

Summary of DermaSensor Device Safety and Effectiveness Results From Three Clinical Studies

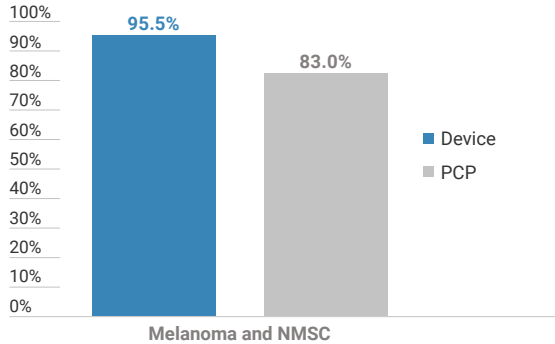


FDA Cleared. Available in the United States.

DERM-SUCCESS Prospective Skin Cancer Validation Study¹

22 Primary Care Study Sites (18 U.S. and 4 Australia)
1,005 Patients, 1,579 Biopsied Lesions (224 Malignant Lesions)

DermaSensor and PCP Sensitivity for Skin Cancer



- Device sensitivity (95.5%) was found to be superior to that of study PCP investigators' (83.0%), p-value<0.0001
- Additionally, DermaSensor sensitivity was non-inferior to the 90% performance goal (based on literature published sensitivity of dermatologists²⁻⁵), p-value <0.0001
- Device specificity was 20.7%, i.e. the device correctly classified as benign 20.7% of lesions that the PCPs biopsied
- Overall NPV of the device was 96.6%, meaning a negative "Monitor" device result had a 3.4% chance of being malignant
- Device AUROC was 0.803 compared to 0.736 for the study PCPs

Malignant Lesion Likelihood based on Spectral Scores

Spectral Score Groupings	PPV	NNB
1-3	5.9%	17
4-7	18.4%	6
8-10	39.6%	2.5



PPV was 16.6% overall; it increased with increasing scores, with scores of 8-10 that were scanned by PCPs having the highest likelihood of cancer at 39.6% (NNB of 2.5)

Note: Number needed to biopsy (NNB) reflects the proportion of biopsied lesions to malignant lesions for the given device result. It is calculated as 100%/PPV. For patients aged 40 and above, device melanoma sensitivity was 90.2% (n=41), BCC was 97.8% (n=90), and SCC was 97.7% (n=86).

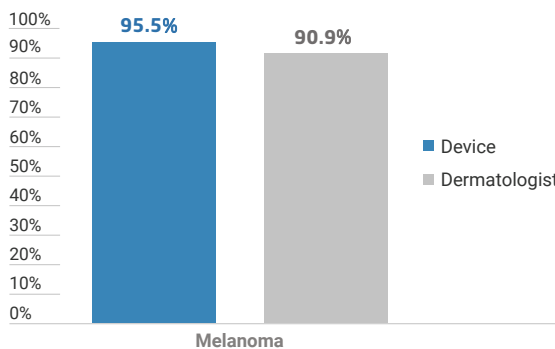
General Notes:

- *Dermatopathologist review used as reference standard*
- *There were no device-related safety issues*

DERM-ASSESS III Prospective Melanoma Validation Study⁶

10 Dermatology Study Sites (8 U.S. and 2 Australia)
311 Patients, 440 Biopsied Lesions (88 Melanomas)

DermaSensor and Dermatologist Sensitivity for Melanoma



- Similar device sensitivity to expert dermatologists
- Device specificity was 32.5%, i.e. the device correctly classified as low risk 32.5% of biopsied lesions
- DermaSensor NPV was 98.1% for melanoma alone and 93.0% for all high risk melanocytic lesions
- Device AUROC of 0.758 was comparable to the study dermatologists' AUROC of 0.747

PPV for melanoma was 16.0% overall; it increased with increasing scores, with scores of 8-10 that were scanned by dermatologists having the highest likelihood of melanoma at 47.4% (NNB of 2)

Melanoma Likelihood based on Spectral Scores

Spectral Score Groupings	PPV	NNB
1-3	10.3%	10
4-7	20.5%	5
8-10	47.4%	2



Note: Number needed to biopsy (NNB) reflects the proportion of biopsied lesions to malignant lesions for the given device result. It is calculated as 100%/PPV. Device sensitivity was 95.5% for melanoma (n=44) and 90.9% for melanoma including severely atypical nevi (n=88)

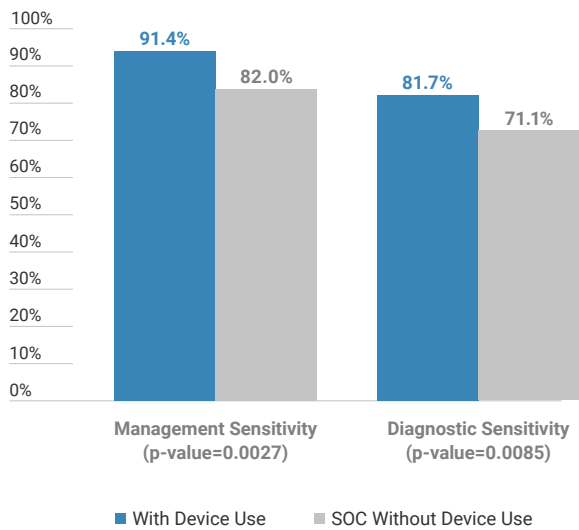
General Notes:

- *Dermatopathologist review used as reference standard*
- *There were no device-related safety issues*
- *Device performance in these high-volume melanoma dermatology practices may not reflect how the device performs in the primary care setting.*

DERM-SUCCESS Prospective Clinical Utility Study⁷

108 U.S. Board Certified Primary Care Providers
Over 10,000 lesion assessments

PCP Sensitivity for Skin Cancer with and without DermaSensor



- PCP device use resulted in a significant improvement in both management and diagnostic sensitivity compared to standard of care alone; physician false negative referrals decreased by half, from 18.0% to 8.6%
- PCPs' AUROC was 0.762 when aided by the device and was 0.708 with standard of care alone
- Nearly all (99%) of PCP participants reported the device would provide at least one benefit, including:
 - "Detecting more skin cancer" (82%)
 - "Providing you with greater confidence in your clinical assessments and management decisions" (81%)
 - "Helping you to prioritize the risk level of concerning lesions to prioritize patient management, e.g. a prioritized dermatology referral" (72%)
 - Increasing your frequency of assessing patients for skin cancer" (63%)

Indications for Use

The DermaSensor device is indicated for use to evaluate skin lesions suggestive of melanoma, basal cell carcinoma, and/or squamous cell carcinoma in patients aged 40 and above to assist in the decision regarding referral of the patient to a dermatologist. The DermaSensor device should be used in conjunction with the totality of clinically relevant information from the clinical assessment, including visual analysis of the lesion, by physicians who are not dermatologists. The device should be used on lesions already assessed as suspicious for skin cancer and not as a screening tool. The device should not be used as the sole diagnostic criterion nor to confirm clinical diagnosis of skin cancer.

Risks

False-positive and false-negative device results may lead to unnecessary referrals or to a malignant skin lesion not being correctly referred, respectively. For the more clinically harmful risk, a false negative device result, the DERM-SUCCESS study found the overall device sensitivity to be 95.5%, with a lower bound of 91.7%. While the device can produce false negative results, as does gold standard dermatopathology, when the device result is used to aid PCPs in their referral decisions, the reader study showed that the device decreases PCPs' false negatives by half, with the PCPs' false negative rate decreasing from 18.0% without device use to 8.6% with device use.

References

1. Merry SP, Croghan I, McCormick B, Nguyen VL, Chatha K, Leffel D. DERM-SUCCESS: Clinical Validation of an Elastic Scattering Spectroscopy (ESS) Device in Assisting Primary Care Physician's Detection of Skin Cancers. Poster Presentation, Maui Derm NP+PA Fall Conference, Asheville, NC, September 28-30, 2023.
2. Carli P, Nardini P, Crocetti E, De Giorgi V, Giannotti B. Frequency and characteristics of melanomas missed at a pigmented lesion clinic: a registry-based study. *Melanoma Res* 2004;14(5):403-407.
3. Soyer H, Argenziano G, Zalaudek I, Corona R, Sera F, Talamini R, et al. Three-point checklist of dermoscopy. A new screening method for early detection of melanoma. *Dermatology*. 2004;208:27-31.
4. Stanganelli I, Serafini M, Bucch L. A cancer-registry-assisted evaluation of the accuracy of digital epiluminescence microscopy associated with clinical examination of pigmented skin lesions. *Dermatology*. 2000;200(1):11-16.
5. Dinnes J, Deeks JJ, Grainge MJ, et al. Visual inspection for diagnosing cutaneous melanoma in adults. *Cochrane Database of Systematic Reviews*. 2018;12:CD013194.
6. Hartman RI, Tepedino K, Fung MA, McNiff JM, Nguyen VL, Chatha K, Grant-Kels JM. Melanoma Detection in the Medicare Population: Sub-analysis of DERM-ASSESS III, a Validation Study of a Handheld Elastic Scattering Spectroscopy Device on Lesions Suggestive of Melanoma. Poster Presentation, Maui Derm NPPA Summer Conference, Colorado Springs, CO, June 22-24, 2023.
7. Seiverling EV, Agresta T, Cyr P, Caines L, Nguyen VL, Chatha K, Siegel DM. Clinical Utility of an Elastic Scattering Spectroscopy Device in Assisting Primary Care Physician's Detection of Skin Cancers. *J Clin Aesthet Dermatol* 2023 April: 16(4 Suppl): s16-17.



Scan this QR code for DermaSensor device labeling indications for use, contraindications, warnings and precautions.



Scan this QR code for DermaSensor website.
dermasensor.com