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## Dermatology education and clinical experience in a community hospital internal medicine residency program

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# Dermatology education and clinical experience in a community hospital internal medicine residency program

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## Abstract

### Abstract

Dermatology education has been shown to be lacking in many primary care residency programs. We identified the lack of dermatology education as a gap in our internal medicine residency program in the annual program evaluation in 2017. A Needs Assessment identified the lack of a clinical experience in evaluating and treating skin disorders as our largest deficit. A team of associate program directors, faculty, and residents identified three objectives for the implementation of a dermatology curriculum for our program. We identified the development of didactic education, a procedural skills workshop and a clinical experience as our main objectives. The didactic education was adapted from the Basic Dermatology Curriculum from the American Academy of Dermatology. A procedural skills workshop on skin biopsy and cryosurgery was instituted as part of our routine teaching block and held in the simulation center. For the clinical experience, we began a "skin clinic" as part of our residency program continuity clinic. We have outlined the methods used to institute these changes and discussed several barriers which were encountered in our process. In conclusion, we assess our project to have been successful and encourage other programs to consider our framework for developing a dermatology curriculum for their primary care residency programs.

## Keywords

Medical Education Curriculum Revision Clinical Dermatology Skin Cancer Screening Primary Care Residency Programs

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## Conflict of Interest Statement

Richard A Shellenberger, DO and Fatima Fayyaz, MD have no competing or conflicting interests to declare.

## Cover Page Footnote

None

## Dermatology education and clinical experience in a community hospital internal medicine residency program

### Introduction

Workforce projections for the shortage of primary care physicians in the United States are much more alarming than they are surprising. With up to 80% of internal medicine residents not choosing a career in primary care, this shortfall will likely continue.<sup>1</sup> A recently published survey study showed that 61% of primary care internal medicine residents reported their overall experience in the continuity clinic was the most important factor in their career choice.<sup>2</sup> As a program director in a community hospital internal medicine residency program, I am not alone in my desire to train more highly qualified residents for careers in primary care.

Awareness of knowledge and skill gaps in dermatology was brought to the attention of the program directors and faculty during the annual program evaluation of our internal medicine residency program in 2017. Based on the Needs Assessment, clinical experience was the largest gap in our educational program for dermatology. Unfortunately, residents graduating from internal medicine and family medicine programs have recognized their lack of training in dermatology in general and skin cancer examination in particular.<sup>3,4</sup> Dermatology education has been shown to improve early detection of melanoma and increased medical training has been a positive influence in screening patients at high risk for skin cancer.<sup>5,6</sup>

Many community hospital internal medicine residency programs, such as ours, do not have dermatology education as a part of their curriculum. The purpose of this paper is to share our experience with the implementation of a dermatology curriculum into your primary care residency program.

### Methods

To begin, we will define the objectives for the development of our dermatology curriculum. Our objectives were developed by two associate program directors, a chief resident, and two senior residents. We identified the development of a didactic dermatology lectures, a procedural skills workshop, and a clinical experience in the evaluation and management of skin disorders as our three main objectives.

After identifying the objectives, our first endeavor was the search for faculty to staff our clinical experience and provide didactic dermatology education for the residents. Our first choice was to have a dermatologist; however, we were unsuccessful in obtaining a dermatologist for this role and chose two of our current faculty who have experience in treating skin disorders and in performing dermatologic procedures in their own primary care practices. Programs who are unable to recruit dermatologists or identify generalists with clinical experience in dermatology will need to develop faculty for this role. There are many continuing education course courses which focus on teaching dermatology to primary care physicians.<sup>7-9</sup>

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Prerequisite knowledge is necessary for residents to succeed in their clinical evaluation of patients. For this purpose, we implemented a series of didactic lectures from the American Academy of Dermatology basic dermatology curriculum as the foundation for our didactic curriculum.<sup>10</sup> The use of this curriculum has been shown to improve both long term and short-term knowledge in dermatology among primary care residents.<sup>11</sup> This curriculum is free of charge and easily available.<sup>10</sup> There are 40 topics within the curriculum which contain prepared lectures which can be presented to residents or read in self-directed study. Test questions for each topic are a part of each module and can be used for resident evaluation or self-study.<sup>12</sup> To ensure all the residents in our program receive didactic learning we have chosen 15 of the 40 learning modules from the AAD curriculum to be used for lectures given by our faculty at noon conference, five times yearly to cover all 15 modules every three years (Table 1).

Table 1. Teaching Modules for Didactic Lectures

	<b>Module name</b>
1.	The skin examination
2.	Benign skin lesions
3.	Acne and rosacea
4.	Atopic dermatitis
5.	Red scaly rash: The papulosquamous eruptions
6.	Contact Dermatitis
7.	Blisters
8.	Drug reactions
9.	Urticaria
10.	Evaluation of pigmented lesions
11.	Actinic Keratosis and squamous cell carcinoma
13.	Basal Cell Skin Cancer
14.	Melanoma
15.	Petechiae, Purpura and Vasculitis

The 15 topics were chosen by our faculty based on their applicability to primary care and should be individualized to the needs of your program. Our didactic curriculum continues to be a part of our daily noon conference which is available to all our residents and students. Sessions last 45 minutes and are now recorded and easily accessible at any time. Residents are required to attend 80% of these conferences to be in compliance with the Accreditation Council for Graduate Medical Education requirements for conference participation.<sup>13</sup>

The procedural skills workshop is designed to have our residents learn how to perform shave biopsies, punch biopsies, elliptical excisions, suturing and cryosurgery on pig's feet. We use the simulation center in our hospital for this two-hour workshop, which is designed for six to eight learners so all 32 of our PGY-2

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and PGY-3 residents attend during each academic year (one to two medical students often attend). The skin biopsy and cryosurgery workshop lasts two hours and is scheduled six times yearly. To ensure the residents are not interrupted, this workshop is a component of the biweekly afternoon “teaching block.” Residents are excused from clinical responsibilities and their pagers are signed out to attending physicians to allow for “protected time.” A video on biopsy techniques is suggested for each resident to watch prior to the workshop.<sup>14</sup> Each workshop is begun with a brief slide presentation followed by directly observed practice of the procedures outlined above. We have provided a detailed description and itinerary of objectives of this procedure workshop (Table 2).

Table 2. Skin Biopsy and Cryosurgery Workshop Materials

<b>Setting</b>	<ul style="list-style-type: none"> <li>• Simulation center or other classroom away from patient care areas</li> </ul>
<b>Duration</b>	<ul style="list-style-type: none"> <li>• Two hours of protected teaching time</li> </ul>
<b>Frequency</b>	<ul style="list-style-type: none"> <li>• 6 sessions yearly to accommodate all residents</li> </ul>
<b>Faculty</b>	<ul style="list-style-type: none"> <li>• One faculty instructor and option for chief resident assistance</li> </ul>
<b>Residents</b>	<ul style="list-style-type: none"> <li>• 6 – 8 residents per session</li> <li>• Chief residents send out an email 1-2 days prior with assignments for the teaching block and reminder of mandatory attendance.</li> </ul>
<b>Specimens</b>	<ul style="list-style-type: none"> <li>• Pig feet for each resident from supermarket or food service</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• PowerPoint presentation</li> <li>• Plastic pads, hand sanitizer and bleach wipes.</li> <li>• Biohazard bag and sharps container</li> <li>• Liquid nitrogen storage tank if available with “cryoguns” to applying the liquid nitrogen</li> </ul>
<b>Instruments</b>	<ul style="list-style-type: none"> <li>• 15 blade scalpels</li> <li>• Shave biopsy razor blades</li> <li>• 4-mm and 6-mm punch biopsy instrument</li> <li>• Tissue scissors (4.75 inch with curved or flat blade)</li> <li>• Needle drivers (4.75 inch without teeth preferable)</li> <li>• Adson Tissue Forceps (4.75 inch with 1x2 teeth)</li> <li>• 3-0 and 4-0 nylon non absorbable suture</li> <li>• Cryotherapy dispenser to spray liquid nitrogen</li> <li>• Discs to isolate lesions for liquid nitrogen application</li> </ul>

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For clinical experience, we developed the “skin clinic” within the ambulatory continuity clinic of our internal medicine residency program. We explain to the patients that our faculty are not dermatologists, but internal medicine physicians with experience and interest in evaluating and treating patients with skin disorders. This was also vetted with the administration who oversees our ambulatory continuity clinic and we also received approval from our dermatology department. Our operating principle is that much of dermatology can be evaluated and treated by primary care physicians with the caveat that we will refer to dermatology if we do not feel we can adequately address the patients’ skin condition.

Implementation of the skin clinic began with all 16 PGY-3 residents. We initially had one resident with one faculty see patients with skin disorders, one half-day weekly in the internal medicine residency continuity clinic. We now have all 32 PGY-2 and PGY-3 residents attend the skin clinic with two residents in each clinic. Faculty commitment requires a full time equivalent of 0.1; however, no further medical assistant or nursing support has been required. Patients are scheduled for the evaluation of their skin complaints or after a concern arises during a regularly scheduled visit. We do have signs posted in each patient room in the clinic which advertises a once weekly skin clinic to evaluate skin disorders and perform skin cancer screening. Patients are scheduled for thirty-minute appointments.

## **Discussion**

This report outlines the implementation of dermatology curriculum for a community hospital internal medicine residency program. From our review of the literature, the inclusion of dermatology education in primary care residency programs is the exception rather than the rule. We have identified several barriers to the initiation of a dermatology curriculum in your primary care residency program. We will outline these barriers and give advice from our experience on how to overcome or avoid these obstacles.

First, having an annual program evaluation to identify our own educational gap supported our own lack of recognition of this shortcoming. It is healthy for residency programs to identify and overcome their own weaknesses. Second, obtaining clear institutional administrative approval with regard to the development of our skin clinic was absolutely necessary and its absence would have certainly established an insurmountable barrier. Third, our inability to recruit a dermatology faculty to provide didactic education and staff our clinic was most likely the largest hurdle in the development of a dermatology curriculum. However, we were able to overcome this barrier by finding faculty with experience in treating patients with dermatologic conditions and encourage other programs to follow our experience. Our recommendation is to always attempt to secure dermatology faculty if possible. With just over 10,000 practicing dermatologists nationwide many primary care

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residency programs may also have difficulty finding dermatology faculty.<sup>15</sup> As our experience has demonstrated, this roadblock does not need to be the limiting step in establishing dermatology education in your program. Fourth, the consistency and effectiveness of the procedural skills workshop has been greatly enhanced since it is now performed in the simulation center with protected time for our residents. Lastly, we have struggled at times to recruit patients to our skin clinic. Advertising our skin clinic to our patients and reminders to our faculty have also assisted in keeping patient schedules to remain full in our skin clinic.

We are highly encouraged by the success of this project and have used our skin clinic in our recruiting presentation for our internal medicine residency program. Given the correlation of a positive clinical experience leading to a career choice in primary care, we feel the addition of our dermatology education and skin clinic can both enhance interest and facilitate competency in primary care. Most importantly, we envision our efforts leading to improved clinical practice patterns for our future primary care physicians.

**Conflict of Interest**

Richard A Shellenberger, DO and Fatima Fayyaz, MD have no competing or conflicting interests to declare.

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