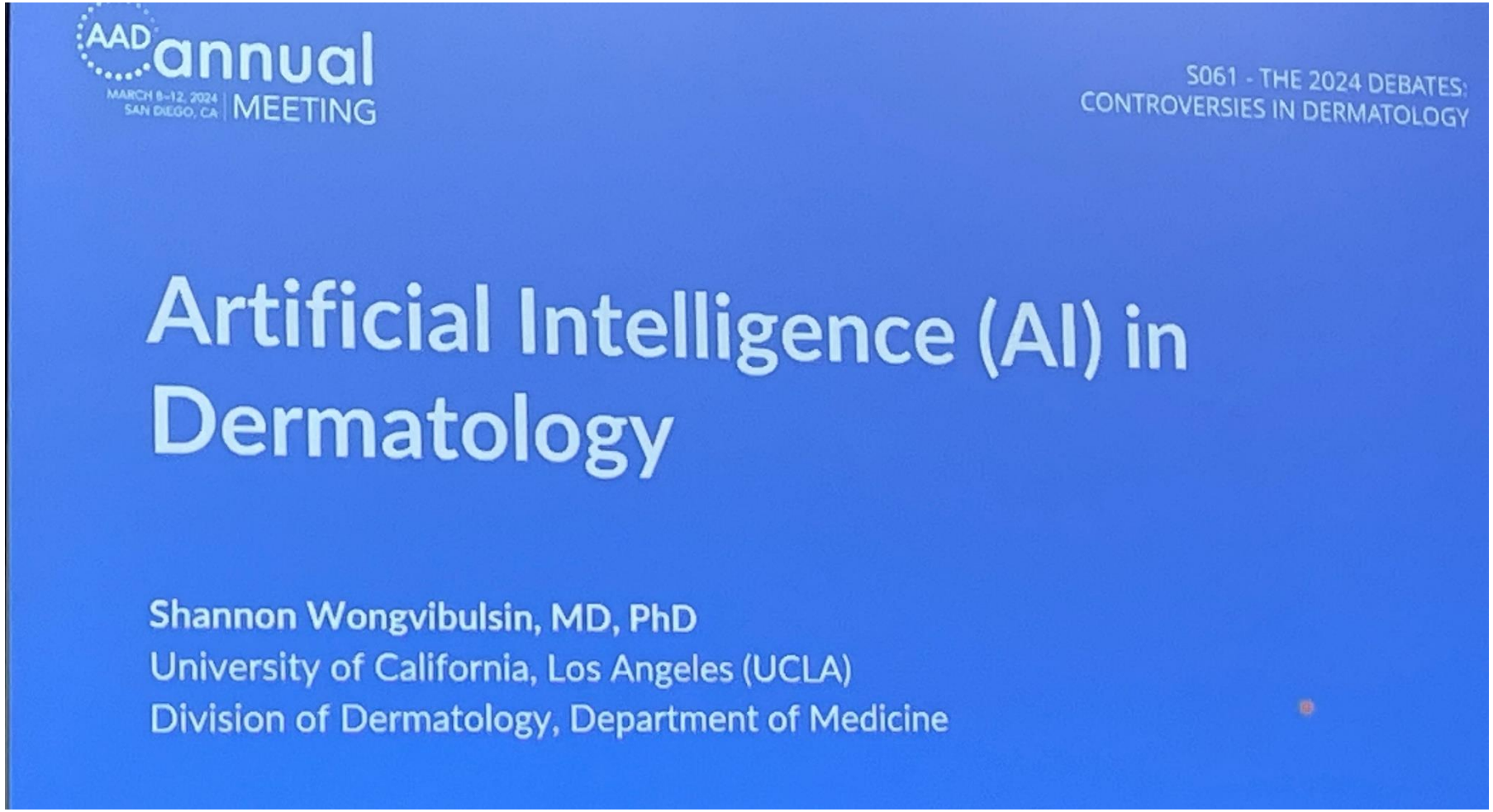
IA para mejorar calidad de imagen

Background

- Automatic background removal, focuses on the problem and not a noisy/distracting background






AAD annual MEETING
MARCH 8–12, 2024
SAN DIEGO, CA
S061 - THE 2024 DEBATES:
CONTROVERSIES IN DERMATOLOGY
Artificial Intelligence (AI) in Dermatology
Shannon Wongvibulsin, MD, PhD
University of California, Los Angeles (UCLA)
Division of Dermatology, Department of Medicine

Problemas con la IA actualmente

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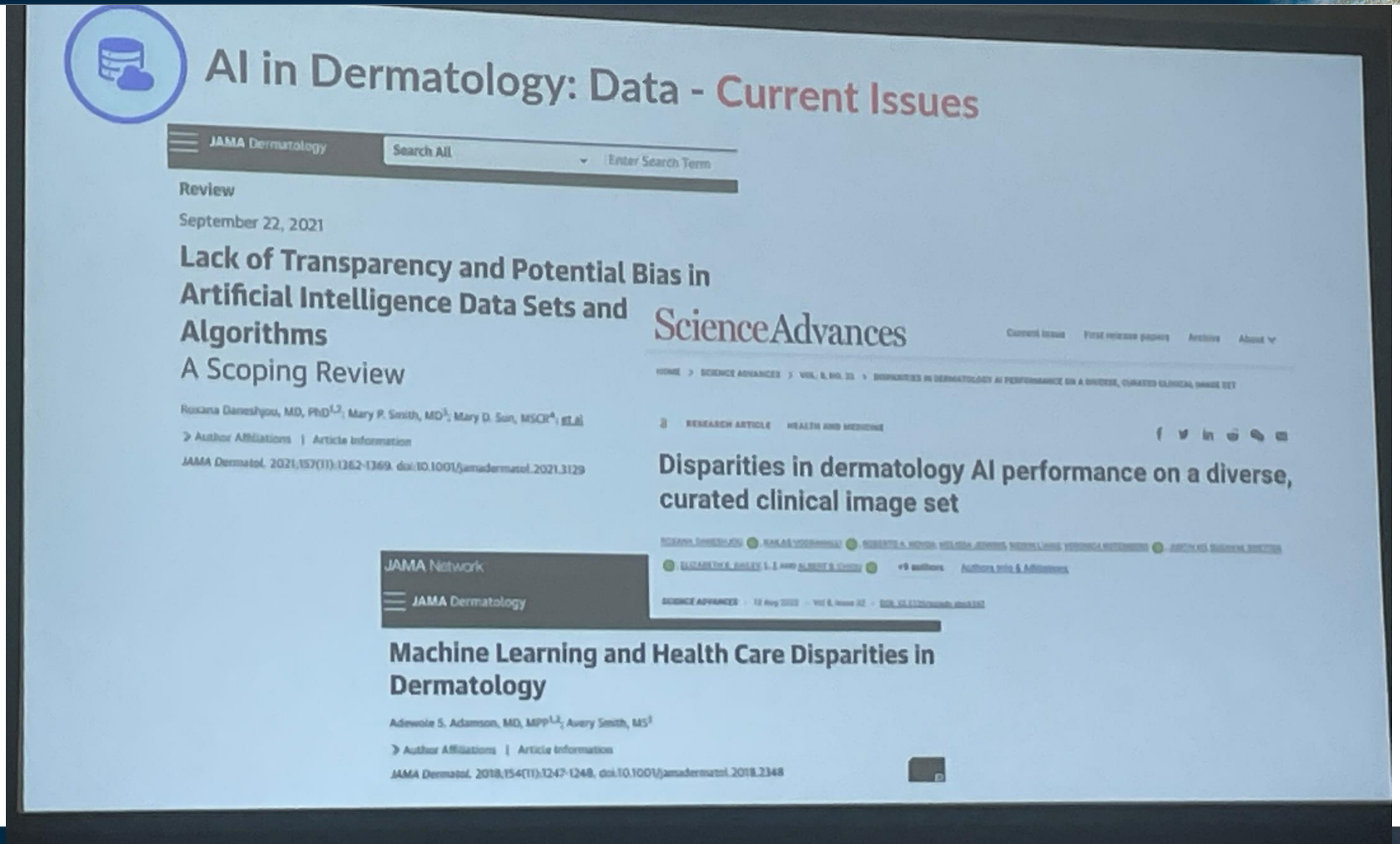
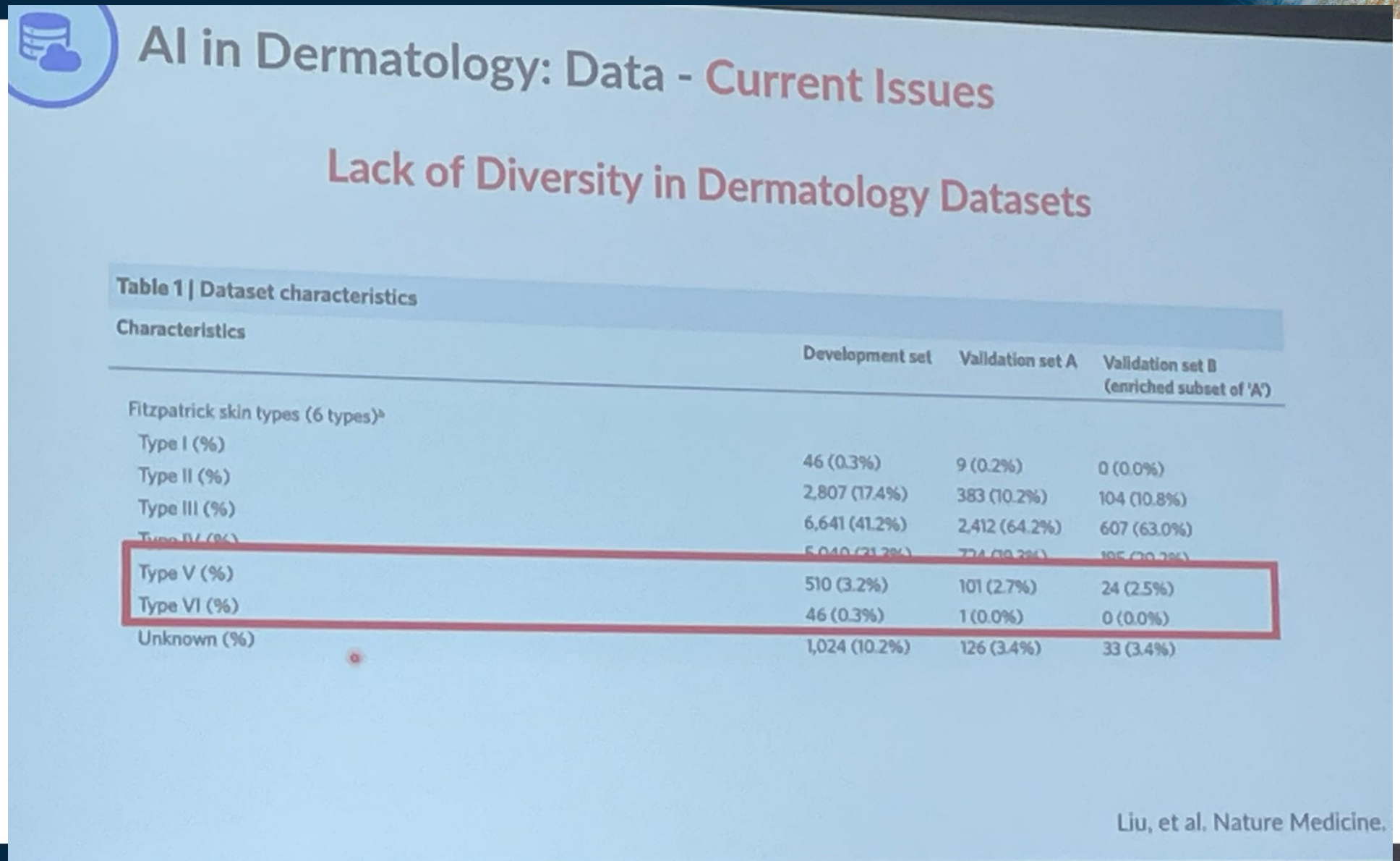


Problemas con la IA actualmente



AI in Dermatology: Data - Current Issues

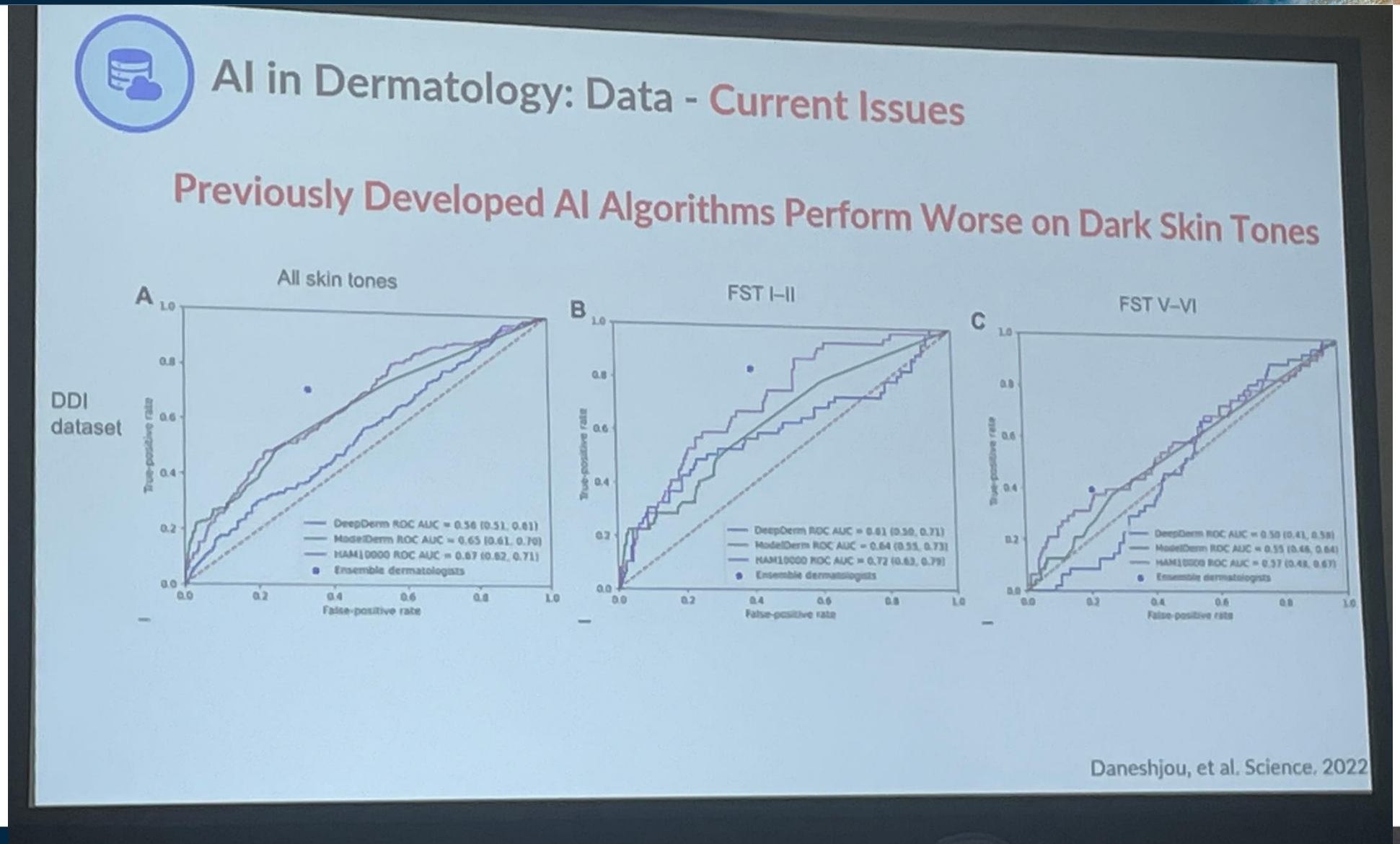
Lack of Diversity in Dermatology Datasets

Table 1 | Dataset characteristics

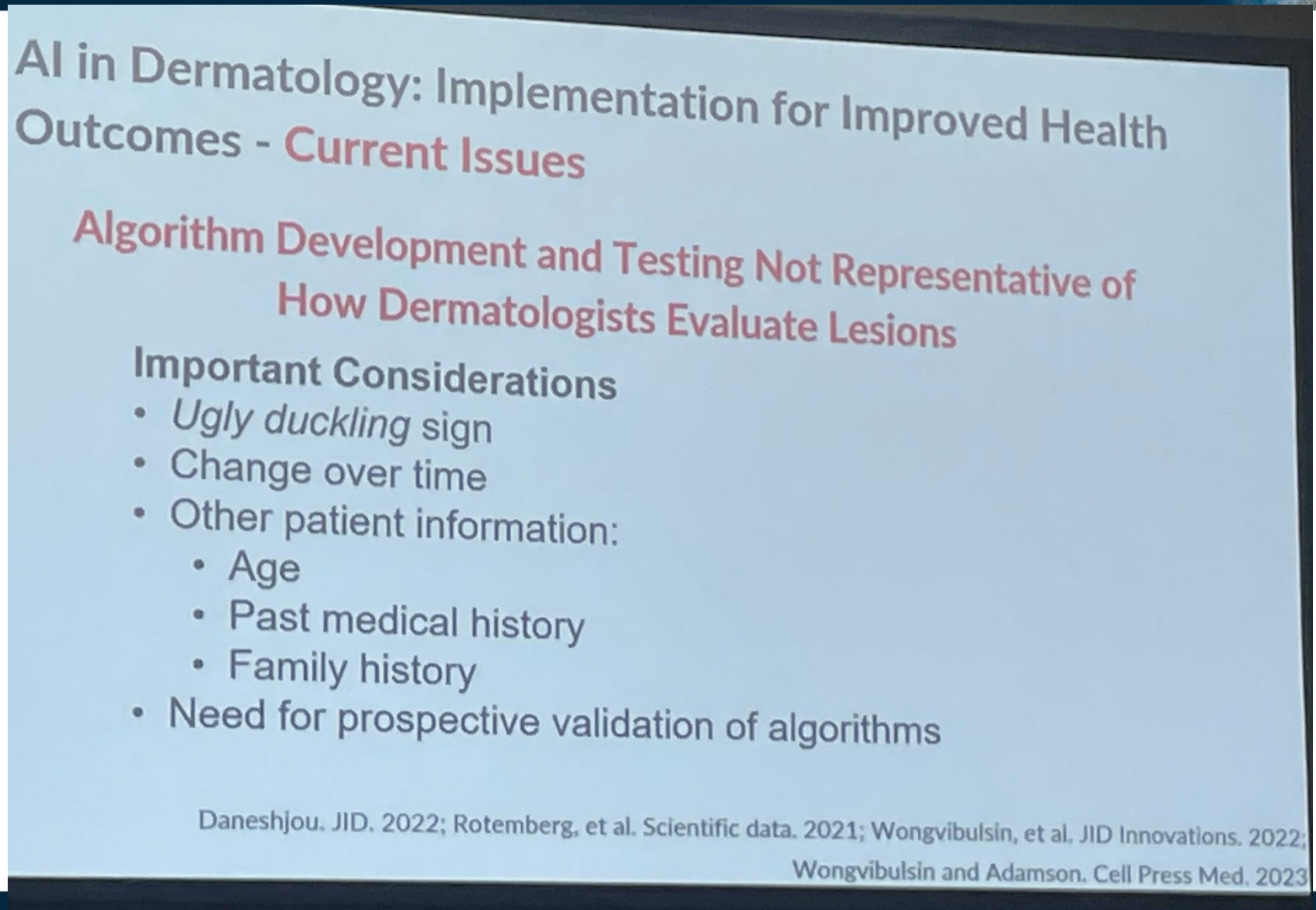
Characteristics	Development set	Validation set A	Validation set B (enriched subset of 'A')
Fitzpatrick skin types (6 types)[b]			
Type I (%)	46 (0.3%)	9 (0.2%)	0 (0.0%)
Type II (%)	2,807 (17.4%)	383 (10.2%)	104 (10.8%)
Type III (%)	6,641 (41.2%)	2,412 (64.2%)	607 (63.0%)
Type IV (%)	5,040 (31.2%)	724 (19.3%)	195 (20.2%)
Type V (%)	510 (3.2%)	101 (2.7%)	24 (2.5%)
Type VI (%)	46 (0.3%)	1 (0.0%)	0 (0.0%)
Unknown (%)	1,024 (10.2%)	126 (3.4%)	33 (3.4%)

Liu, et al. Nature Medicine.

Problemas con la IA actualmente



Problemas con la IA actualmente



Recomendaciones para la IA en dermatología

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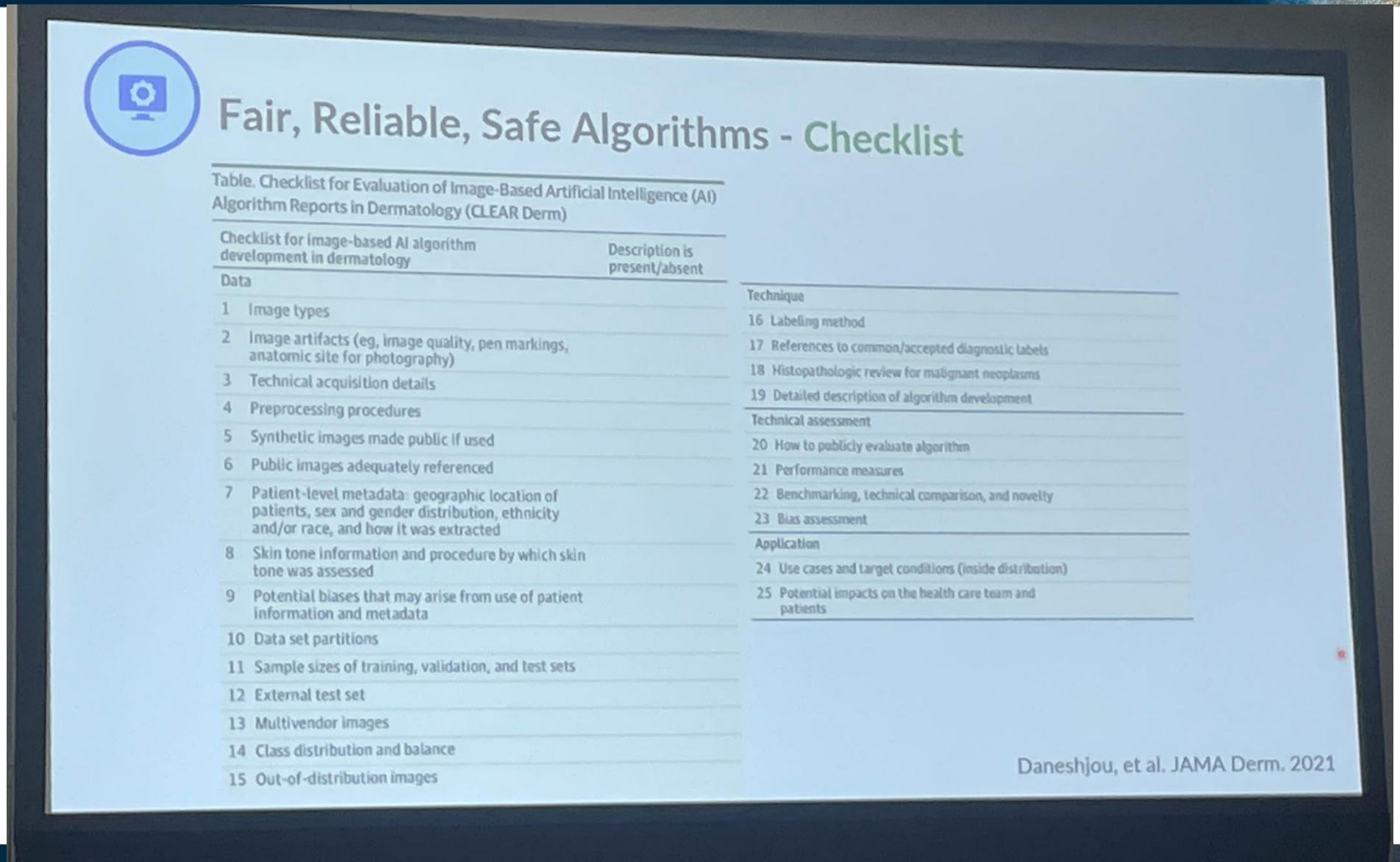

Recomendaciones para la IA en dermatología

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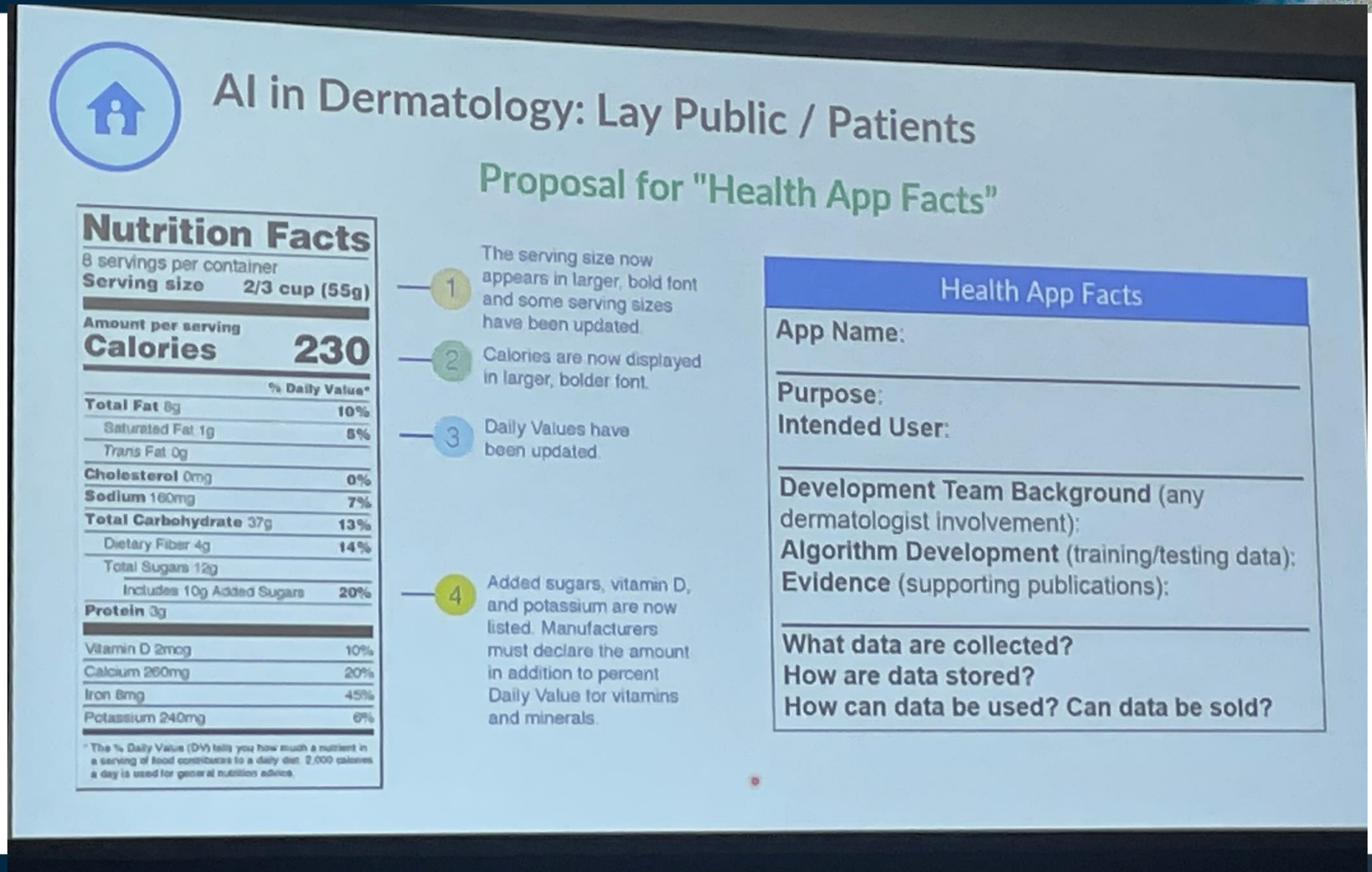

Pósteres

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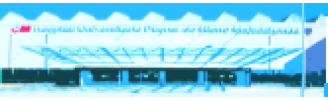
TREATMENT OF HIDRADENITIS SUPPURATIVA FISTULAS WITH INTRALESIONAL CRYOTHERAPY GUIDED BY CUTANEOUS ULTRASOUND: A PROSPECTIVE DESCRIPTIVE STUDY



Francisco José Rodríguez-Cuadrado, Juan Luis Castaño-Fernández, Victoria Ortiz-Berciano, Gaston Roustan-Gullón, Fernando Alfageme-Roldán
Dermatology Department. Hospital Universitario Puerta de Hierro Majadahonda (Madrid)

Disclosures: There is no conflict of interest or funding related to this study.

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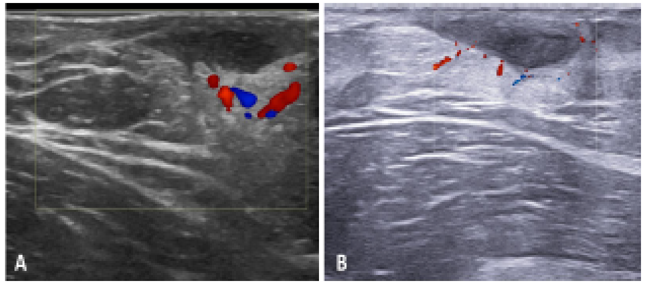
Comunidad de Madrid

OBJECTIVES AND METHODS

Hidradenitis suppurativa (HS) is a chronic inflammatory disease characterized by the presence of nodules, abscesses and fistulas, of multifactorial etiopathogenesis and affecting mainly the hair follicle and apocrine glands of the axillae, groin and perianal region. Treatment is based on topical and systemic drugs as well as physical therapies (mainly surgery). (1,2)

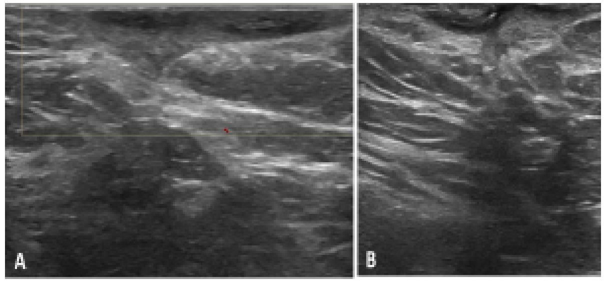
In order to reduce the morbidity associated with surgical interventions, alternative methods of treatment of advanced lesions need to be developed, among which intralesional cryotherapy may have a role.

Four cases of HS fistulas are presented, belonging to three different patients, treated with ultrasound-guided intralesional cryotherapy using conventional cryotherapy equipment with disposable needle adapter. The clinical and epidemiological data of the patients are collected, as well as the ultrasound data of the target lesion prior to treatment (type of fistula according to the Martorell et al. classification (3), location, size of the major axis, vascularization in Doppler). Subsequently, in the control visit, a new ultrasound is performed to evaluate the response objectively, and the possible complications derived from the procedure are characterized.



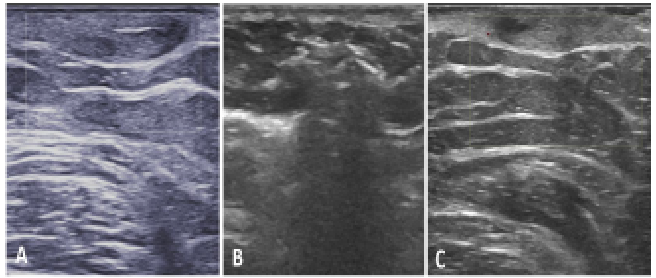
Patient 1, lesion 1: 44-year-old male, Hurley III, IHS4 8, on treatment with adalimumab 80mg every 3 weeks. Type A fistula in the right axilla.

A) 16.4 mm of major axis and high vascularization prior to treatment.
B) Discrete increase in size (19.8 mm) but less vascularization at 6 weeks.



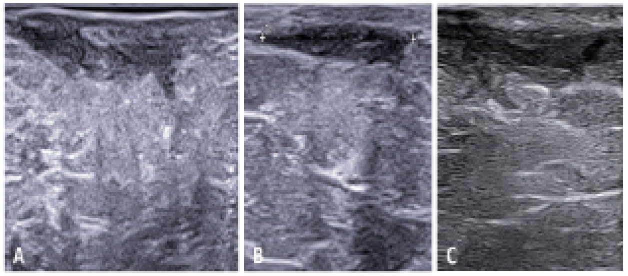
Patient 1, lesion 2: 44-year-old male, Hurley III, IHS4 8, on treatment with adalimumab 80mg every 3 weeks. Type A fistula in left axilla.

A)13.9 mm of major axis and absence of vascularization prior to treatment.
B)Subcutaneous emphysema at 24 hours, with resolution in 1 week.
C)Reduction in size (7.2 mm) and absence of vascularization at 6 weeks.



Patient 3, lesion 3: 42-year-old female, Hurley III, IHS4 4, on treatment with secukinumab 300mg every 2 weeks. Type A fistula in the right axilla.

A) 24.4 mm of major axis and absence of vascularization prior to treatment.
B) Great reduction in size (1.5 mm) and absence of vascularization at 9 weeks.



Patient 4, lesion 4: 49-year-old woman, Hurley III, IHS4 8, with no systemic treatment. Type B fistula in left buttock.

A) 30.3 mm of major axis and moderate vascularization prior to treatment.
B) Reduction in size (18.2 mm) and less vascularization at 5 weeks.
C) Worsening with perilesional cellulitis at 12 weeks.

DISCUSSION Y CONCLUSIONS

Ultrasound in HS has proven its usefulness in HS in several aspects. Firstly, it allows the diagnosis and characterization of the lesions in a more precise way than what can be observed at the clinical level: pseunodules, fluid collections or abscesses, fistulous tracts (4,5). In addition, it achieves a better classification of the severity of the situation, since clinical assessment tends to underestimate the disease. (5,6) Finally, ultrasound often points to a change in therapeutic management, either by the aforementioned reclassification of severity or by the adequate characterization and definition of the depth of fistulas and their consequent expected response to medical treatment. (3,5)

The use of cryotherapy in HS has been described as an effective therapy in persistent nodules, with a good response rate, but with significant pain and possible delay in the healing of secondary skin ulceration. (7,8) Likewise, there are studies on the use of intralesional cryotherapy, with techniques similar to the one presented here. Intralesional cryotherapy of fistulas through the use of a sterile needle as an adapter of the equipment may constitute an effective option, although the risk of air embolism due to inadequate positioning of the needle makes it advisable to apply liquid nitrogen through a cannula instead of a needle. (9,10) Another option with good results and few complications is the drainage of abscesses through a 4-5 mm punch and subsequent application of cryotherapy using the punch itself as an adapter (11).

It seems that the use of intralesional cryotherapy could constitute a safe and effective option in the treatment of HS fistulas, especially in those more accessible and of less complexity, such as type A of the Martorell et al. classification (3) The performance of the technique under ultrasound control increases the safety of the procedure reducing the risk of air embolism, and the ultrasound evaluation before and after the treatment allows a better evaluation of the response.

American Academy of Dermatology
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MARCH 8–12, 2024
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REFERENCES

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The Use of High Frequency Ultrasound In Preoperative Melanoma Measurements

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Methods

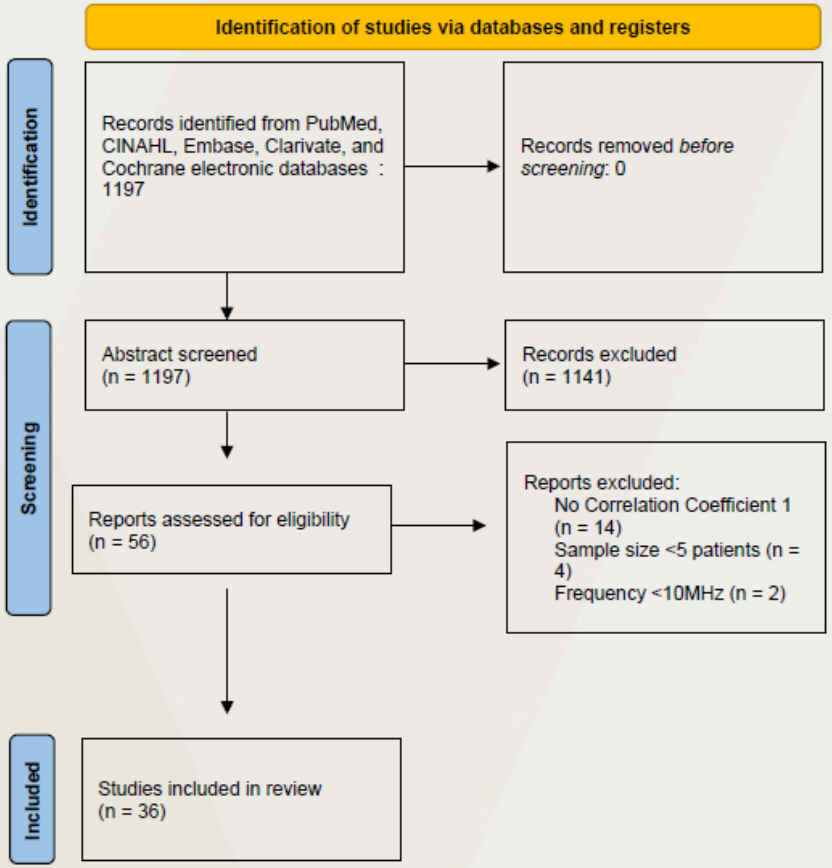
- Meta-analysis
  - Searched English-language publications in *PubMed, CINAHL, Embase, Clarivate, and Cochrane* electronic databases (March 2023)

- 1197 initially identified articles → 36 studies included

Inclusion criteria:

1) Patients received pre-operative HFUS (≥10MHz) melanoma measurements
2) Melanoma biopsy or excision performed
3) Reported tumor depth correlation coefficient between HFUS + histopathology

PRISMA



Results

Correlation coefficients between HFUS + histopathology range:

0.417 - 0.997

(Median 0.94, Mean 0.89, SD 0.13)

<20MHz mean correlation coefficient **0.87**

20-25MHz mean correlation coefficient **0.94**

≥70MHz mean correlation coefficient **0.98**

↑ HFUS accuracy in thicker melanomas (≥0.75mm)

HFUS may report ↑ depth compared histopathology

Conclusion and Future Direction

- HFUS serves as a valuable supplementary tool for preoperative melanoma assessment
- HFUS has increased accuracy in thicker tumors
- Frequencies <20MHz are less reliable in assessing tumor depth
- Frequencies ≥70MHz have stronger correlations with histopathology

Prospective studies to systematically collect data, evaluating the effectiveness and reliability of HFUS as a complementary tool alongside standard care.

References:

Thank you to Dr. Powers, Dr. Tkaczyk, Dr. Topf, Dr. Chen, Dr. Ghosh, and Andrea Lopez

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Artificial intelligence algorithms for the automated detection and depth measurement of basal cell carcinoma in RCM-OCT images: a pilot, proof-of-concept study

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Memorial Sloan Kettering Cancer Center

SAN DIEGO 8-12 MARZO

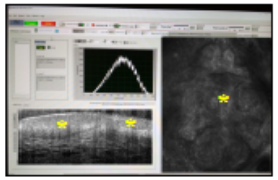
Introduction

Reflectance Confocal Microscopy – Optical Coherence Tomography (RCM-OCT), a combined device, simultaneously images skin in both *en face* and vertical modes. Thus, improves sensitivity and specificity to detect basal cell carcinoma (BCC) *in vivo*[1,2].

RCM-OCT device

2 simultaneous views:

OCT view (left)
RCM view (right)
(Yellow *) BCC nodules



Goals & Aims

Goal: to build an automated platform for detection and depth measurement of BCC in RCM-OCT images

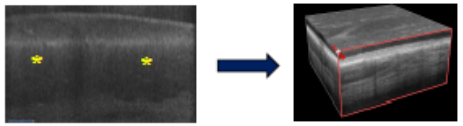
Aim 1: Build AI algorithm for automated detection of BCC and Stratum Corneum (SC) from OCT rasters

Aim 2: Perform blinded analysis to determine if the AI-generated models improve BCC diagnosis from the rasters

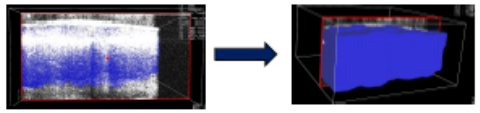
Aim 3: Correlate AI detected tumor depth to corresponding H&E images

Methods

1. Convert video raster of 20 OCTs of BCC to 3D model using AIVIA image analysis software (Leica Microsystems)



2. Annotate BCC in 3D model using H&E images as ground truth (Figs. 1&2)



3. Train AIVIA AI to detect BCC in OCT images

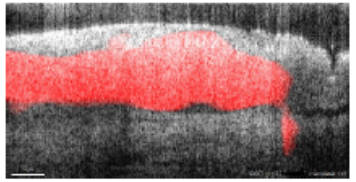
4. Test AI on OCTs of confirmed BCC (n=15), clinical mimickers of BCC (n=28), and of normal skin (n=5) and create AI-generated 3D BCC reconstructions

5. Perform blinded analysis (n=48) by an expert RCM-OCT reader to determine if AI-generated BCC reconstructions improve diagnosis of BCC from OCT images

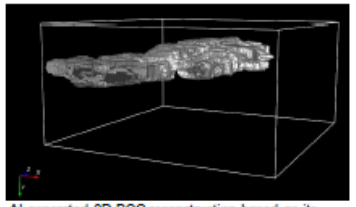
Results

Characteristics of lesions and non-lesional skin imaged with the RCM-OCT device

Cutaneous description	Training data set (n; %)	Test data set (n; %)
Anatomic location		
Head & neck	3; 15	21; 43.8
Upper extremity	5; 25	9; 18.8
Lower extremity	0; 0	2; 4.2
Trunk	12; 60	16; 33.3
Lesion morphology		
Nodular BCC	5; 25	1; 2.1
Superficial BCC	5; 25	1; 2.1
Mixed nodular and superficial BCCC	10; 50	13; 27.1
Seborrheic Keratosis	0; 0	2; 4.2
Dermatofibroma	0; 0	2; 4.2
Sebaceous hyperplasia	0; 0	3; 6.3
Cherry angioma	0; 0	6; 12.5
Intradermal nevus	0; 0	8; 16.7
Atypical squamous proliferation	0; 0	2; 4.2
Desmoplastic trichoepithelioma	0; 0	2; 4.26
Normal skin	0; 0	5; 10.4
Other	0; 0	3; 6.3



AI model's detection of BCC in one frame of the OCT raster at a 95% confidence



AI-generated 3D BCC reconstruction based on its BCC detection in each frame of the OCT raster

Blinded reader analysis

	OCT raster alone		OCT Raster + AI		p-value
	Estimate	95% CI	Estimate	95% CI	
Sensitivity	73.30%	44.9% - 92.2%	86.70%	59.5% - 98.3%	0.10*
Specificity	45.50%	28.1% - 63.6%	48.50%	30.8% - 66.5%	0.76*
Positive Predictive Value	37.90%	20.70% - 57.70%	43.30%	25.50% - 62.60%	0.59*
Negative Predictive Value	78.90%	54.40% - 93.90%	88.90%	65.30% - 98.60%	0.18*
ROC Area	0.594	0.45 - 0.74	0.676	0.55 - 0.80	0.11**
Confidence	4.17	3.82 – 4.52	4.46	4.15 – 4.76	0.029 ***

CI = confidence interval; ROC = Receiver operator characteristic. *Based on the paired test for proportion; **Based on the $X^2_{df=1}$ test. ***Based on the paired t-test.

AI influence on reader's diagnosis	n ; %
Change in correct direction	5; 10.4
Change in incorrect direction	1; 2.1
No influence on diagnosis	42; 87.5
Increased confidence in correct diagnosis	5; 10.4
Increased confidence in incorrect diagnosis	7; 14.6
No change in diagnostic confidence level	31; 64.6

Histology and AI tumor depth measurements

Pearson Correlation	$r^2 = 0.59$, $p = 0.02$

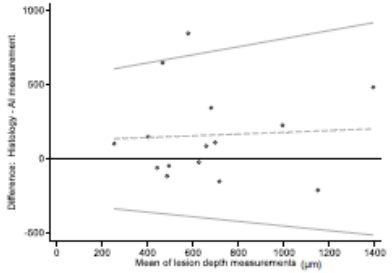
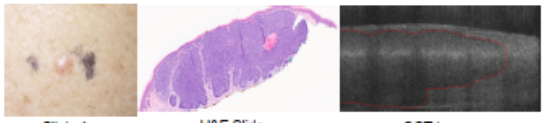


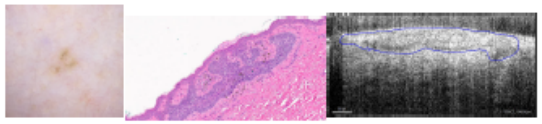
Figure Legend:
Dotted line: regression estimate of mean difference of histologic and AI tumor depths. Solid gray lines: 5% - 95% distribution of means

Nodular BCC (Figure 1)



Clinical | H&E Slide | OCT image

Superficial BCC (Figure 2)



Clinical | H&E Slide | OCT image

Conclusion

- AI-generated BCC models may help aid diagnosis of BCC from OCT rasters and estimate tumor depth measurement. This may help expand the use of the RCM-OCT widely.
- Future studies are warranted using a larger training set sample size and inclusion of novices in the blinded reader study to assess utility for the non-expert readers.

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Acknowledgements

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AAD ANNUAL MEETING AEDV highlights

SAN DIEGO 8-12 MARZO

Basal Cell Carcinoma Follow Up: A Prospective Study

Isabella Dana, BS; Rozina Zeidan, BA; Miguel Cordova, MD; Larissa Pastore, BS; Megan Bielawa, PA-C; Aditi Sahu, PhD; Stephen Dusza, DrPH, MPH; Ashfaq Marghoob, MD

All authors have no relationships to disclose
No commercial disclosures

March 9th, 2024

Memorial Sloan Kettering Cancer Center

Introduction

- Basal cell carcinoma (BCC) has an incidence of 3-4 million cases per year
- Individual and collective growth dynamics of BCCs remain poorly elucidated
- Decisions regarding active surveillance versus intervention requires knowledge about both their horizontal and vertical growth dynamics
- Dermoscopy and reflectance confocal microscopy (RCM) are useful tools for diagnosis
- ***Study aim:*** follow BCCs over 3 years to investigate their horizontal and vertical growth

1. Rogers HW, Weinstock MA, Feldman SR, et al. *JAMA Dermatol.* 2015;151(10):1081–1086
2. Wehner MR, Dalma N, Landefeld C, et al. *Br J Dermatol.* 2018 Sep;179(3):767-768
3. Guitera P, Menzies SW, Longo C, et al. *J Invest Dermatol.* 2012 Oct;132(10):2386-2394

Methods

In this ***prospective study***, 16 patients (9 female, 7 male) were enrolled and contributed 20 lesions

Visit 1 – confirm BCC diagnosis using combined RCM-optical coherence tomography (OCT) device

Every 3 months thereafter – diameter and depth were measured using non-contact polarized dermoscopy and combined RCM-OCT respectively

Inclusion criteria:

- Lesions meet clinical, dermoscopic, and RCM criteria for BCC
- ≤1.5 cm in diameter and ≤ 0.6 mm in depth
- Location on trunk or extremities
- Superficial and early nodular BCC subtypes

Exclusion criteria:

- Immunosuppression, genetic syndromes predisposing to cancer
- ≥ 1.5 cm in diameter or ≥ 0.6 mm in depth
- Location on the face

Excision criteria:

- ≥2 cm in diameter or ≥ 0.8 mm in depth
- Lesion worsens clinically (enlarges rapidly or becomes bothersome)

Results

- Mean patient age = 67.1 years (SD=9.7)
- Median follow up = 180 days (IQR=280)
- Modest correlation between diameter and depth, ρ=0.29
- One BCC grew rapidly, ulcerated, and was excised

Table 1. Horizontal growth dynamics of BCCs over a period of 6 months, 9 months, and 1 year of follow up

Change in maximum lesion diameter (mm)							
Follow up time	Change*	Freq. (n)	% Change	Mean	SD	Median	IQR
6 months	Smaller	1	6.25	-1.2	--	-1.2	0
	No change	6	37.50	-0.3	0.24	-0.15	0.3
	Larger	9	56.25	1.42	0.73	1.5	1.0
9 months	Smaller	2	25.00	-1.5	0.57	-1.5	0.8
	No change	1	12.50	0.10		0.10	0.0
	Larger	5	62.50	0.96	0.80	0.50	1.10
1 year	Smaller	0	0	--	--	--	--
	No change	1	12.5	0.3	--	0.3	0
	Larger	7	87.5	1.2	0.97	0.7	1.8

*Smaller/thinner: Lesion decreased in diameter or depth by >5% from baseline measurement
No change: Lesion diameter or depth did not significantly change (+/- 5% of baseline measurement)
Larger/thicker: Lesion increased in diameter or depth by >5% from baseline measurement

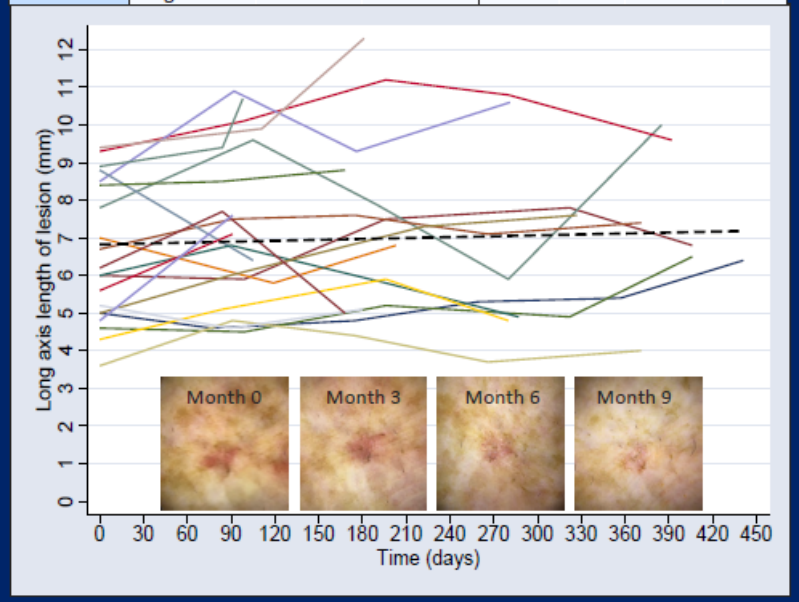

Figure 1. Individual trajectories for long axis diameter of each lesion by evaluation time, along with overall mean lesion diameter change over the same period (black dashed line). Dermoscopic images of one lesion that decreased in diameter over a period of 9 months

Table 2. Vertical growth dynamics of BCCs over a period of 6 months, 9 months, and 1 year of follow up

Change in maximum lesion depth (µm)							
Follow up time	Change*	Freq. (n)	% Change	Mean	SD	Median	IQR
6 months	Thinner	2	12.50	-85	35.36	-85	50
	No change	0	0.0	--	--	--	--
	Thicker	14	55.00	216.79	120.76	235	140
9 months	Thinner	0	0	--	--	--	--
	No change	1	12.5	0	--	0	0
	Thicker	7	87.5	202.14	152.31	150	285
1 year	Thinner	1	12.50	-20.00	--	-20.00	0
	No change	1	12.50	0	--	0	0
	Thicker	6	75.00	180.00	184.93	120	240

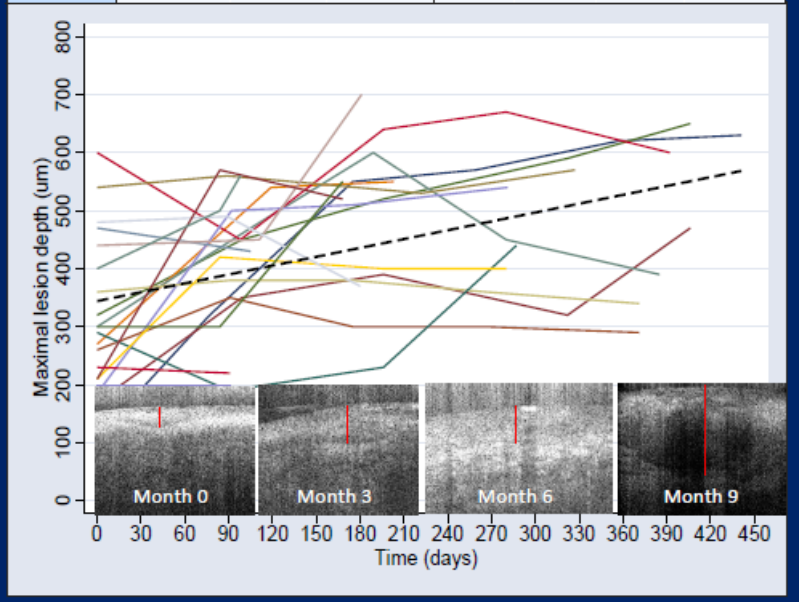

Figure 2. Individual trajectories for depth of each lesion by evaluation time, along with overall mean lesion depth change over the same period (black dashed line). OCT images of one lesion that increased in depth over a period of 9 months

Conclusions

- A subset of BCCs did not change over time
- In changing lesions, a more appreciable increase in depth was noted compared to an increase in diameter
- Change in diameter is **not** necessarily correlated with change in depth

Limitation

This study only included superficial and early nodular BCCs, which may not reflect the biology of other BCC subtypes

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La Academia Española de Dermatología y Venereología expresa su agradecimiento al patrocinador UCB, por su especial apoyo y contribución con la actividad formativa Highlights 2024.

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