

Videodermoscopy as a novel instrument for dermoscopy instruction

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I. Specific educational aims

Dermoscopy, or the *in vivo*, non-invasive examination of the epidermis and superficial dermis using magnification, facilitates the diagnosis of pigmented and non-pigmented skin lesions [1]. Standard optical dermoscopy incorporates 10-fold magnification for the examination of surface and superficial subsurface structures by a single viewer. Digital videodermoscopy permits the simultaneous dermoscopic examination of skin lesions by projecting a live video feed onto a tablet or computer. The goal of this project is to introduce videodermoscopy as a tool for furthering the dermoscopic education of dermatologists and dermatology residents at Stanford.

II. Project rationale

Despite the benefit of dermoscopy in making early and accurate diagnoses of potentially life-limiting skin cancers, only 52% of practicing dermatologists in the United States use dermoscopy and 48% of chief dermatology residents are not satisfied with the dermoscopy training received during residency [2,3]. The majority of dermoscopy instruction occurs in the outpatient setting. With standard dermatoscopes, which permit independent, sequential viewing of skin lesions, trainees must independently search for dermoscopic features that were noted by the instructor. Though dermatologic research involving videodermoscopy has focused on the high magnification capabilities of videodermoscopes, the potential value of videodermoscopy lies not only in its high magnification potential, but also in its ability to permit simultaneous viewing of the same lesion by multiple viewers. This aspect of videodermoscopy and its potential for furthering dermoscopic education has not been explored.

III. Approach

Stanford Dermatology Grand Rounds are held on a weekly basis and are attended by practicing dermatologists, dermatology residents, and medical students. Grand Rounds attendees will be asked to complete a survey characterizing patterns of dermoscopy use and satisfaction with dermoscopy training in October 2016 (pre-intervention) and in June 2017 (post-intervention). Surveys will be adapted from a nationwide study assessing the use of dermoscopy by dermatologists, which included questions about provider confidence in and frequency of dermoscopy use in the assessment of pigmented and non-pigmented lesions [2]. Patients with interesting dermoscopic findings will be invited to Grand Rounds meetings during the 2016-2017 academic year. A videodermatoscope will be available during patient viewings such that attendees may simultaneously view the live dermoscopic feed on a connected tablet. During the discussion segment, standard and high magnification images taken with the videodermatoscope will be projected to review key dermoscopic features as a group. In addition to organizing live dermoscopy training at Dermatology Grand Rounds, I will initiate and maintain an electronic repository of annotated dermatoscopic cases seen at Stanford. These non-identifiable images will be securely stored on Stanford Box for the training of current and future dermatology residents.

IV. Timeline and plan for implementation

- **September 2016** – Create surveys

- **October 2016** – Distribute pre-intervention survey, present 1st case
- **January 2017** – Present 2nd case
- **April 2017** – Present 3rd case
- **July 2017** – Distribute post-intervention survey, present 4th case
- **August 2017** – Internally present findings
- **Throughout funding period** – Initiate and maintain secure Box image repository

V. Anticipated work product

Grant funds will be used to import a highly generalizable educational and diagnostic tool to the Stanford community. During the funding period, grant funds will be used to create a new Stanford Dermatology Grand Rounds feature that incorporates videodermoscopy, a novel tool for dermoscopy education. Based on interest (as gauged by responses to the post-intervention questionnaire), this Grand Rounds feature may be continued after the completion of the funding period. Beyond the funding period, the videodermatoscope obtained with grant funds will be used to train preclinical medical students on how to perform skin exams and to teach nailfold capillary examination to medicine residents. As the high magnification potential of the videodermatoscope permits its use as a pocket microscope, videodermatoscopes can also be used to perform bedside testing for dermatophyte, scabies, varicella zoster virus, and herpes simplex virus. This skill is applicable not only to dermatology trainees, but also to primary care providers who will diagnose and treat patients with scabies, ringworm, athlete's foot, oral or genital herpes infection, and zoster.

VI. Evaluation plan

Analysis of the pre- and post-intervention surveys will demonstrate whether the addition of videodermoscopic training to Stanford Dermatology Grand Rounds has changed the practice patterns of attending dermatologists, resident physicians, and medical students.

VII. Dissemination of results

Results of this work will be presented at the Annual Meeting of the American Academy of Dermatology and will be submitted for publication in JAMA Dermatology.

1. Vestergaard ME, Macaskill P, Holt PE, Menzies SW. Dermoscopy compared with naked eye examination for the diagnosis of primary melanoma: a meta-analysis of studies performed in a clinical setting. *Br J Dermatol*. 2008 Sep;159(3):669–76.
2. Engasser HC, Warshaw EM. Dermoscopy use by US dermatologists: a cross-sectional survey. *J Am Acad Dermatol*. 2010 Sep;63(3):412–9, 419.e1–2.
3. Wu TP, Newlove T, Smith L, Vuong CH, Stein JA, Polsky D. The importance of dedicated dermoscopy training during residency: a survey of US dermatology chief residents. *J Am Acad Dermatol*. 2013 Jun;68(6):1000–5.