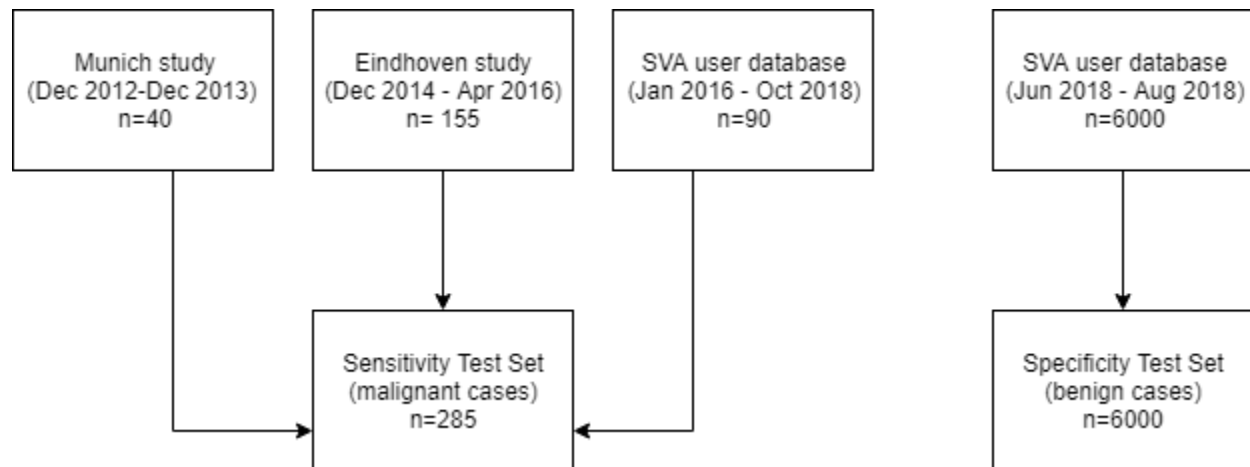


Supplement: Datasets used to train and test the SkinVision algorithm.

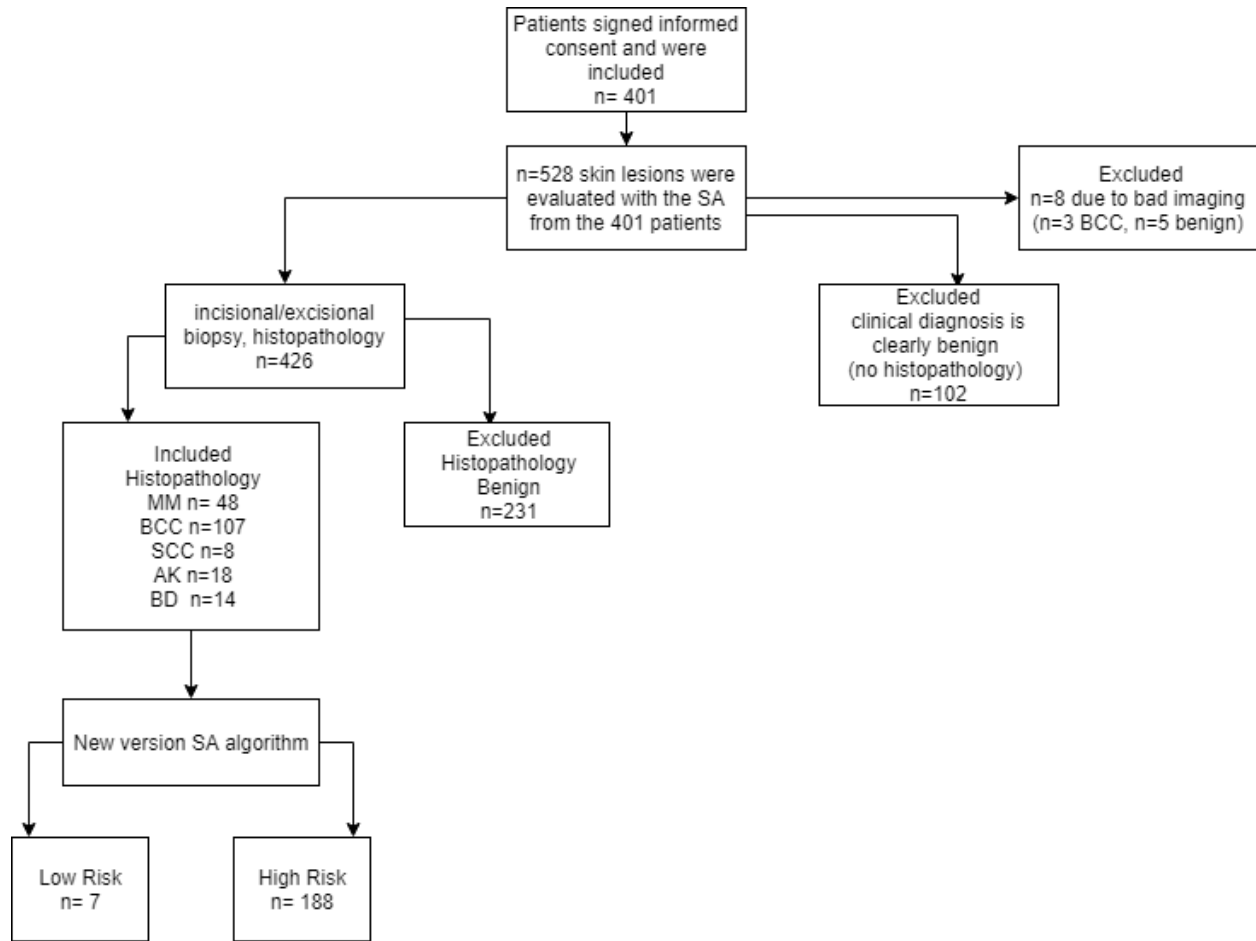
Figure 1. Overview of Sensitivity and Specificity Test Datasets.*&



* Based on Udrea et al 2019, “Accuracy of a smartphone application for triage of skin lesions based on machine learning algorithms” currently under peer-review.

& The following exclusion criteria are applied to ensure a minimal image quality: Skin on the Fitzpatrick scale V-VI; if lesion is located on mucosal surfaces, close to a visible scar or located under the nails; if lesion and surrounding skin contain foreign matter (eg. tattoos) or are not intact (eg. contains an ulcer). In the clinical studies patients were included only after signing informed consent.

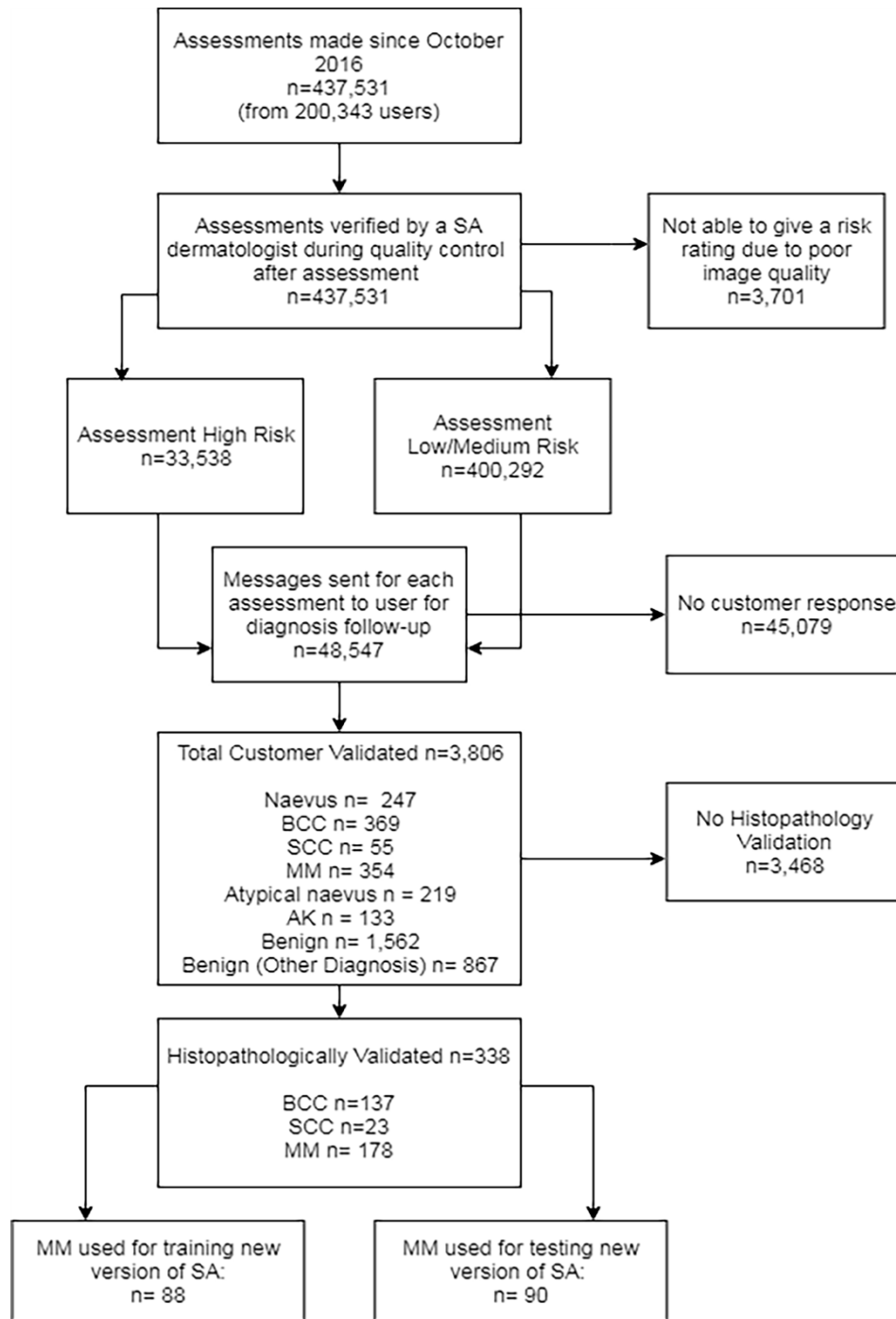
Figure 2. Flowchart participant flow of included cases from previous clinical studies to test sensitivity*&



* Based on Udrea et al 2019, “Accuracy of a smartphone application for triage of skin lesions based on machine learning algorithms” currently under peer-review.

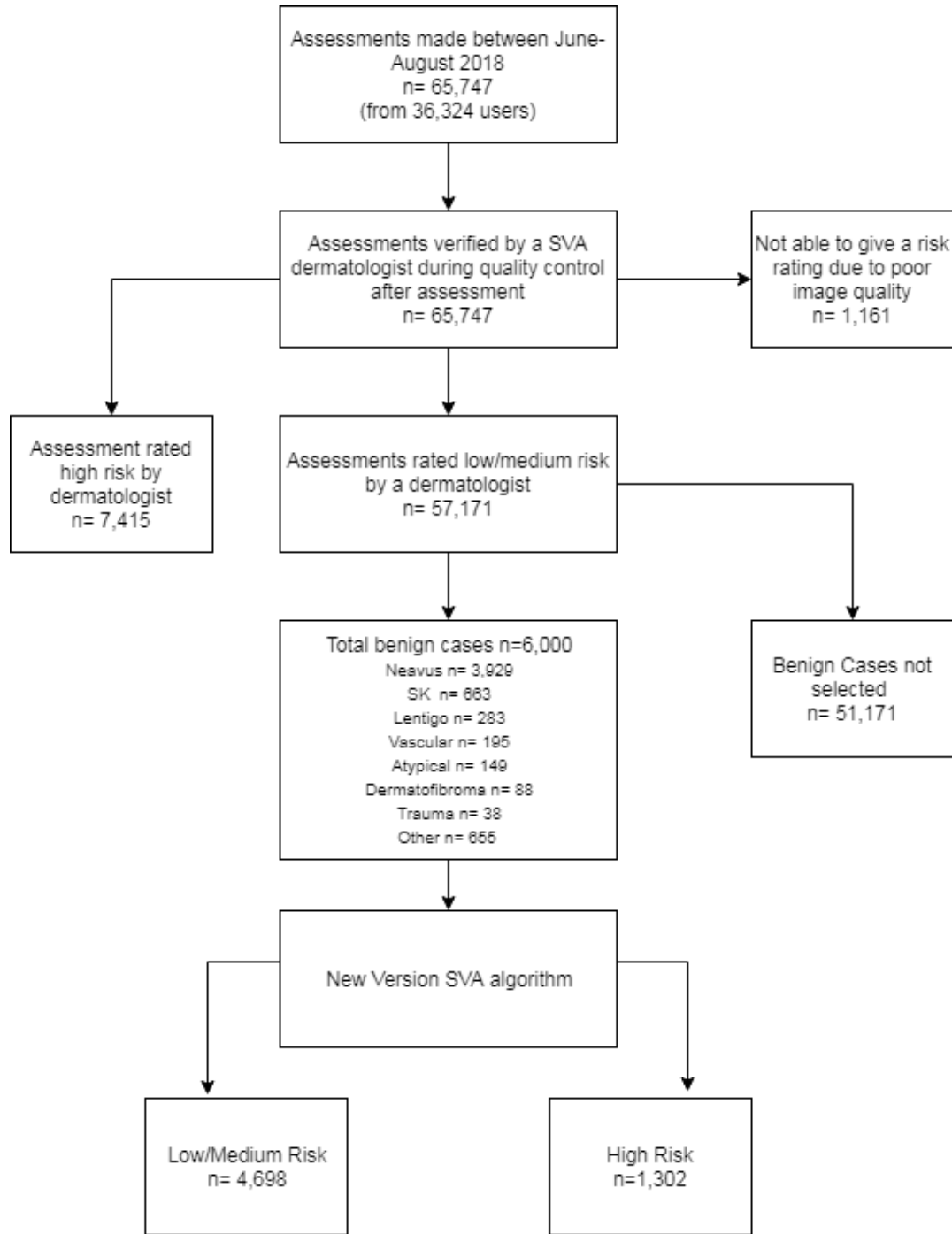
& Clinical studies were published in peer-reviewed journals and correspond to refs [24] and [25]. The data from the Munich study was acquired between December 2012 and December 2013 [24]. The data from the Eindhoven study was acquired SA version used to take the images was developed during Munich Study [25]. New version SA algorithm is the version presented in this study. In total, 195 cases were included to test the sensitivity and 3 cases were excluded. Of the included cases only 40 were obtained in the Munich study. MM denotes malignant melanoma, BCC denotes basal cell carcinoma, SCC denotes squamous cell carcinoma, AK denotes Actinic Keratosis and BD denotes Bowen’s disease. Of the 7 cases denoted as low risk by the SA algorithm had the following final histopathology diagnoses: 4 BCC and 3 MM.

Figure 3. Data obtained from SVA user database to test sensitivity*



*Reproduced here from Udrea et al 2019, “Accuracy of a smartphone application for triage of skin lesions based on machine learning algorithms” currently under peer-review. Images were taken with the SA algorithm version available at the time of assessment. We included cases for which user contacted SA customer service up to October 2018. All users with cases deemed high risk were messaged, a small proportion of low risk cases (n=15,009) were contacted as well, namely if at quality control the dermatologists disagreed with the algorithm result. MM denotes malignant melanoma, BCC denotes basal cell carcinoma, SCC denotes squamous cell carcinoma, AK denotes Actinic Keratosis and BD denotes Bowen’s disease.

Figure 4. Data obtained from SVA user database to test specificity*



* Reproduced here from Udrea et al 2019, “Accuracy of a smartphone application for triage of skin lesions based on machine learning algorithms” currently under peer-review. Images were taken with the SA algorithm version available at the time of assessment. The 6,000 cases used were randomly selected from the set which was rated low/medium risk by the SVA dermatologist. Other diagnosis (n=655) includes some cases which were at first classified as BCC (n=3) and AK (n=121) by a dermatologist, but which the senior dermatologist considered as benign. Out of the 655 cases, 122 did not receive a classification due to one of the following a) images was blurry, b) there was no lesion present, c) there were multiple lesions included in the same image.