



Understanding the importance of dermatology training in undergraduate medical education

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Is the early introduction of dermatology beneficial?

Students are presented with vast amounts of medical information prior to clinical training. Students learn anatomy of the body, physiology of the heart, and the inner workings of the nervous system. Yet, dermatology has become an increasingly overlooked aspect of medical school curricula in the preclinical years. Many schools fail to offer a dermatology course, and those that do often fail to adequately prepare primary care residents for treating basic dermatologic disease [1]. These shortfalls in medical education should no longer be ignored since more than 3.5 million skin cancers are treated annually in the United States at an estimated cost of over 8.1 billion dollars [2,3].

On July 29, 2014, the United States Surgeon General issued a landmark call to action to prevent skin cancer, calling it a major public health problem [3]. Medical schools should meet the challenge and provide an appropriate dermatology curriculum for students to reduce future morbidity, mortality,

and healthcare associated cost from skin cancer. Academic dermatologists and other clinical staff members in partnership with the American Academy of Dermatology (AAD) can play a pivotal role in educating future physicians by developing creative ways to engage preclinical students (Table 1).

A recent article in the *Journal of the American Academy of Dermatology* (JAAD) highlighted the positive impact that performing a skin biopsy on a cadaver had on first-year medical students [4]. This self-directed exercise aptly named “The Cadaveric Skin Biopsy Project” (CSBP) simulated skin biopsy specimen collection and provided a realistic setting for students to learn basic skin histology [4]. Faculty, residents, and histotechnologists at the University of West Virginia School of Medicine assisted with skin lesion identification, biopsy, slide preparation, and diagnosis.

Although the CSBP requires a multidisciplinary approach and presents practical challenges, it could be integrated into a preclinical dermatology curriculum and serve as a valuable introduction to clinical skin examination. This would allow preclinical students a chance to identify and describe skin lesions, perform biopsies, and practice proper handling of tissue [4]. The majority of students demonstrated a positive response to the way the CSBP impacted their appreciation of dermatology, performance of dermatologic procedures, understanding of benign versus malignant skin lesions, and awareness of the skills necessary to work effectively in teams [4].

Another study by Hansra et al asked primary care residents if their medical school

TABLE 1. Proposed curriculum and timeline for medical student dermatology training

Suggested Activity	Suggested Timeline
Cadaver Skin Biopsy Project	Preclinical medical student training
Dermatology seminar course	Preclinical medical student training
AAD Online Basic Dermatology Curriculum Modules	Clinical medical student training
2-week required clerkship	Clinical medical student training

training in dermatology was inadequate, appropriate, or excessive in preparation for residency [1]. Less than 40% of primary care residents felt that their medical school curriculum adequately prepared them to diagnose and treat common skin disorders, but the study only looked at family practice and internal medicine from a few geographic locations [1]. Primary care residents were also asked to compare their knowledge of dermatologic disease to other commonly taught diseases, and it was determined that dermatology was not adequately taught when compared to asthma and diabetes [1]. This reflects a need to increase the amount of curricular time devoted to dermatology in comparison to other content areas [1,5].

There were several areas of dermatology that primary care residents believed were sufficiently taught. These areas included

- melanoma/moles,
- atopic dermatitis/contact dermatitis
- non-melanoma skin cancer/sun damage
- herpes simplex/zoster
- urticaria/hives
- psoriasis/seborrhea
- acne/rosacea, and warts

There were several topics that primary care physicians (PCPs) identified as very important in their practices, but which residents deemed inadequately taught in their medical school dermatology curricula. These include

- skin infections
- leg ulcers/wound care
- cutaneous drug eruptions
- infestations
- viral exanthems
- vasculitis/purpura
- connective tissue disease
- alopecia, and
- HIV dermatology

These topics should be prioritized in dermatology curricula and further implemented into the AAD's online curriculum for medical students.

Some medical schools do not require a dermatology rotation during the third or fourth year, even though dermatologic complaints account for 5 to 8.2% of all primary care visits [6,7], and a study by Lowell et al found that 35.5% of patients who presented to primary care had at least one skin problem [8]. Residents who completed a dermatology rotation as students were more likely to report that vasculitis, connective tissue disease, and alopecia were adequately taught during medical school [1]. Clinical skills taught in medical school should include shave biopsy, punch biopsy, and cryotherapy, since more than 60% of PCPs perform one or more of these procedures routinely [9,10].

Another recent publication in the *JAAD* sought to determine the impact of the integration of the AAD's online cur-

riculum into a two-week dermatology rotation for fourth-year medical students [11]. All participants enhanced their dermatology knowledge ($P < .001$), and most students found the modules worth their time (93%) and easy to navigate (95%) [11]. All respondents also supported the continuation of the modules as part of the fourth-year dermatology clerkship [11]. Despite the results, there was no control group in the study, and more research must be done to draw definitive conclusions.

Early didactic and clinical exposure of dermatology in the medical school setting may heighten a future physician's awareness of challenges in dermatology. The AAD's online curriculum for medical students should be considered a compulsory component of undergraduate medical education that may assist learners in developing a differential diagnosis and a well-rounded approach to skin problems. Hopefully, this will achieve the goal of early accurate diagnosis and treatment to reduce overall morbidity and mortality of skin disease.

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